Appendix A

Character Sets

A character set is a collection of the symbols and characters that constitute all elements of a language or discipline (legal), including punctuation and numbers. This appendix contains the following information to help you use character sets:

- Definitions of the two types of character sets (7-bit and 8-bit) available through your printer.
- Character set charts that identify character locations and ASCII character code addresses (positions).
- A substitution table for you to access ISO characters from the HP Roman8 character set.
- Conversion tables for ASCII, decimal, and hexadecimal characters.

Types of Character Sets

There are two types of character sets: 128-character sets and 256-character sets. Character sets containing 128 characters are often referred to as "7-bit" character sets because only seven bits of the character byte are used to designate the character. Character sets containing 256 characters are referred to as "8-bit" character sets because the eighth bit of the character byte must be used in order to access all 256 characters.

7- bit Character Sets

The 7-bit character sets conform to standard definitions set forth by the International Standards Organization (ISO). The HP DeskJet 500C printer supports the following 7-bit character sets: United Kingdom (ISO 4), German (ISO 21), French (ISO 69), Italian (ISO 15), Norwegian 1 (ISO 60), Norwegian 2 (ISO 61), Sweden: Names (ISO 11), Swedish (ISO 10), Spanish (ISO 17), ANSI ASCII (ISO 6), JIS ASCII (ISO 14), Portugese (ISO 16), IRV (ISO 2), and HP Legal.

8-bit Character Sets

The definitions of the first 128 characters in the 8-bit character set are standardized to the American Standard Code for Information Interchange (ASCII). The HP DeskJet 500C printer supports the following 8-bit character sets: PC-8, HP Roman8, PC-850, PC-8 Danish/Norwegian, and ECMA-94 Latin 1. Other character sets are supported through optional font cartridges.

The default character set of the DeskJet 500C printer is PC-8. Default character set is selected through the mode function switches. Refer to "Using Mode Function Switches" in chapter 1 of this user's guide. Additional character set support is available through the HP22706W WordPerfect font cartridge, and the HP DeskJet Series Printer Driver for Microsoft Windows.

Character Set Charts

This section identifies the character locations and ASCII character code addresses (positions) for the character sets supported by the DeskJet 500C printer.

PC-8 Character Set Chart

0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

HP Roman8 Character Set Chart

			0	@	P	‘	p				¯	â	Å	Á	Þ
0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
		!	1	A	Q	a	q			À	Ý	ê	î	Ã	þ
1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
		"	2	B	R	b	r			Â	ý	ô	Ø	ã	·
2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
		#	3	C	S	c	s			È	°	û	Æ	Đ	µ
3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
		$	4	D	T	d	t			Ê	Ç	á	å	ð	¶
4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
		%	5	E	U	e	u			Ë	ç	é	í	Í	¾
5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
		&	6	F	V	f	v			Î	Ñ	ó	ø	Ì	—
6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
		’	7	G	W	g	w			Ï	ñ	ú	æ	Ó	¼
7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
		(	8	H	X	h	x			´	¡	à	Ä	Ò	½
8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
		)	9	I	Y	i	y			`	¿	è	ì	Õ	a
9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
		*	:	J	Z	j	z			^	¤	ò	Ö	õ	o
10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
		+	;	K	[	k	{			¨	£	ù	Ü	Š	«
11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
		,	<	L	\	l	|			~	¥	ä	É	š	■
12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
		-	=	M	]	m	}			Ù	§	ë	ï	Ú	»
13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
		.	>	N	^	n	~			Û	*f*	ö	ß	Ÿ	±
14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
		/	?	O	_	o				£	¢	ü	Ô	ÿ	
15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

PC-8 Danish/Norwegian Character Set Chart

	▶		0	@	P	‘	p	Ç	É	á	⁘	└	╨	α	≡
0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
☺	◀	!	1	A	Q	a	q	ü	æ	í	▒	┴	╤	ß	±
1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
☻	↕	"	2	B	R	b	r	é	Æ	ó	▓	┬	╥	Γ	≥
2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	Σ	⌠
4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
♣	§	%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
♠	▬	&	6	F	V	f	v	å	û	õ	╢	╞	╓	μ	÷
6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
•	↨	’	7	G	W	g	w	ç	ù	Õ	╖	╟	╫	τ	≈
7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
◘	↑	(	8	H	X	h	x	ê	ÿ	¿	╕	╚	╪	Φ	°
8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
○	↓	)	9	I	Y	i	y	ë	Ö	ã	╣	╔	┘	Θ	·
9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
◙	→	*	:	J	Z	j	z	è	Ü	Ã	║	╩	┌	Ω	·
10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
♂	←	+	;	K	[	k	{	ï	ø	ℓ	╗	╦	▉	δ	√
11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
♀	∟	,	<	L	\	l	|	î	£	’n	╝	╠	▃	∞	n
12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
♪	↔	-	=	M	]	m	}	ì	Ø	¡	╜	═	▌	ϕ	2
13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
♫	▲	.	>	N	^	n	~	Ä	L·	3	╛	╬	▐	ϵ	■
14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
☼	▼	/	?	O	_	o	▒	Å	├	¤	┐	╧	▄	∩	
15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

PC-850 Character Set Chart

	▶		0	@	P	‘	p	Ç	É	á	▒	└	ð	Ó	-
0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
☺	◀	!	1	A	Q	a	q	ü	æ	í	▓	┴	Đ	ß	±
1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
☻	↕	"	2	B	R	b	r	é	Æ	ó	▓	┬	Ê	Ô	‗
2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	Ë	Ò	¾
3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	È	õ	¶
4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
♣	§	%	5	E	U	e	u	à	ò	Ñ	Á	┼	ı	Õ	§
5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
♠	▬	&	6	F	V	f	v	å	û	ª	Â	ã	Í	µ	÷
6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
•	↨	’	7	G	W	g	w	ç	ù	º	À	Ã	Î	þ	¸
7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
◘	↑	(	8	H	X	h	x	ê	ÿ	¿	©	╚	Ï	Þ	°
8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
○	↓	)	9	I	Y	i	y	ë	Ö	®	╣	╔	┘	Ú	¨
9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
◙	→	*	:	J	Z	j	z	è	Ü	¬	‖	╩	┌	Û	·
10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
♂	←	+	;	K	[	k	{	ï	ø	½	╗	╦	▉	Ù	1
11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
♀	∟	,	<	L	\	l	|	î	£	¼	╝	╠	▄	ý	3
12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
♪	↔	-	=	M	]	m	}	ì	Ø	¡	¢	═	▌	Ý	2
13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
♫	▲	.	>	N	^	n	~	Ä	×	«	¥	╬	Ì	¯	■
14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
☼	▼	/	?	O	_	o	▒	Å	ƒ	»	┐	¤	▃	´	
15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

International (ISO) Character Set Substitution Table

The ISO character sets contain the same characters as the ASCII character set except for the characters in the positions identified below. Use this table as a reference to the values for characters contained in the ISO character sets that differ from the characters in the ANSI ASCII character set.

For example, within the United Kingdom (ISO 4) character set, the British pound sign £ replaces the # sign used in decimal position 35 of the ASCII character set.

ISO No.	Character Set Name	Decimal Character Equivalents												
		ID	35	36	64	91	92	93	94	96	123	124	125	126
6	ANSI ASCII	0U	#	$	@	[	\	]	^	`	{	|	}	~
11	Swedish Names	0S	#	¤	É	Ä	Ö	Å	Ü	`	ä	ö	å	ü
10	Swedish	3S	#	¤	@	Ä	Ö	Å	^	`	ä	ö	å	
17	Spanish	2S	£	$	§	¡	Ñ	¿	^	`	°	ñ	ç	~
69	French	1F	£	$	à	°	ç	§	^	µ	é	ù	è	
21	German	1G	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
4	UK	1E	£	$	@	[	\	]	^	`	{	|	}	
16	Portuguese	4S	#	$	§	Ã	Ç	Õ	^	`	ã	ç	õ	°
60	Norwegian1	0D	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	
61	Norwegian2	1D	§	$	@	Æ	Ø	Å	^	`	æ	ø	å	|
2	IRV		#	¤	@	[	\	]	^	`	{	|	}	
15	Italian	0I	£	$	§	°	ç	é	^	`	à	ò	è	ì

ECMA-94 Latin 1 Character Set Chart

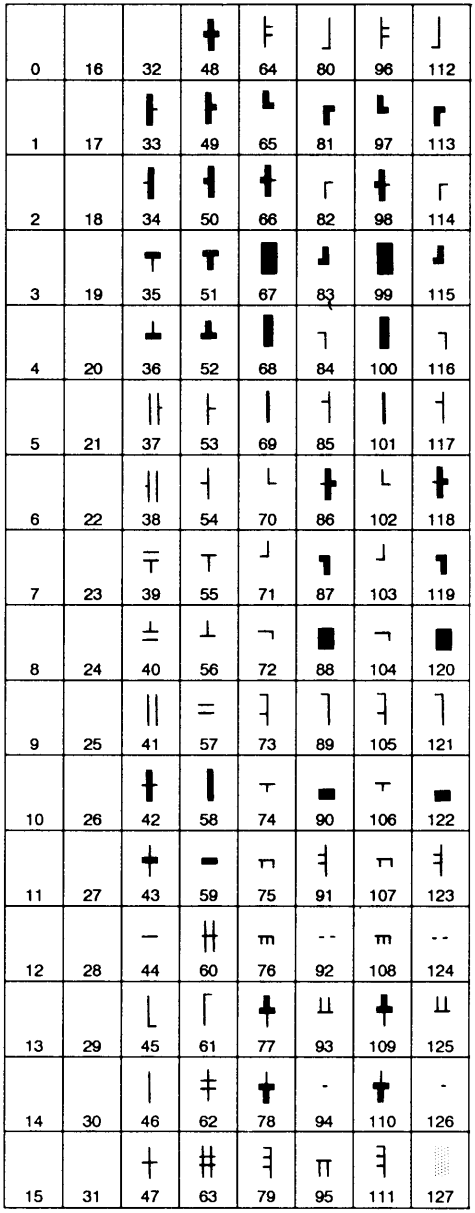
0	16	32	0 48	@ 64	P 80	‘ 96	p 112	128	144	160	° 176	À 192	Ð 208	à 224	ð 240
1	17	! 33	1 49	A 65	Q 81	a 97	q 113	129	145	¡ 161	± 177	Á 193	Ñ 209	á 225	ñ 241
2	18	" 34	2 50	B 66	R 82	b 98	r 114	130	146	ç 162	2 178	Â 194	Ò 210	â 226	ò 242
3	19	# 35	3 51	C 67	S 83	c 99	s 115	131	147	£ 163	3 179	Ã 195	Ó 211	ã 227	ó 243
4	20	$ 36	4 52	D 68	T 84	d 100	t 116	132	148	¤ 164	´ 180	Ä 196	Ô 212	ä 228	ô 244
5	21	% 37	5 53	E 69	U 85	e 101	u 117	133	149	¥ 165	µ 181	Å 197	Õ 213	å 229	õ 245
6	22	& 38	6 54	F 70	V 86	f 102	v 118	134	150	¦ 166	¶ 182	Æ 198	Ö 214	æ 230	ö 246
7	23	' 39	7 55	G 71	W 87	g 103	w 119	135	151	§ 167	· 183	Ç 199	× 215	ç 231	÷ 247
8	24	(40	8 56	H 72	X 88	h 104	x 120	136	152	¨ 168	¸ 184	È 200	Ø 216	è 232	ø 248
9	25	) 41	9 57	I 73	Y 89	i 105	y 121	137	153	© 169	1 185	É 201	Ù 217	é 233	ù 249
10	26	* 42	: 58	J 74	Z 90	j 106	z 122	138	154	a 170	o 186	Ê 202	Ú 218	ê 234	ú 250
11	27	+ 43	; 59	K 75	[91	k 107	{ 123	139	155	« 171	» 187	Ë 203	Û 219	ë 235	û 251
12	28	, 44	< 60	L 76	\ 92	l 108	| 124	140	156	¬ 172	¼ 188	Ì 204	Ü 220	ì 236	ü 252
13	29	- 45	= 61	M 77	] 93	m 109	} 125	141	157	- 173	½ 189	Í 205	Ý 221	í 237	ý 253
14	30	. 46	> 62	N 78	^ 94	n 110	~ 126	142	158	® 174	¾ 190	Î 206	Þ 222	î 238	þ 254
15	31	/ 47	? 63	O 79	_ 95	o 111	 127	143	159	¯ 175	¿ 191	Ï 207	ß 223	ï 239	ÿ 255

HP Legal Character Set Chart

			0	@	P	°	p
0	16	32	48	64	80	96	112
		!	1	A	Q	a	q
1	17	33	49	65	81	97	113
		"	2	B	R	b	r
2	18	34	50	66	82	98	114
		#	3	C	S	c	s
3	19	35	51	67	83	99	115
		$	4	D	T	d	t
4	20	36	52	68	84	100	116
		%	5	E	U	e	u
5	21	37	53	69	85	101	117
		&	6	F	V	f	v
6	22	38	54	70	86	102	118
		'	7	G	W	g	w
7	23	39	55	71	87	103	119
		(	8	H	X	h	x
8	24	40	56	72	88	104	120
		)	9	I	Y	i	y
9	25	41	57	73	89	105	121
		*	:	J	Z	j	z
10	26	42	58	74	90	106	122
		+	;	K	[	k	§
11	27	43	59	75	91	107	123
		,	=	L	®	l	¶
12	28	44	60	76	92	108	124
		-	=	M	]	m	†
13	29	45	61	77	93	109	125
		.	ç	N	©	n	™
14	30	46	62	78	94	110	126
		/	?	O	_	o	
15	31	47	63	79	95	111	127

Line Draw Character Set Chart (seven bit)

This character set is available through the following optional font cartridges: HP22706B, HP22706C, and HP22706M.



Math7 Character Set Chart

This character set is available through the HP22706B optional font cartridge.

			0	¶	π	¶	π
0	16	32	48	64	80	96	112
		√	1	α	γ	α	γ
1	17	33	49	65	81	97	113
		|	2	β	θ	β	θ
2	18	34	50	66	82	98	114
		§	3	ψ	σ	ψ	σ
3	19	35	51	67	83	99	115
		∇	4	φ	τ	φ	τ
4	20	36	52	68	84	100	116
		±	5	ϵ	ξ	ϵ	ξ
5	21	37	53	69	85	101	117
		∝	6	∂	Δ	∂	Δ
6	22	38	54	70	86	102	118
		∫	7	λ	δ	λ	δ
7	23	39	55	71	87	103	119
		÷	8	η	χ	η	χ
8	24	40	56	72	88	104	120
		≃	9	ι	υ	ι	υ
9	25	41	57	73	89	105	121
		Π	Ω	Θ	ζ	Θ	ζ
10	26	42	58	74	90	106	122
		Γ	Λ	κ	↑	κ	↑
11	27	43	59	75	91	107	123
		Ψ	∞	ω	→	ω	→
12	28	44	60	76	92	108	124
		≡	⌡	μ	⊤	μ	⊤
13	29	45	61	77	93	109	125
		Φ	†	ν	←	ν	←
14	30	46	62	78	94	110	126
		Ξ	Σ	ρ	↓	ρ	▩
15	31	47	63	79	95	111	127

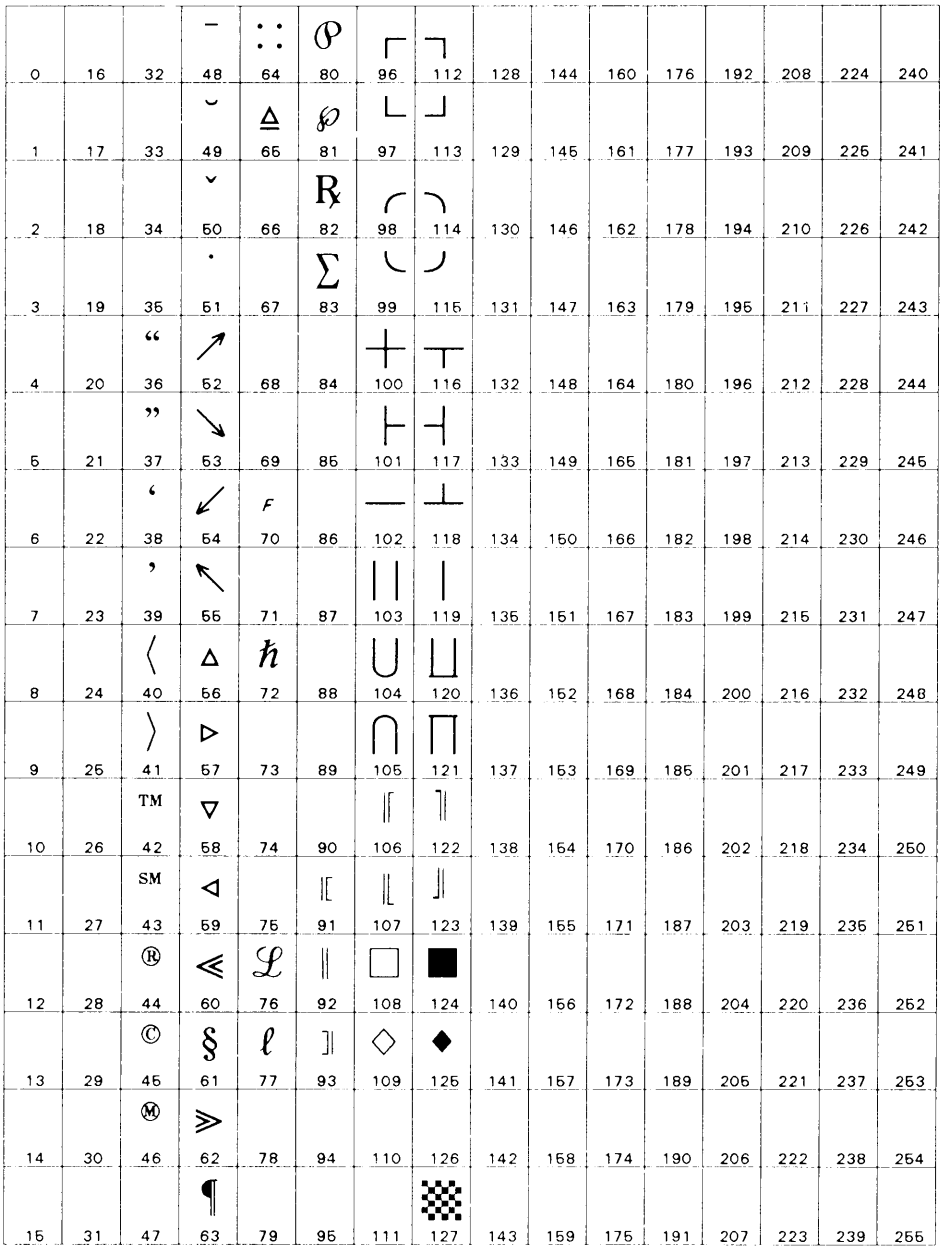
Math8 Character Set Chart

This character set is available through the HP22706B optional font cartridge.

0	16	32	0	∴	Π	∵	π	128	144	160	¯	⊕	Å	⌈	⌉
			48	64	80	96	112				176	192	208	224	240
1	17	√	1	A	P	α	ρ	129	145	↑	∀	⊙	⊣	⌊	⌋
		33	49	65	81	97	113			161	177	193	209	225	241
2	18	″	2	B	Σ	β	σ	130	146	→	∃	⊗	⊢	⌠	⌡
		34	50	66	82	98	114			162	178	194	210	226	242
3	19	°	3	Γ	T	γ	τ	131	147	↓	⊤	⊖	⌙	⎧	⎫
		35	51	67	83	99	115			163	179	195	211	227	243
4	20	∞	4	Δ	ϒ	δ	υ	132	148	←	⊥	∅	∋	⎩	⎭
		36	52	68	84	100	116			164	180	196	212	228	244
5	21	÷	5	E	Φ	ϵ	ϕ	133	149	⇑	∪	∧	∫	⎮	⎪
		37	53	69	85	101	117			165	181	197	213	229	245
6	22	∝	6	Z	X	ζ	χ	134	150	⇒	∩	∨	∮	⌡	⎥
		38	54	70	86	102	118			166	182	198	214	230	246
7	23	′	7	H	Ψ	η	ψ	135	151	⇓	∈	∨	∠	⌡	⌟
		39	55	71	87	103	119			167	183	199	215	231	247
8	24	(	8	Θ	Ω	θ	ω	136	152	⇐	∋	¬	∅	⎲	⎴
		40	56	72	88	104	120			168	184	200	216	232	248
9	25	)	9	I	∇	ι	ϑ	137	153	⇕	∉	○	א	‖	⟩
		41	57	73	89	105	121			169	185	201	217	233	249
10	26	×	e	K	∂	κ	φ	138	154	↔	⊂	·	ב	∠	⌟
		42	58	74	90	106	122			170	186	202	218	234	250
11	27	+	ε	Λ	ς	λ	ω	139	155	⇳	⊃	•	ג	/	\
		43	59	75	91	107	123			171	187	203	219	235	251
12	28	,	<	M	≤	μ	≃	140	156	⇔	∉	●	ℭ		
		44	60	76	92	108	124			172	188	204	220	236	252
13	29	−	=	N	≠	ν	≡	141	157	⇄	⊅	○	ℑ		∓
		45	61	77	93	109	125			173	189	205	221	237	253
14	30	.	>	Ξ	≥	ξ	≢	142	158	⇆	⊆	†	ℜ		±
		46	62	78	94	110	126			174	190	206	222	238	254
15	31	/	≈	O	_	o	▩	143	159	→	⊇	‡	ℨ		
		47	63	79	95	111	127			175	191	207	223	239	255

PIFont Character Set Chart

This character set is available through the HP22706B optional font cartridge.



DeskTop Character Set Chart

This character set is available through the HP22706W optional font cartridge.

0	16	32	0	@	P	‘	p	128	144	160	“	—	‹	a	´
			48	64	80	96	112				176	192	208	224	240
1	17	!	1	A	Q	a	q	129	145	¶	”	±	›	o	ˋ
		33	49	65	81	97	113			161	177	193	209	225	241
2	18	"	2	B	R	b	r	130	146	§	μ	×	«	æ	ˆ
		34	50	66	82	98	114			162	178	194	210	226	242
3	19	#	3	C	S	c	s	131	147	†	‰	÷	»	Æ	¨
		35	51	67	83	99	115			163	179	195	211	227	243
4	20	$	4	D	T	d	t	132	148	‡	•	°	,	ð	˜
		36	52	68	84	100	116			164	180	196	212	228	244
5	21	%	5	E	U	e	u	133	149	©	•	′	„	Đ	ˇ
		37	53	69	85	101	117			165	181	197	213	229	245
6	22	&	6	F	V	f	v	134	150	®	○	″	·	ij	˘
		38	54	70	86	102	118			166	182	198	214	230	246
7	23	’	7	G	W	g	w	135	151	™	○	¼	¡	IJ	˝
		39	55	71	87	103	119			167	183	199	215	231	247
8	24	(	8	H	X	h	x	136	152	℅	■	½	¿	ł	°
		40	56	72	88	104	120			168	184	200	216	232	248
9	25	)	9	I	Y	i	y	137	153	¢	■	¾	Pt	Ł	˙
		41	57	73	89	105	121			169	185	201	217	233	249
10	26	*	:	J	Z	j	z	138	154	–	□	¹	ℓ	œ	¯
		42	58	74	90	106	122			170	186	202	218	234	250
11	27	+	;	K	[	k	{	139	155	—	□	²	£	Œ	˛
		43	59	75	91	107	123			171	187	203	219	235	251
12	28	,	<	L	\	l	|	140	156	…	'	³	¥	ø	˘
		44	60	76	92	108	124			172	188	204	220	236	252
13	29	-	=	M	]	m	}	141	157	fi	¬	/	¤	Ø	˙
		45	61	77	93	109	125			173	189	205	221	237	253
14	30	.	>	N	^	n	~	142	158	fl	¦		*f*	þ	ı
		46	62	78	94	110	126			174	190	206	222	238	254
15	31	/	?	O	_	o	▩	143	159		¯		ß	Þ	
		47	63	79	95	111	127			175	191	207	223	239	255

MS Windows Symbol Set Chart

This character set is available through the HP DeskJet Series Printer Driver for Microsoft Windows.

NUL 0	 16	 32	0 48	@ 64	P 80	` 96	p 112	 128	 144	 160	° 176	À 192	Ð 208	à 224	ð 240
 1	 17	! 33	1 49	A 65	Q 81	a 97	q 113	 129	‘ 145	¡ 161	± 177	Á 193	Ñ 209	á 225	ñ 241
 2	 18	" 34	2 50	B 66	R 82	b 98	r 114	 130	’ 146	¢ 162	2 178	Â 194	Ò 210	â 226	ò 242
 3	 19	# 35	3 51	C 67	S 83	c 99	s 115	 131	 147	£ 163	3 179	Ã 195	Ó 211	ã 227	ó 243
 4	 20	$ 36	4 52	D 68	T 84	d 100	t 116	 132	 148	¤ 164	´ 180	Ä 196	Ô 212	ä 228	ô 244
 5	 21	% 37	5 53	E 69	U 85	e 101	u 117	 133	 149	¥ 165	µ 181	Å 197	Õ 213	å 229	õ 245
 6	 22	& 38	6 54	F 70	V 86	f 102	v 118	 134	 150	¦ 166	¶ 182	Æ 198	Ö 214	æ 230	ö 246
BEL 7	 23	' 39	7 55	G 71	W 87	g 103	w 119	 135	 151	§ 167	· 183	Ç 199	× 215	ç 231	÷ 247
BS 8	 24	(40	8 56	H 72	X 88	h 104	x 120	 136	 152	¨ 168	¸ 184	È 200	Ø 216	è 232	ø 248
HT 9	 25	) 41	9 57	I 73	Y 89	i 105	y 121	 137	 153	© 169	1 185	É 201	Ù 217	é 233	ù 249
LF 10	 26	* 42	: 58	J 74	Z 90	j 106	z 122	 138	 154	a 170	o 186	Ê 202	Ú 218	ê 234	ú 250
VT 11	ESC 27	+ 43	; 59	K 75	[91	k 107	{ 123	 139	 155	« 171	» 187	Ë 203	Û 219	ë 235	û 251
FF 12	 28	, 44	< 60	L 76	\ 92	l 108	| 124	 140	 156	¬ 172	¼ 188	Ì 204	Ü 220	ì 236	ü 252
CR 13	 29	- 45	= 61	M 77	] 93	m 109	} 125	 141	 157	- 173	½ 189	Í 205	Ý 221	í 237	ý 253
SO 14	 30	. 46	> 62	N 78	^ 94	n 110	~ 126	 142	 158	® 174	¾ 190	Î 206	Þ 222	î 238	þ 254
SI 15	 31	/ 47	? 63	O 79	_ 95	o 111	 127	 143	 159	¯ 175	¿ 191	Ï 207	ß 223	ï 239	ÿ 255

ASCII Decimal Hexadecimal Conversion Table

This table provides the decimal and hexadecimal equivalent of each character in the HP Roman8 character set. The HP Roman8 character set is an 8-bit symbol set. In addition to the characters and symbols of the standard ASCII character set, it also contains international characters and symbols. Use this table to convert printer commands to decimal or hexadecimal values.

ASCII Decimal-Hex Table

CHAR.	DEC.	HEX.
CTL@	0	00
CTLA	1	01
CTLB	2	02
CTLC	3	03
CTLD	4	04
CTLE	5	05
CTLF	6	06
CTLG	7	07
CTLH	8	08
CTLI	9	09
CTLJ	10	0A
CTLK	11	0B
CTLL	12	0C
CTLM	13	0D
CTLN	14	0E
CTLO	15	0F
CTLP	16	10
CTLQ	17	11
CTLR	18	12
CTLS	19	13
CTLT	20	14
CTLU	21	15
CTLV	22	16
CTLW	23	17
CTLX	24	18
CTLY	25	19
CTLZ	26	1A
CTL[	27	1B
CTL\	28	1C
CTL]	29	1D
CTL^	30	1E
CTL_	31	1F

CHAR.	DEC.	HEX.
	32	20
!	33	21
"	34	22
#	35	23
$	36	24
%	37	25
&	38	26
'	39	27
(	40	28
)	41	29
*	42	2A
+	43	2B
,	44	2C
-	45	2D
.	46	2E
/	47	2F
0	48	30
1	49	31
2	50	32
3	51	33
4	52	34
5	53	35
6	54	36
7	55	37
8	56	38
9	57	39
:	58	3A
;	59	3B
<	60	3C
=	61	3D
>	62	3E
?	63	3F

CHAR.	DEC.	HEX.
@	64	40
A	65	41
B	66	42
C	67	43
D	68	44
E	69	45
F	70	46
G	71	47
H	72	48
I	73	49
J	74	4A
K	75	4B
L	76	4C
M	77	4D
N	78	4E
O	79	4F
P	80	50
Q	81	51
R	82	52
S	83	53
T	84	54
U	85	55
V	86	56
W	87	57
X	88	58
Y	89	59
Z	90	5A
[	91	5B
\	92	5C
]	93	5D
^	94	5E
_	95	5F

CHAR.	DEC.	HEX.
`	96	60
a	97	61
b	98	62
c	99	63
d	100	64
e	101	65
f	102	66
g	103	67
h	104	68
i	105	69
j	106	6A
k	107	6B
l	108	6C
m	109	6D
n	110	6E
o	111	6F
p	112	70
q	113	71
r	114	72
s	115	73
t	116	74
u	117	75
v	118	76
w	119	77
x	120	78
y	121	79
z	122	7A
{	123	7B
|	124	7C
}	125	7D
~	126	7E
▒	127	7F

ASCII Decimal-Hex Table (continued)

CHAR.	DEC.	HEX.
[illegible]	128	80
[illegible]	129	81
[illegible]	130	82
[illegible]	131	83
[illegible]	132	84
[illegible]	133	85
[illegible]	134	86
[illegible]	135	87
[illegible]	136	88
[illegible]	137	89
[illegible]	138	8A
[illegible]	139	8B
[illegible]	140	8C
[illegible]	141	8D
[illegible]	142	8E
[illegible]	143	8F
[illegible]	144	90
[illegible]	145	91
[illegible]	146	92
[illegible]	147	93
[illegible]	148	94
[illegible]	149	95
[illegible]	150	96
[illegible]	151	97
[illegible]	152	98
[illegible]	153	99
[illegible]	154	9A
[illegible]	155	9B
[illegible]	156	9C
[illegible]	157	9D
[illegible]	158	9E
[illegible]	159	9F

CHAR.	DEC.	HEX.
	160	A0
A	161	A1
A	162	A2
F	163	A3
E	164	A4
E	165	A5
I	166	A6
I	167	A7
	168	A8
	169	A9
	170	AA
	171	AB
	172	AC
U	173	AD
U	174	AE
ı	175	AF
—	176	B0
Ÿ	177	B1
ÿ	178	B2
	179	B3
Ç	180	B4
ç	181	B5
N	182	B6
n	183	B7
ı	184	B8
¿	185	B9
¤	186	BA
£	187	BB
¤	188	BC
§	189	BD
ƒ	190	BE
¢	191	BF

CHAR.	DEC.	HEX.
a	192	C0
e	193	C1
o	194	C2
u	195	C3
a	196	C4
e	197	C5
o	198	C6
u	199	C7
a	200	C8
e	201	C9
o	202	CA
u	203	CB
a	204	CC
e	205	CD
o	206	CE
u	207	CF
A	208	D0
ı	209	D1
Ø	210	D2
Æ	211	D3
a	212	D4
ı	213	D5
ø	214	D6
æ	215	D7
A	216	D8
ı	217	D9
O	218	DA
U	219	DB
E	220	DC
ı	221	DD
ß	222	DE
O	223	DF

CHAR.	DEC.	HEX.
A	224	E0
A	225	E1
a	226	E2
Đ	227	E3
đ	228	E4
I	229	E5
I	230	E6
O	231	E7
O	232	E8
O	233	E9
o	234	EA
Š	235	EB
š	236	EC
U	237	ED
Y	238	EE
y	239	EF
Þ	240	F0
þ	241	F1
•	242	F2
µ	243	F3
¶	244	F4
¾	245	F5
—	246	F6
¼	247	F7
½	248	F8
¹	249	F9
ª	250	FA
«	251	FB
■	252	FC
»	253	FD
¯	254	FE
DEL	255	FF

Appendix B

Printer Commands

This appendix contains a summary of the printer commands and control codes for the HP DeskJet 500C printer. The printer commands found on the following pages are used when selecting specific printer features. The method that you use to enter printer commands depends on your software package. Refer to your software manual for more information.

For more technical information about the printer commands, refer to the technical reference manual. Ordering information is available in appendix D.

The printer commands on the following pages are listed with the decimal and hexadecimal equivalents. Some of the printer commands must be sent in hierarchical order.

Printer Command Basics

Before you begin using printer commands, please take a few minutes to review these special notes about printer commands.

- In this user's guide, two conventions have been used in listing printer commands. To avoid confusion between characters, the following conventions have been used.
  Lowercase " l " = " ℓ " Uppercase "O" = " O "
  Number "one" = " 1" Number "zero"= " 0 "
- The " ℓ " and " 0 " characters will not appear on your screen as shown in this user's guide.
- Spaces were added in the printer command examples for ease of reading only. Do not enter spaces in the printer commands that you send. For example, you may see
  E_c (s 10 H, but would send E_c(s10H.
- Uppercase and lowercase letters must be entered correctly as identified in this user's guide. The printer will not recognize the printer command when the incorrect letter is entered.
- The printer command that you send to the printer to change a printer feature will stay in effect until you send a printer command to change it or turn it off. For example, if you turn on bold, the printer will print bold characters until you send the command to turn off bold.
- The printer will return to its default switch settings if the printer is turned off and on, or when the Reset button on the printer control panel is pressed. If the printer command E_c E (for printer reset) is sent, the printer will return to the most current mode and font settings selected through the printer control panel. If the printer control panel was not used, the printer will return to the default switch settings.
- Some printer commands must be sent in a particular order. Being aware of the printer's priority system will ensure that the appropriate printer commands are sent.

Describing a Printer Command

A printer command (or an escape sequence) consists of two or more characters. There are two types of printer commands: two character-escape sequences and parameterized escape sequences. Examples of two-character escape sequences are E_c E for printer reset, and E_c 9 for clear margins.

An example of a DeskJet 500C parameterized escape sequence is shown below. This command changes page orientation.

$$E_c \& \ell \# O$$

$$\# = \begin{matrix} \mathbf{1} \text{ - landscape orientation} \\ \mathbf{0} \text{ - portrait orientation} \end{matrix}$$

A parameterized escape sequence contains an escape character and is followed by a unique series of letters and numbers. The following is a description of the contents of a parameterized escape sequence.

Escape Character

A printer command always begins with the escape character. Escape characters are represented in this manual as E_c. The escape character alerts the printer that a printer command will follow. The method for entering the escape character is dependent on the software package that you are using. The escape character is most commonly entered by its numeric character value: 27 in decimal or 1B in hexadecimal.

Parameterized Character

The character immediately following the escape character is the parameterized character which notifies the printer that the escape sequence contains more than 2 characters and that the command is parameterized.

Group Character

The group character tells the printer the type of command that is to be performed.

Value Field

Most printer commands also contain a value field. The value field is represented in this user's guide as a # sign. If the # sign appears in a printer command, you must replace it with a number. The number can be a literal value, such as 10 for point size, or it can be a representative value, such as 1 to signify landscape orientation, as shown in the example.

Terminating Character

Every printer command contains a terminating character which is either an uppercase letter or a special character, such as an @. The terminating character must always be an uppercase letter or a special character. Refer to the "Combining Printer Commands" section.

Combining Printer Commands

You can save time by combining printer commands that have the same two characters following the Escape character. By combining printer commands you can also shorten the length of the command that you are sending to the printer. Some software packages limit the length of printer commands that can be sent.

To combine printer commands, begin the printer command with E_c and the two shared characters, then append the remaining characters from each command.

These printer commands

E_c (s 3 T E_c (s 3 B E_c (s 2 Q

can be combined into

E_c (s 3 b 3 t 2 Q

Notice that "E_c (s" is the portion of the printer command that all three commands share. Also note that in the combined command, "b" and "t" are now lowercase, while "Q" because it is the last character in the command, remains in uppercase to tell the printer the command is complete.

Some rules for combining printer commands:

- Only printer commands which share the same two characters immediately following "E_c" can be combined.
- All alphabetic characters within the combined printer commands must be in lowercase, except for the last character.
- The last character in the combined printer command must be in uppercase to tell the printer the command is complete.
- Printer commands take effect as your software encounters them (from left to right). Combine printer commands in the order in which the printer should perform them.

Using Decimal or Hexadecimal Equivalents

Your software package may require you to enter printer commands in a specific form, such as decimal or hexidecimal code. Refer to the printing section of your software manual for information.

The example below shows the printer command for landscape page orientation in three different forms: escape sequence, decimal equivalent, and hexadecimal equivalent.

Escape Sequence	E_c &*l* 1O
Decimal Equivalent	027 038 108 049 079
Hexadecimal Equivalent	1B 26 6C 31 4F

HP PCL Printer Command Summary

Printer Feature	Printer Command	Decimal Equivalent	1B 28 Hex. Equivalent
Printer Control			
Reset	E_cE	027 069	1B 45
Self test	E_cz	027 122	1B 7A
Paper Input Control (Media Source)			
Eject page	$E_c\&/0H$	027 038 108 048 072	1B 26 6C 30 48
Feed from tray	$E_c\&/1H$	027 038 108 049 072	1B 26 6C 31 48
Envelope feed	$E_c\&/3H$	027 038 108 051 072	1B 26 6C 33 48
Print Mode			
Unidirectional left to right	$E_c\&k0W$	027 038 107 048 087	1B 26 6B 30 57
Bidirectional	$E_c\&k1W$	027 038 107 049 087	1B 26 6B 31 57
Unidirectional right to left	$E_c\&k2W$	027 038 107 050 087	1B 26 6B 32 57
Underline			
Single fixed	$E_c\&d1D$	027 038 100 049 068	1B 26 64 31 44
Double fixed	$E_c\&d2D$	027 038 100 050 068	1B 26 64 32 44
Single float	$E_c\&d3D$	027 038 100 051 068	1B 26 64 33 44
Double float	$E_c\&d4D$	027 038 100 052 068	1B 26 64 34 44
Turn off	$E_c\&d@$	027 038 100 064	1B 26 64 40
Line Termination			
CR ⇒ CR, LF ⇒ LF,FF ⇒ FF	$E_c\&k0G$	027 038 107 048 071	1B 26 6B 30 47
CR ⇒ CR+LF, LF ⇒ LF, FF ⇒ FF	$E_c\&k1G$	027 038 107 049 071	1B 26 6B 31 47
CR ⇒ CR, LF ⇒ CR+LF, FF ⇒ CR+FF	$E_c\&k2G$	027 038 107 050 071	1B 26 6B 32 47
CR ⇒ CR+LF, LF ⇒ CR+LF, FF ⇒ CR+FF	$E_c\&k3G$	027 038 107 051 071	1B 26 6B 33 47
End-of-Line Wrap			
Turn on	$E_c\&s0C$	027 038 115 048 067	1B 26 73 30 43
Turn off	$E_c\&s1C$	027 038 115 049 067	1B 26 73 31 43
Transparent Print Data			
No. of bytes	$E_c\&p\#X$	027 038 112 #...# 088	1B 26 70 #...# 58
Display Functions			
Turn on	E_cY	027 089	1B 59
Turn off	E_cZ	027 090	1B 5A
Enhancement Control			
Line-by-line on	$E_c\&k0E$	027 038 107 048 069	1B 26 6B 30 45
Line-by-line off	$E_c\&k1E$	027 038 107 049 069	

#Indicates the numeric value field.

Printer Feature	Printer Command	Decimal Equivalent	1B 28 Hex. Equivalent
SI/SO Control			
Line-by-line on	E_c&k0F	027 038 107 048 070	1B 26 6B 30 46
Line-by-line off	E_c&k1F	027 038 107 049 070	1B 26 6B 31 46
Page Control			
Paper Size*			
Default size	E_c&/0A	027 038 108 048 065	1B 26 6C 30 41
US Letter	E_c&/2A	027 038 108 050 065	1B 26 6C 32 41
US Legal	E_c&/3A	027 038 108 051 065	1B 26 6C 33 41
A4	E_c&/26A	027 038 108 050 054 065	1B 26 6C 32 36 41
No. 10 envelope	E_c&/81A	027 038 108 056 049 065	1B 26 6C 38 31 41
Line Spacing			
Lines per inch no. of lines	E_c&/#D	027 038 108 #...# 068	1B 26 6C #...# 44
Page Orientation*			
Landscape	E_c&/1O	027 038 108 049 079	1B 26 6C 31 4F
Portrait	E_c&/0O	027 038 108 048 079	1B 26 6C 30 4F
Page Length (Line Spacing)*			
Number of lines	E_c&/#P	027 038 108 #...# 080	1B 26 6C #...# 50
Perforation Skip Mode*			
On	E_c&/1L	027 038 108 049 076	1B 26 6C 31 4C
Off	E_c&/0L	027 038 108 048 076	1B 26 6C 30 4C
Top Margin*			
Number of lines	E_c&/#E	027 038 108 #...# 069	1B 26 6C #...# 45
Text Length*			
Number of lines	E_c&/ #F	027 038 108 #...# 070	1B 26 6C #...# 46
Side Margins*			
Clear	E_c9	027 057	1B 39
Left (column no.)	E_c&a#L	027 038 097 #...# 076	1B 26 61 #...# 4C
Right (column no.)	E_c&a#M	027 038 097 #...# 077	1B 26 61 #...# 4D
Text Scale Mode			
off	E_c&k5W	027 038 107 053 087	1B 26 6B 35 57
on	E_c&k6W	027 038 107 054 087	1B 26 6B 36 57

*These printer commands are listed in the order in which they must be sent.
#Indicates the numeric value field.

Printer Feature	Printer Command	Decimal Equivalent	1B 28 Hex. Equivalent
Cursor Positioning			
Move to row no.	E_c&a#R	027 038 097 #...# 082	1B 26 61 #...# 52
Move to column no.	E_c&a#C	027 038 097 #...# 067	1B 26 61 #...# 43
Horizontal no. (decipoints)	E_c&a#H	027 038 097 #...# 072	1B 26 61 #...# 48
Vertical no. (decipoints)	E_c&a#V	027 038 097 #...# 086	1B 26 61 #...# 56
Horizontal no. (dots)	E_c*p#X	027 042 112 #...# 088	1B 2A 70 #...# 58
Vertical no. (dots)	E_c*p#Y	027 042 112 #...# 089	1B 2A 70 #...# 59
Horizontal motion index no. of 1/120th inch moves	E_c&k#H	027 038 107 #...# 072	1B 26 6B #...# 48
Vertical motion index no. of 1/48 inch moves	E_c&/ #C	027 038 108 #...# 067	1B 26 6C #...# 43
Font Selection			
Character Set*			
PC-8	E_c(10U	027 040 049 048 085	1B 28 31 30 55
HP Roman8	E_c(8U	027 040 056 085	1B 28 38 55
PC-8 Danish /Norwegian	E_c(11U	027 040 049 049 085	1B 28 31 31 55
PC-850	E_c(12U	027 040 049 050 085	1B 28 31 32 55
ECMA-94 Latin 1	E_c(0N	027 040 048 078	1B 28 30 4E
German (ISO 21)	E_c(1G	027 040 049 071	1B 28 31 47
French (ISO 69)	E_c(1F	027 040 049 070	1B 28 31 46
Italian (ISO 15)	E_c(0I	027 040 048 073	1B 28 30 49
Spanish (ISO 17)	E_c(2S	027 040 050 083	1B 28 32 53
Swedish Names (ISO 11)	E_c(0S	027 040 048 083	1B 28 30 53
Swedish (ISO 10)	E_c(3S	027 040 051 083	1B 28 33 53
Norwegian1 (ISO 60)	E_c(0D	027 040 048 068	1B 28 30 44
Norwegian2 (ISO 61)	E_c(1D	027 040 049 068	1B 28 31 44
Portugese (ISO 16)	E_c(4S	027 040 052 083	1B 28 34 53
United Kingdom (ISO 4)	E_c(1E	027 040 049 069	1B 28 31 45
ANSI ASCII (ISO 6)	E_c(0U	027 040 048 085	1B 28 30 55
JIS ASCII	E_c(0K	027 040 048 075	1B 28 30 4B
HP Legal	E_c(1U	027 040 049 085	1B 28 31 55
ISO IRV	E_c(2U	027 040 051 085	1B 28 32 55
Line Draw (optional)	E_c(0L	027 040 048 076	1B 28 30 4C
Math7 (optional)	E_c(0M	027 040 048 077	1B 28 30 4D
Math 8 (optional)	E_c(8M	027 040 056 077	1B 28 38 4D
Math8a (optional)	E_c(0Q	027 040 048 081	1B 28 30 51

*These printer commands are listed in the order in which they must be sent.
#Indicates the numeric value field.

Printer Feature	Printer Command	Decimal Equivalent	1B 28 Hex. Equivalent
Font Selection			
Character Set* (Continued)			
Math8b (optional)	E_c(1Q	027 040 049 081	1B 28 31 51
PIFont (optional)	E_c(15U	027 040 049 053 085	1B 28 31 35 55
PIFonta (optional)	E_c(2Q	027 040 050 081	1B 28 32 51
Spacing*			
Proportional	E_c(s1P	027 040 115 049 080	1B 28 73 31 50
Fixed	E_c(s0P	027 040 115 048 080	1B 28 73 30 50
Print Pitch*			
Number of characters per inch	E_c(s#H	027 040 115 #....# 072	1B 28 73 #...# 48
Point Size (Character Height)*			
Number of 1/72nd inch	E_c(s#V	027 040 115 #...# 086	1B 28 73 #...# 56
Style*			
Upright	E_c(s0S	027 040 115 048 083	1B 28 73 30 53
Italic	E_c(s1S	027 040 115 049 083	1B 28 73 31 53
Stroke Weight*			
Normal	E_c(s0B	027 040 115 048 066	1B 28 73 30 42
Bold	E_c(s3B	027 040 115 051 066	1B 28 73 33 42
Extra bold (optional)	E_c(s7B	027 040 115 055 066	1B 28 73 37 42
Typeface*			
Courier	E_c(s3T	027 040 115 051 084	1B 28 73 33 54
CG Times	E_c(s4101T	027 040 115 052 049 048 049 084	1B 28 73 34 31 30 31 54
Letter Gothic	E_c(s6T	027 040 115 054 084	1B 28 73 36 54
Pica (optional)	E_c(s1T	027 040 115 049 084	1B 28 73 31 54
Line Printer (optional)	E_c(s0T	027 040 115 048 084	1B 28 73 30 54
Pica (optional)	E_c(s1T	027 040 115 049 084	1B 28 73 31 54
Prestige (optional)	E_c(s8T	027 040 115 056 084	1B 28 73 38 54
Elite (optional)	E_c(s2T	027 040 115 050 084	1B 28 73 32 54
Script (optional)	Ec(s7T	027 040 115 055 084	1B 28 73 37 54
Helvetica (optional)	E_c(s4T	027 040 115 052 084	1B 28 73 34 54
Presentations (optional)	E_c(s11T	027 040 115 049 049 084	1B 28 73 31 31 54
Times Roman (optional)	E_c(s5T	027 040 115 053 084	1B 28 73 35 54
CG Century Schoolbook (optional)	E_c(s23T	027 040 115 050 051 084	1B 28 73 32 33 54
Brush (optional)	E_c(s32T	027 040 115 051 050 084	1B 28 73 33 32 54
Dom Casual (optional)	E_c(s61T	027 040 115 054 049 084	1B 28 73 36 31 54

*These printer commands are listed in the order in which they must be sent.
#Indicates the numeric value field.

Printer Feature	Printer Command	Decimal Equivalent	1B 28 Hex. Equivalent
Typeface* (continued)			
Univers Condensed (optional)	E_c(s85T	027 040 115 056 053 084	1B 28 73 38 35 54
Garamond (optional)	E_c(s101T	027 040 115 049 048 049 084	1B 28 73 31 30 31 54
Univers (optional)	E_c(s52T	027 040 115 053 050 084	1B 28 73 35 32 54
CG Triumvirate (optional)	E_c(s4T	027 040 115 052 084	1B 28 73 34 54
Print Quality			
Letter	E_c(s2Q	027 040 115 050 081	1B 28 73 32 51
Draft	E_c(s1Q	027 040 115 049 081	1B 28 73 31 51
Download Font Management			
Font ID no.	E_c*c#D	027 042 099 #...# 068	1B 2A 63 #...# 44
ASCII code no.	E_c*c#E	027 042 099 #...# 069	1B 2A 63 #...# 45
Delete all	E_c*c0F	027 042 099 048 070	1B 2A 63 30 46
Delete temporary	E_c*c1F	027 042 099 049 070	1B 2A 63 31 46
Delete last	E_c*c2F	027 042 099 050 070	1B 2A 63 32 46
Make temporary	E_c*c4F	027 042 099 052 070	1B 2A 63 34 46
Make permanent	E_c*c5F	027 042 099 053 070	1B 2A 63 35 46
Create font number of bytes	E_c)s#Wdata	027 041 115 #...# 087 data	1B 29 73 #...# 57 data
Download chr. No. of bytes	E_c(s#Wdata	027 040 115 #...# 087 data	1B 28 73 #...# 57 data
Select primary ID no.	E_c(#X	027 040 #...# 088	1B 28 #...# 58
Select secondary ID no.	E_c)#X	027 041 #...# 088	1B 28 33 40
Primary Font Designators			
Primary default	E_c(#@	027 040 #...# 064	1B 28 #...# 40
Default character set	E_c(0@	027 040 048 064	1B 28 30 40
Current primary character set	E_c (2@	027 040 050 064	1B 28 32 40
Default font	E_c(3@	027 040 051 064	1B 29 #...# 58
Secondary Font Designators			
Secondary default	E_c)#@	027 041 #...# 064	1B 29 #...# 40
Default chr. set	E_c)0@	027 041 048 064	1B 29 30 40
Default primary chr. set	E_c)1@	027 041 049 064	1B 29 31 40
Current primary chr. set	E_c)2@	027 041 050 064	1B 29 32 40
Default secondary font	E_c)3@	027 041 051 064	1B 29 33 40

*These printer commands are listed in the order in which they must be sent.

Printer Feature	Printer Command	Decimal Equivalent	1B 28 Hex. Equivalent
Raster Graphics			
Start Graphics			
At left most position	E_c*r0A	027 042 114 048 065	1B 2A 72 30 41
Current cursor position	E_c*r1A	027 042 114 049 065	1B 2A 72 31 41
End Graphics			
End graphics	E_c*rbC	027 042 114 098 067	1B 2A 72 62 43
Resolution			
75 dots per inch	E_c*t75R	027 042 116 055 053 082	1B 2A 74 37 35 52
100 dots per inch	E_c*t100R	027 042 116 049 048 048 082	1B 2A 74 31 30 30 52
150 dots per inch	E_c*t150R	027 042 116 049 053 048 082	1B 2A 74 31 35 30 52
300 dots per inch	E_c*t300R	027 042 116 051 048 048 082	1B 2A 74 33 30 30 52
Width			
Number of pixels	E_c*r#S	027 042 114 #...# 083	1B 2A 72 #...# 53
Compression			
Method 0	E_c*b0M	027 042 098 048 077	1B 2A 62 30 4D
Method 1	E_c*b1M	027 042 098 049 077	1B 2A 62 31 4D
Method 2	E_c*b2M	027 042 098 050 077	1B 2A 62 32 4D
Method 3	E_c*b3M	027 042 098 051 077	1B 2A 62 33 4D
Method 9	E_c*b9M	027 042 098 057 077	1B 2A 62 39 4D
Seed Row Source	E_c*b#S	027 042 098 #...# 083	1B 2A 62 #...# 53
Transfer Graphics			
Number of bytes	E_c*b#Wdata	027 042 098 #...# 087 data	1B 2A 62 #...# 57 data
Transfer graphics data by plane	E_c*b#Vdata	027 042 098 #...# 086 data	1B 2A 62 #...# 56 data
Relative Vertical Pixel Movement (formerly known as Y Offset)			
Number of dots	E_c*b#Y	027 042 098 #...# 089	1B 2A 62 #...# 59
Set Graphics Quality			
Quality draft	E_c*r1Q	027 042 114 049 081	1B 2A 72 31 51
Similar to letter quality	E_c*r2Q	027 042 114 050 081	1B 2A 72 32 51
Set Number of Raster Planes Per Row			
3 planes, CYM palette	E_c*r-3U	027 042 114 045 051 055	1B 2A 72 2D 33 37
Single plane palette	E_c*r1U	027 042 114 049 055	1B 2A 72 31 37
3 planes, RGB palette	E_c*r3U	027 042 114 051 055	1B 2A 72 32 37
Misc. Raster Graphics Commands			
Raster graphics shingling	E_c *o#Q	027 042 111 #...# 081	1B 2A 6F #...# 51
Raster graphics depletion	E_c*o#D	027 042 111 #...# 068	1B 2A 6F #...# 44

#Indicates the numeric value field.

Control Codes

A control code is a character that initiates a printer function. Examples of control codes include; Carriage Return and Line Feed. In this user's guide, control codes always begin with the letters CTRL. CTRL is generated by pressing the CONTROL key on PC's keyboard while typing the character. This key may be labeled on your keyboard as CTRL, CNTL, or CTL. In BASIC, control codes are represented by CHR$(n), where n = 0-32. For example, CTRL N is represented by CHR$(14). The E_c control code is represented by CHR$(27).

The table shown on the following page lists the HP PCL control codes recognized by the printer. The "Keystroke" column lists the letter to type in combination with the CTRL key to generate a control code. The "current print position" mentioned in some of the descriptions is the position at which the printer will print the next character.

HP PCL Printer Control Codes

Code Name	Symbol	Description	Value (Dec)	Value (Hex)	Keystroke
Backspace	<B_S>	Causes the printer to move the current print position one character position to the left.	08	08	CTRL H
Horizontal Tab	<H_T>	Causes the printer to move to the next predefined tab position. (Tabs are located every eighth character position, beginning at the left margin).	09	09	CTRL I
Line Feed	<L_F>	Causes the printer to advance the paper one line at the current line spacing.	10	0A	CTRL J
Form Feed	<F_F>	Causes the printer to advance the paper to the next top-of-form. Top-of-form is the first line of printing on the next page.	12	0C	CTRL L
Carriage Return	<C_R>	Causes the printer to move the current print position to the left margin. Does not cause a paper advance.	13	0D	CTRL M
Shift Out	<S_O>	Causes the printer to select the currently designated secondary font for use.	14	0E	CTRL N
Shift In	<S_I>	Causes the printer to select the currently designated primary font for use.	15	0F	CTRL O
Device Control 1	<D_1>	Used for RS-232-C protocols only. Used as Xon character for the RS-232-C Xon/Xoff handshake. Also used as the trigger for the Status Request.	17	11	CTRL Q
Device Control 3	<D_3>	Used for RS-232-C protocols only. Used as Xoff character for the RS-232-C Xon/Xoff handshake.	19	13	CTRL S
Escape	<E_C>	Indicates to the printer that the characters immediately following are part of a printer command.	27	1B	CTRL [
Space	<S_P>	Causes the printer to move the current print position one character to the right.	32	20	

Appendix C

Interfaces

The DeskJet 500C printer is equipped with two standard data communications interface ports, Centronics parallel and RS-232-C serial. They are provided as a means of connecting the printer to a computer or terminal. This chapter describes the pin assignments, protocol, and signal specifications for both interfaces.

Centronics Parallel Interface

The DeskJet 500C printer uses a standard Centronics parallel interface. This interface is the most widely used interface on personal computers because, unlike the RS-232-C serial interface, it usually does not require set up commands or special configurations on either the computer or printer. You can also send information faster using a Centronics parallel interface.

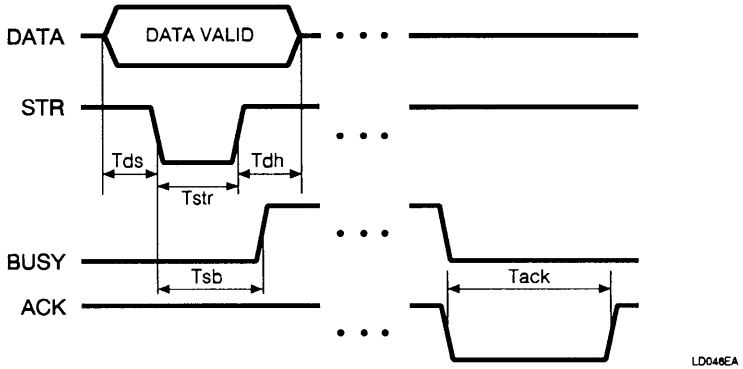
The printer's parallel interface connector is a standard 36-pin Amphenol type with two metal-wire retaining clips.

Centronics Parallel Pin Assignments

Pin No.	Signal	Direction	Description
1	$\overline{\text{Strobe}}$	In	A LOW pulse greater than 1 µs causes the printer to read one byte of data.
2	DATA 0	In	Data bit 0
3	DATA 1	In	Data bit 1
4	DATA 2	In	Data bit 2
5	DATA 3	In	Data bit 3
6	DATA 4	In	Data bit 4
7	DATA 5	In	Data bit 5
8	DATA 6	In	Data bit 6
9	DATA 7	In	Data bit 7
10	$\overline{\text{Acknlg}}$	Out	The printer sends a LOW pulse to indicate that it has accepted a byte of data and is ready for more data.
11	Busy	Out	The printer sends a HIGH logic level to indicate to the host that it cannot receive data due to data entry, a full buffer, or error status.
12	Paper Error	Out	The printer sends a HIGH logic level to indicate to the host that it is out of paper.
13	Ready	Out	The printer sends a HIGH logic level to indicate to the host that it is in a Ready status.
14, 15			Not used
16	Sig Gnd		
17	Chassis Gnd		
18	HI	Out	The printer outputs a HIGH logic level (+5V through a 2.2K ohm resistor) on this pin while it is turned on.
19 to 30	Sig Gnd		
31	$\overline{\text{Reset/Input}}$ Clean	In	A LOW pulse greater than 10 µs (sent by host) resets the printer and clears the print buffer. Note: The printer may not work when this line is held low (e.g., PC is turned off).
32	$\overline{\text{Error}}$	Out	The printer sends a LOW logic level to the host to indicate that it is in an error state: self test failed or carriage position lost.
33 to 36		Not used	

Printer Timing Diagram

The timing diagram below illustrates the data and handshake lines during transfer of one data byte to the computer. DATA 1 through DATA 8 and the Strobe line are driven by the computer; the Acknlg line is driven by the printer.



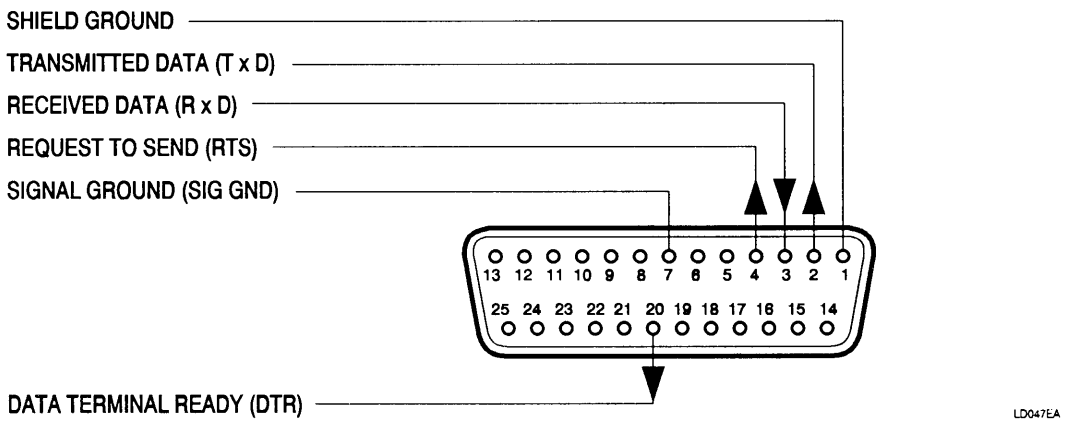
Printer Timing

Interval	Description	Minimum Value	Typical Value
T_{ds}	Delay from DATA written to data Strobe.	0.5 µs	
T_{str}	Data $\overline{\text{Strobe}}$ width.	1 µs	
T_{ack}	$\overline{\text{Acknlg}}$ pulse width.		3.75 µs
T_{dh}	Duration of valid data after $\overline{\text{Strobe}}$.	0.5 µs	
T_{sb}	Delay from falling edge of $\overline{\text{Strobe}}$ to rising edge of Busy.	0.5 µs (max)	

RS-232-C Serial Interface

This section identifies RS-232-C serial interface signal descriptions and describes serial interfacing concepts. The DeskJet 500C printer uses a standard RS-232-C serial interface which is compatible with most computers and terminals. Although the Centronics parallel printer port is the easiest and most popular one for personal computers, the serial port is the most universal. It is widely used on everything from mainframe computers to display terminals and computers.

The DeskJet 500C printer uses a standard DB-25 female type serial connector.



Signal Descriptions

Pin 1, Shield Ground: This conductor serves as an electrical ground line for connecting the cable shield.

Pin 2, Transmitted Data (TxD): Bit serial data transmitted to the computer system or terminal from the printer.

Pin 3, Received Data (RxD): Bit serial data transmitted to the printer from the computer.

Pin 4, Request to Send (RTS): An output from the printer that is always high when the printer is on.

Pin 7, Signal Ground: The established reference ground potential for all data communication.

Pin 20, Data Terminal Ready (DTR): Output from the printer to enable and disable transmission of data to the printer (handshaking). Data transmission is enabled when high and is disabled when low.

Baud Rate, Bits & Parity

In order for the host and printer to communicate with each other, they must be configured to send and receive at the same clock rate or baud rate. This means that mode function switches B4 and B5 on the DeskJet 500C printer must be set to match the baud rate set for the the computer or terminal.

In addition to baud rate, the host and printer must be sending and receiving the same number of data bits (pieces of information) per character. The number of data bits used depends on whether or not you want to perform data error checking, also called Parity. Most computer systems use 8-bits and no parity checking. This is because graphics data requires 8 data bits of information, otherwise part of the image will be missing (extended characters above decimal 127 are not possible either). If your system checks parity, set switches B6 and B7 accordingly.

The DeskJet 500C printer always utilizes a Start Bit and Stop Bit to signal the beginning and end of each frame of character information. Therefore, each frame has a total of ten bits.

Handshaking Protocol

The DeskJet 500C printer uses two methods of sending serial data, XON/XOFF and DTR. The methods differ in how the "stream" of data (from the computer) is stopped and then started again as the printer is busy printing. This is called Handshaking.

The DeskJet 500C printer supports XON/XOFF (Transmission ON/Transmission OFF, also known as software handshakes) and DTR (Data Terminal Ready, or hardware handshaking). Handshaking, or an exchange of signals between host and printer, is necessary to prevent the printer's memory "buffer" from overflowing and losing data.

The method of handshaking you use will depend on which type your computer system or terminal uses. Most terminals utilize XON/XOFF whereas many PCs use DTR (IBM PCs, for example). Handshaking is controlled by mode function switch B8. When B8 is DOWN, both XON/XOFF and DTR are enabled. When B8 is UP only DTR is enabled.

XON/XOFF Software Handshaking

A system utilizing XON/XOFF software handshaking uses only three wires of the cable, pins 2, 3, and 7. Software handshaking is performed by the printer when its buffer is nearly ready to overflow. When it has room for only 100 more characters, the printer will send the host an XOFF (ASCII DC3) character to signal it to stop data transmission. The printer will continue printing after sending the XOFF character, thus making more room in its buffer. When the buffer has room for 150 more characters, the printer sends the host an XON (ASCII DC1) character to resume data transmission.

DTR Hardware Handshaking

Unlike the XON/XOFF software handshake, DTR (hardware handshaking) in the DeskJet 500C printer uses a dedicated wire (pin 20) for signalling the host to stop and start data transmission. The printer accepts data from the host until it has room for only 100 more characters. It will then turn off its hardware signal to the host device, indicating it to stop data transmission. When the printer's buffer has room for 150 more characters it will turn on the hardware signal, enabling the host to resume data transmission.

Establishing Communication

This section summarizes the process for establishing communication between an IBM PC or PC compatible computer and your printer using DOS commands. If you are unfamiliar with DOS, refer to your DOS manual.

The MODE command must be entered each time you turn on your computer, unless you create an AUTOEXEC.BAT file to AUTOmatically EXECute the command. If an AUTOEXEC.BAT file already exists for your computer system, you must modify this file to ensure that your computer will always communicate to LPT 1. Make sure to type the DOS commands exactly as they appear on these pages. The computer will not recognize commands that are incorrectly typed.

1. Turn on your computer.
2. Type: **CD** and press **Enter** to get to your root directory.
3. Type: **DIR MODE.COM** and press **Enter**, to see if a file named **MODE.COM** exists in your root directory. If your DOS commands are in a subdirectory, you will need to change to the appropriate subdirectory. If a message listing the file appears on your screen, you can go to step 4. If the MODE.COM file is not found on your directory, locate the **MODE.COM** file on your DOS diskette and copy it to your root directory (for a hard disk system) or to your startup disk (for a diskette system).
4. Type the appropriate mode command for your interface connection.

For a Centronics Parallel Interface:

Type: **MODE LPT1:,, P** and press **Enter**.
This command directs communication to the parallel port and sets the computer for infinite retry so that the computer does not "timeout" while waiting for the printer to print. The message **"Infinite retry on parallel printer time-out"** will appear on your screen.

For an RS-232-C Serial Interface (at 9600 baud, no parity, 8 data bits, 1 stop bit, and continuous retry on all timeouts):

1. Type: **MODE COM 1:9600,N,8,1, P** and press **Enter**.
   A list of the settings you typed will appear on the screen
2. Type: **MODE LPT1:=COM1:** and press **Enter**.
   The message "LPT1:rerouted to Com1:" will appear on your screen.
3. Check the mode function switchtes located on the lower right base of the printer and make sure that your switch settings for serial communication are set appropriately. Switches B4 through B8 should be set in the DOWN position for 9600 baud, no parity, 8 data bits, 1 stop bit, and continuous retry on all timeouts. Refer to chapter 1 for a listing of switch settings.

Verifying Communication

To verify that the computer and printer are communicating, make sure the printer is on, and the Ready light is on, then type: **DIR>PRN** and press **Enter**.

A list of file names from your directory will print to indicate that your computer is communicating with your printer. If the paper does not eject after printing is complete, press the Load/Eject button on the printer control panel to eject the paper. If nothing happens, refer to chapter 4, "Troubleshooting."

Interface and Cable Requirements

HP SYSTEM SERIES MODEL	PRINTER I/O	HOST INTERFACE	HP CABLE #
Vectra PC Family	Parallel	HP24540A Serial/Parallel Interface Card	24542D, 92284A
	Serial	HP24540A Serial/Parallel Interface Card	24542G
	HP24541A	24542G (using 9 pin connector)	
		Dual Serial Interface Card	13242G or 17255M (using 25 pin connector)
Touchscreen PC	Serial	Built-in	13242G or 17255M
Portable PC	Serial	Built-in	92221P
Portable PC III	Parallel	Built-in	24542D, 92284A
	Serial	HPD1004A Dual Serial Interface Card	24542G (using 9 pin connector) or 13242G (using 25 pin connector)
Terminals			
700/41, 700/92, 700/94	Serial	Built-in	40242G
(2392A, 2393A, 2394A, 2397A)	Parallel	Opt 093 or HP40210P	40242D
	Serial	Opt 092 or HP40210R	40242G

NON-HP SYSTEM SERIES MODEL	PRINTER I/O	HOST INTERFACE	HP CABLE #	NON-HP CABLE#
IBM PC, PC/XT	Parallel	IBM Serial/Parallel Adaptor	24542D	IBM Parallel Printer Cable
	Serial	IBM Asyn. Com. Adaptor	17255D or 13242H	Not available
IBM PC/AT	Parallel	IBM Serial/Parallel Adaptor	24542D, 92284A	IBM Parallel Printer Cable
	Serial	IBM Serial/Parallel Adaptor	24542G	
IBM PS/2	Parallel		24542D, 92284A	
	Serial		17255D or 13242H	
IBM Convertible PC	Parallel		24542D, 92284A	
	Serial		17255D or 13242H	

Appendix D

Ordering Information

The Standard Unit

The standard unit includes: one DeskJet 500C printer, one black print cartridge, one color print cartridge, one print cartridge storage container, one media sampler kit, one power module, one acrylic OUT tray cover, one user's guide kit containing one setup guide, one user's guide, one software information guide, and one color guide.

Interface cable must be purchased separately.

Ordering Supplies and Accessories

To order printer supplies or accessories: call your HP Customer Information Center or call the HP Direct Marketing Division at the numbers given in the inside front cover of this user's guide.

If your dealer is out of stock, call HP DIRECT for fast shipping service: ___**Within the U.S.**: 1-800-538-8787; ___**Canada** (Toronto): 416-671-8383; (Ontario/Quebec): 1-800-387-3417; (Other Provinces): 1-800-387-3154.

Write or call: ___**Europe/Africa/Middle East**: (31) 20/547 999, Hewlett-Packard S.A., Central Mailing Department, P.O. Box 529, 1180 Amstelveen, The Netherlands; ___**Australia/ New Zealand**: (03) 895-2895, China Resources Bldg., 26 Harbour Road, Wanchai, Hong Kong; ___**Latin America**: (525)326-40-00, Latin American Region Headquarters, Monte Pelvoux 111 Colonia Lomas de Chapultepec, Código Postal 11000, Mexico, D.F.; ___**Japan**: (03) 331-6111, Yokogawa-Hewlett-Packard Ltd. 29-21, Takaido-Higashi 3-chome, Suginami-ku, Tokyo 168; ___**Elsewhere in the World**: Hewlett-Packard Company, Intercontinental Headquarters, 3495 Deer Creek Road, Palo Alto, CA 94304, U.S.A.

Accessories

Supply	*HP Reorder Number*
Print Cartridges	
Original Inkjet Print Cartridge (black ink)	51608A
Color Inkjet Print Cartridge (color ink)	51625A
High Capacity Inkjet Print Cartridge (black ink) (available Fall 1991)	51626A
CX JetSeries CutSheet Paper (US Letter Size)	51630Y
CX JetSeries CutSheet Paper (European A4 Size)	51630Z
LX JetSeries Transparencey Film(US Letter Size)	51636F
LX JetSeries Transparency Film (European A4 Size)	51636G
Font Cartridges	
Prestige Elite	22706B
Letter Gothic	22706C
Landscape Fonts	22707L
Presentations	22706M
Times Roman Collection	22706R
Helvetica Collection	22706T
Times Roman Headlines	22706U
Helvetica Headlines	22706V
WordPerfect Fonts	22706W
Garamond Collection	C2109C
Global Text	C2109B
Dom Casual	C2109D
Brush	C2109E
Soft Fonts	
TimesRoman/Helvetica Soft Font (Requires at least one HP22707B RAM cartridge)	22708C
256K RAM Cartridge	22707B
Power Module	
U.S.A., Canada, 120V/50/60H	17122B
Europe (except U.K. and Denmark) 220V/50H	17222B
Japan, 100V/50H	17322B
U.K., 240V/50H	17422B
Switzerland, 220V/50H	17522B
South Africa, 220V/50H	17622B
Australia, 240V/50H	17722B
Denmark, 220V/50H	17822B
China, 220V/50H	17922B

Accessories - continued

Supply	***HP Reorder Number***
DeskJet 500C printer dust cover	92250R
DeskJet 500C printer organizer	92177Z
DeskJet 500C User's Guide Kits	
DeskJet 500C English User's Guide Kit	C2114-60066
DeskJet 500C International English User's Kit	C2114-60067
DeskJet 500C Dutch User's Guide Kit	C2114-60068
DeskJet 500C French User's Guide Kit	C2114-60069
DeskJet 500C German User's Guide Kit	C2114-60070
DeskJet 500C Italian User's Guide Kit	C2114-60071
DeskJet 500C Spanish User's Guide Kit	C2114-60072
Other Manuals	
Technical Reference Manual	C2114-90008

Appendix E

Specifications

Print Method

Plain paper drop-on-demand thermal inkjet printing

Print Speed

MS Windows Black Print Speed:*

Presentation mode: 1 page per minute
Normal mode: 2 pages per minute
Draft mode: 3 pages per minute

MS Windows Color Print Speed:*

Presentation mode: 7 minutes per page
Normal mode: 4 minutes per page
Draft mode: 3 minutes per page

*DOS (Black Mechanism Speed):**

Letter Quality mode: 167 cps at 10 cpi
Draft Quality mode: 240 cps at 10 cpi

DOS (Color Mechanism Speed):

Print speed depends on content of the document

Cell Structure

Letter Quality mode: 300 x 300 dpi
Draft Quality mode: 300 x 150 dpi

Character Set Support

HP Roman8, PC-8 (D/N), ISO 7 bit languages (German, French, Italian, Norwegian, Portugese, Swedish, Spanish, U.K.) JIS ASCII, ASCII, ECMA-94 Latin 1, HP Legal, HP Line Draw, Math, and PI.

Graphics Resolution

Full-page 75, 100, 150, 300 dpi

Built-in (internal) fonts

Portrait:

Courier Pitch: 5, 10, 16.67, 20. Point size: 6, 12. Style: Upright, Italic. Stroke weight: Normal, bold.

CG Times Pitch: Proportional. Point size: 6, 12. Style: Upright, Italic. Stroke weight: Normal, bold.

Letter Gothic Pitch: 6, 12, 24. Point size: 6, 12. Style: Upright, Italic. Stroke weight: Normal, bold.

Other print features: expanded, underline,** double underline,** super-subscript.

Landscape:

Courier Pitch: 10, 16.67, 20. Point Size: 6, 12, 24. Style: Upright. Stroke weight: Normal, bold.

Media Size

US Letter Paper/Transparency (8 $^{1}/_{2}$ in. x 11 in.)
US Legal (8 $^{1}/_{2}$ in. x 14 in.)
European A4 Letter Paper/Transparency (210 mm x 297 mm)
US No. 10 Envelope (4 $^{1}/_{8}$ in. x 9 $^{1}/_{2}$ in.)
European DL Envelope (220 mm x 110 mm)

Media Weight

60 to 90 g/m^{2} (16 to 24 lb)

Media Handling

Built-in sheet feeder (up to 100 sheets)

Plain paper, HP CX JetSeries CutSheet special paper, HP LX JetSeries transparency film.

Manual envelope feed

Printer Command Language

HP PCL Level 3

Control Panel

Quality button, Status button, Font button, Load/Eject button, Print Cartridge button, Clean button, Envelope button, Reset button, Draft light, Ready light, Busy light, Portrait light, Landscape light, and Compress light.

Dual I/O Interface

Centronics parallel
RS-232-C serial

Buffer Size

48 Kbyte receive buffer

***Approximate figures. Exact speed will vary depending on the system configuration and software application used.**

****not available in landscape mode.**

Power Requirements

Power modules:

Input Voltage (depends on power module ordered):
100, 120, 220, or 240 VAC (+10%, -10%)

Voltage:	Frequency:
100 VAC	50/60 Hz (+3 Hz, -3 Hz)
120 VAC	60 Hz (+3 Hz, -3 Hz)
220 VAC	50 Hz (+3Hz, -3 Hz)
240 VAC	50 Hz (+3 Hz, -3 Hz)

Power consumption:

8 watts maximum non-printing
25 watts maximum printing

Operating Environment

Maximum operating temperature:
5°C (41°F) to 40°C (104°F)

Recommended operating temperature for best print quality: 15°C (59°F) to 35°C (95°F)

Storage temperature:
-40°C (-40°F) to 60°C (140°F)

Humidity: 10-80% RH non-condensing

Noise Levels per ISO 9296:

	"Letter"	"Draft"
Sound Power, L_{WAd}:	5.7 B(A)	5.8 B(A)
Sound Pressure, L_{pAm}:	44 dB(A)	45 dB(A)

Dimensions

438mm (17.3 in.) W x 200mm (8.0 in.) H
x 376mm (14.8 in.)D

Weight

6.5 kg (14.3 lb)

Reliability

60,000 page life. 20,000 hours MTBF
2000 hours power-on and 12,000 printed pages per year

1000 total pages per month maximum use
Up to 160 pages per month of color printing

Three-year limited warranty

Product Certifications

Safety Certifications - Power Module: UL, CSA, TÜV or VDE, BSI, SEMKO, NEMKO, FEI, LCIE, SECV.

Safety Certifications - Printer with Power Module: UL, CSA, TÜV, ETL. Others not required

EMI Certifications - Printer with Power Module: FCC Class B when used with a Class B computing device (USA), EMC Directive 89/366/EC (European Community), VCCI (Japan), SABS (South Africa)

Glossary

ASCII
(American Standard Code for Information Interchange.) An 8-bit code that uses 7 bits to represent character information such as letters, punctuation, symbols, and control characters. The eighth bit can be used for parity.

See parity.

baud rate
Baud rate is the data transfer rate between the computer and the printer. The computer and the printer must be configured at the same baud rate. This rate can be set from between 300 and 19,200 baud depending on the type of computer used. Baud rate is set only if the serial interface is used.

bit
Binary digit; a bit represents an "on" or "off" electrical condition. It is the smallest unit of digital information used by a computer or peripheral device.

bitmapped font
A printer font or screen font that is made of dot-by-dot patterns.

buffer
A part of the computer's or printer's memory where data for input or output is held until it can be processed.

built-in font
See internal fonts.

byte
A unit of information consisting of eight bits.

busy
The printer is *busy* when it is receiving information from the computer.

cartrridge font
See font cartridge.

centronics parallel interface
The Centronics parallel interface is a standard for connecting printers and other peripheral devices to a computer. Unlike a serial interface, a parallel interface transmits a full byte of data at one time.

character
Characters are printable letters and symbols.

character height
Character height refers to the height of a printed uppercase character. The character height is defined in points. One point is $^{1}/_{72}$nd of an inch.

characters per inch
See cpi.

characters per second
See cps.

character set
A character set is a unique sub-grouping of all the available characters in a font. Each character set is defined with a specific set of applications in mind. Character sets are also called symbol sets.

clean print cartridge
The process the printer uses to restore print quality by clearing ink bubbles that prevent ink flow through the ink nozzles.

configuration
The process of changing certain printer settings to allow the printer to communicate properly with a computer. Hardware configuration can be changed by changing mode function switch settings. Software configuration can be changed by entering new data or setup strings.

control code
An instruction that tells the printer to perform a specific function.

control panel
See printer control panel.

cpi
Characters per inch, or pitch. Describes the number of characters that will print within one horizontal inch. For example, 10 pitch printing will yield 10 characters per inch.

cps
Characters Per Second (cps) refers to printing speed. It is used in describing the number of characters that will print within one horizontal inch per second.

data communications
Data Communications refers to the transfer of information between the computer and printer.

density
See print density.

dots per inch
See dpi.

downloading
Downloading refers to the process of transferring fonts stored on floppy disks from the computer to the printer's memory. Downloaded fonts can be stored in the printer until it is turned off.

dpi
Dots Per Inch (dpi), the number of dots that are printed per inch. DPI is used as a measure of resolution. The more dots per inch, the higher the resolution. For example, the DeskJet 500C printer has the capability of printing graphics at variable resolutions: 300, 150, 100, and 75 DPI.

draft quality
Draft quality is a print mode which saves ink and allows you to print a "draft" document faster. Print speed for draft quality mode is 167 cps at 10 cpi.

drivers
Printer drivers are files used by some software application packages to access printer features.

embedded printer commands
Printer commands typed directly into a software file by a user to instruct the printer to change its printing characteristics, such as to change fonts or to underline text.

escape character
The escape character; Ec is a special character used to identify a printer command. This character is usually not a printable character. Instead it is used as a command code for the printer.

escape sequence
Escape sequences are printer commands sent to change printing variables such as page orientation, margins, and font selection. Escape sequences are also referred to as printer commands.

See printer command.

factory default
Factory defaults refer to the settings that are selected on the printer at the factory. These settings are in use unless you override them through the printer control panel or by sending printer commands or escape sequences. Default settings are determined by mode function switch settings.

fixed pitch spacing
Equal spacing for each character. In printing a fixed pitch font, each character, whether narrow or wide takes up the same amount of text. Typewritten text is generally fixed pitch.

font
Fonts are collections of characters with a consistent size and style. Fonts can refer to the printer's internal fonts, or fonts stored in optional font cartridges and on soft font disks.

font cartridge
Font cartridges contain additional fonts. Cartridges are installed in the printer so that a variety of fonts can be selected for printing.

font characteristics
Font characteristics determine what a printed font looks like. These characteristics include orientation, character height, style, stroke weight, and typeface.

function switches
See mode function switches.

handshake
A method of communication between a computer and printer. A handshake ensures correct and complete data transfer.

hardware
Refers to the host device such as a PC or terminal.

hexadecimal
Numbers represented to the base 16 (where digits 0-9 and A,B,C,D,E,F). Frequently used in programming and referred to as "hex."

interface cable
The data transmission cable used to connect a printer or peripheral device to a computer.

interface connector
The DeskJet 500C printer comes with two interface connectors, serial and parallel, located on the bottom of the printer. The cable that attaches your computer and printer is connected here.

internal fonts
Internal fonts are the fonts resident in the printer when shipped. The printer's internal fonts are also called resident or built-in fonts.

kerning
The adjustment of spacing between proportionally spaced characters in order to them visually consistent, balanced, and attractive.

landscape orientation
Landscape orientation refers to printing across the length of the page (as opposed to portrait orientation printing across the width of the page). The term landscape is derived from pictures of landscape, which are usually horizontal in format.

letter quality
Letter quality is a print mode which provides you the best possible print quality. Print speed for letter quality mode is 240 cps at 10 cpi.

lines per inch
See lpi.

lpi
Lines Per Inch (lpi) is used in describing the number of line that will print within one vertical inch. Most printing is done in 6 or 8 lpi.

mode function switches
The DeskJet 500C printer contains two banks of function switches located on the printer's front base, under the IN and OUT trays. Mode function switches are used for defining printer settings ranging from page length to data communications.

outline fonts
Outline fonts are often referred to as scalable printer fonts.

See scalable fonts.

page orientation
Orientation refers to the direction of print on the page. Printing across the width of a page is called portrait orientation printing. Printing across the length of a page is called landscape orientation printing.

See also portrait orientation and landscape orientation.

paper jam

When paper gets stuck somewhere along the paper path, this is referred to as paper jam.

parity

A method of checking for errors in the transfer of information between a computer and a peripheral device using an RS-232-C serial interface. Parity can be used to check the accuracy of a binary data byte (character).

PCL commands

PCL Commands refers to the HP PCL Level 3 printer language. The PCL printer language is a standard developed by Hewlett-Packard to ensure compatibility between current and future PCL printers. PCL commands provide access to printer features.

perforation skip region

The area outside the text area but within the page. The DeskJet 500C printer does not print characters in this region. If text extends into the perforation skip region, the text will be printed on the following page.

See "Using Perforation Skip Mode" in chapter 2 of this user's guide.

pitch

Pitch refers to the number of characters printed in a horizontal inch.

point size

Character height is defined in points, one point is $^{1}/_{72}$nd of an inch. For instance, this text is printed using a 10-point font.

portrait orientation

Portrait orientation refers to printing across the width of the page (letter-style). This is the opposite of landscape orientation, which is printing from across the length of the page. The term portrait is derived from portraits of people, which are usually vertical in format.

See page orientation and landscape orientation

primary font

In HP PCL printer language, two fonts can be defined internally at the same time. The primary font is accessed via the control code <SI> (Shift In)and a secondary font is accessed via the control code <SO> (Shift Out).

print carriage

The movable unit that holds the print cartridge cradle.

print cartridge

A cartridge that holds the ink used in printing The DeskJet 500C printer can use either a black ink print cartridge or a color ink print cartridge.

print density

Print density refers to the relative darkness of print on the page. Very dense print appears to be totally black. Less dense print looks lighter, and solid filled areas may not be totally black.

print quality

Refers to the quality of print, such as draft or letter quality.

See draft quality and letter quality.

printer commands

Printer commands sent to change printing variables such as page orientation, margins, and font selection. Printer commands are also called escape sequences.

printer control panel

The control panel refers to the area on the right front corner of the printer. The control panel allows you to manually change a few printer settings. Refer to "Using the Printer Control Panel" in chapter 1 of this user's guide.

proportional spacing

Proportional spacing is the spacing of characters according to the width of each character. This variable spacing between each character closes up awkward space and makes text easier to read. Typeset text is generally proportionally spaced.

quality
See print quality.

ready
When the printer is ready, it will accept data from the computer and print the data. The printer is Ready when the Ready light is on. The printer is paused when the Ready light is off.

resident fonts
See internal fonts.

resolution
A measure of image sharpness expressed as number of dots per inch (dpi).

RS-232-C serial interface
An interface used for connecting a computer and printer or other peripheral devices. A serial interface transmits data one bit at a time.

sans serif
A typeface without serifs such as Helvetica.

scalable fonts
The actual outlines of the characters and symbols of a font stored in mathematical form. The DeskJet 500C printer offers three scalable typefaces with the printer driver for Microsoft Windows that was shipped with the printer. These outlines are not point size specific. When the outlines are sent to the printer, the outlines are scaled (reduced or enlarged) by the printer driver from 4 to 127 point. Scalable fonts are often referred to as outline printer fonts.

screen fonts
Screen fonts are bitmapped images of printer fonts which can be created from the scalable fonts to install with the printer driver for Microsoft Windows that came with the printer. Screen fonts give a close approximation on the screen of the printed text. Screen fonts do use system memory and hard disk space.

secondary font
See primary font.

serif
A typeface with crosslines or finishing strokes at the top and bottom of the character.

soft font
Soft fonts are fonts stored on floppy disks. These fonts can be transferred to the printer's memory and used the same way as cartridge or resident fonts.

software
Software refers to any word processing, programming or special application package that is installed in your computer system.

spacing
All fonts are designed with either fixed or proportional spacing. Using fixed spacing, all character cells are the same width. Using proportional spacing, character cell width depends on the character size.

stroke weight
Stroke weight refers to a bold, medium, or light print density, or darkness.

style
Style refers to either upright or italic print.

top of form
The line of the page where printing can begin; the first line after the top margin.

tof
See top of form.

troubleshooting
Troubleshooting refers to the process of pin-pointing the cause of a printer problem. The method used in this manual is to step through a list of symptoms and suggested remedies until the solution is found.

typeface
Typeface refers to the printed design of characters. For instance, Courier, Helvetica, and Letter Gothic typefaces all print characters of a different design.

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