AN-03 (LP)
September 23, 2005

HOW TO SELECT FONTS IN LINE PRINTER MODE

O'Neil thermal printers contain several resident fonts. In addition, many fonts can also be downloaded to the printer. Resident fonts are either ASCII (contain all ASCII characters in the original definition – printable characters below 0x7F), or Code Page 437 (contain additional charcters above 0x80). Additional fonts can be downloaded for different sizes, styles, and mappings. When you select a font, you are automatically selecting the (1) text size, (2) text style, (3) languages supported, including international character sets, and (4) mapping – which includes what character is printed when a value is sent to the printer.

To select a font you will need to send down three characters (ESC w n). The ESCape character is 0x1B, lower case w is 0x77, and n will select the actual font name. These font names are listed on the self test under the column names and further documented in AN-13. In the column under NAMES in the self test you will see a list similar to:

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*--NAMES--*
MF107 &(26H)
MF204 !(21H)
MF226 %(24H)
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Each font has two names. The first is a five character name used in Easy Print (see AN-06). The exact same font can also be referred to by its single character name. In the sample from the self test printout above, there are three fonts listed. The first has a 5 character name of MF107 and a single character name of '&' (0x26, or 26 Hex). Since line printer mode uses the single character name, only the '&' is relevant. The next two fonts have single character names of '!' (0x21) and '%' (0x24) respectively

To select the first font in this list, you would send the three character sequence "ESC w &" which is (0x1B, 0x77, 0x26). All characters after that sequence is sent will be in the new font. This font will remain in effect until (1) a new font is selected, the printer engine is reset (ESC @), the printer is reset (ESC{RE!}), or the printer goes to sleep.

There is a naming convention to all fonts. Fonts that can be loaded onto the thermal printer (or the 2" impact printer) CANNOT be loaded onto the impact printers and vice-verse. Fonts are separated into impact fonts and thermal fonts. And different versions of fonts go with different families of printers. Fonts with an EV followed by the version number in their name have the Euro Symbol at 0x7F.

VERSION	FILE NAME EXAMPLE	Original Thermal	Radio Ready Thermal	2" Impact	Original Impact	Radio Ready Impact
1.0	MF226	X		X		
1.1	CY110				X	
1.3 (thermal)	MF226V13		X			
1.3 (impact)	CY110V13					X

Thermal Fonts Available (as both Version 1.0 and 1.3 except ZP series)
Note: Height and Width given in dots (or pixels) each dot is .005 inches wide and high
Note: All character sets are single byte unless otherwise noted in comments (DBCS = double byte character set).
Note: The following list of fonts was accurate at the time of writing of this Application Note. For the most complete list of fonts, see AN-13.

NAME (5)	NAME (1)	MAPPING	HEIGHT	WIDTH	COMMENTS
A-ASC	+ (0x2B)	CP437	30	10	224 Chars (Space – 0xFE) Load with ARABT to mix same sized Arabic and Latin characters
ARABE	f (0x66)	See AN-13	30	5 – 26	224 Chars (Space – 0xFE) 0x20 – 0x7F Latin 0x80 – 0xFE Arabic
ARABS	e (0x65)	See AN-13	30	5 – 26	224 Chars (Space – 0xFE) 0x20 – 0x7F Latin 0x80 – 0xFE Arabic
ARABT	d (0x64)	See AN-13	30	5 – 26	224 Chars (Space – 0xFE) all Arabic (use A-ASC for Latin)
ASN-A	a (0x61)	DBCS See AN-13	16	16	13,000+ Asian Characters (some released as subsets)
ASN-B	b (0x62)	DBCS See AN-13	16	16	3374 Asian Characters
CHIN1	Q (0x51)	See AN-13	16	16	225 Chars (0x20 – 0xFF) 0x20 – 0x7F Latin 0x80 – 0xFF Asian
DG028	0xAC	ASCII subset	120	72	Digits 0-9, '$', '.' and cents ¢
DG031	0xAB	ASCII subset	108	65	Digits 0-9, '$', '.' and cents ¢
DG035	0xAA	ASCII subset	96	58	Digits 0-9, '$', '.' and cents ¢
DG040	0xA9	ASCII subset	84	51	Digits 0-9, '$', '.' and cents ¢
DG047	0xA8	ASCII subset	72	43	Digits 0-9, '$', '.' and cents ¢
DG051	0xA7	ASCII subset	66	40	Digits 0-9, '$', '.' and cents ¢
DG056	0xA6	ASCII subset	60	36	Digits 0-9, '$', '.' and cents ¢
DG061	0xA5	ASCII subset	54	33	Digits 0-9, '$', '.' and cents ¢
DG070	0xA4	ASCII subset	51	29	Digits 0-9, '$', '.' and cents ¢
DG085	0xA3	ASCII subset	40	24	Digits 0-9, '$', '.' and cents ¢
DG092	0xA2	ASCII subset	36	22	Digits 0-9, '$', '.' and cents ¢
DG107	0xA1	ASCII subset	32	19	Digits 0-9, '$', '.' and cents ¢
FC12G	) (0x29)	ISO 8859-1	25	16	224 Chars (Space – 0xFF)
FC107	' (0x27)	ISO 8859-1	26	19	224 Chars (Space – 0xFF)
FC226	((0x28)	ISO 8859-1	24	9	224 Chars (Space – 0xFF)
GRISO	I (0x69)	ISO 8859-7	24	10	224 Chars (Space – 0xFE)
IS204	P (0x50)	ISO 8859-1	24	10	224 Chars (Space – 0xFF)
IS340	[(0x5B)	ISO 8859-1	24	6	224 Chars (Space – 0xFF) meant to appear condensed
K-ASC	z	ASCII	16	8	96 Chars (0x20 – 0x7F)
MB113	= (0x3D)	CP437	31	18	224 Chars (0x20 – 0xFE) Gothic Roman Characters
MF025	- (0x2D)	ASCII	190	80	96 Chars (0x20 – 0x7A) Stylized with clipped corners
MF036	/ (0x2F)	ASCII	154	56	96 Chars (0x20 – 0x7A) Stylized with Clipped corners

MF055	# (0x23)	ASCII	39	37	96 Chars (0x20 – 0x7E)
MF072	" (0x22)	ASCII	31	28	96 Chars (0x20 – 0x7E)
MF102	SP (0x20)	CP437	26	20	223 Chars (0x20 – 0xFE)
MF107	& (0x26)	ASCII	26	19	96 Chars (0x20 – 0x7E)
MF113	< (0x3C)	CP437	31	28	224 Chars (0x20 – 0xFE) Gothic Roman Characters
MF156	* (0x2A)	ISO 8859-1	27	13	224 Chars (0x20 – 0xFF)
MF185	$ (0x24)	ASCII	24	11	96 Chars (0x20 – 0x7E)
MF204	! (0x21)	CP437	24	10	224 Chars (0x20 – 0xFE)
MF226	% (0x25)	ASCII	24	9	97 Chars (0x20 – 0x7F)
MF340	> (0x3D)	CP437	24	6	224 Chars (0x20 – 0xFE)
OCA1R	O (0x4F)	OCR-A ASCII digits subset	24	14	OCR-A Digits Only Rotated
OCRA1	O (0x4F)	OCR-A subset	20	15	OCR-A 96 Chars (0x20 – 0x7F)
OCR-A	((0x28)	OCR-A	31	19	OCR-A 192 Chars (0x20 – 0xE0
OCR-B	) (0x29)	OCR-B	31	19	OCR-B 220 Chars (0x20 – 0xFC)
PT04A	A (0x41)	ASCII subset	5	4	64 Chars (0x20 – 0x60) up to lower case
PT05H	B (0x42)	ASCII	9	6	96 Chars (0x20 – 0x7F)
PT05T	B (0x42)	ASCII	24	6	96 Chars (0x20 – 0x7F) same as PT05H except double high
PT06H	C (0x43)	ASCII	12	8	96 Chars (0x20 – 0x7F)
PT06X	C (0x43)	CP437 Subset	12	8	193 Chars (0x20 – 0xE0)
PT08H	D (0x44)	ASCII	15	11	96 Chars (0x20 – 0x7F)
PT10B	E (0x45)	ASCII	20	14	96 Chars (0x20 – 0x7F) bolder chars
PT12F	F (0x46)	ASCII	25	16	96 Chars (0x20 – 0x7F) with serif
PT12G	G (0x47)	ASCII	25	16	96 Chars (0x20 – 0x7F) with serif (bold version of PT12F)
PT18B	H (0x48)	ASCII	35	24	96 Chars (0x20 – 0x7F) bolder chars
PT18T	I (0x49)	ASCII	35	24	96 Chars (0x20 – 0x7F) thinner chars
PT24B	J (0x4A)	ASCII	49	32	96 Chars (0x20 – 0x7F) bolder chars
PT24F	K (0x4B)	ASCII	49	32	96 Chars (0x20 – 0x7F) with serif
SHJIS	c (0x63)	Shift JIS	16	16	7000+ Japanese Characters
THISO	j (0x6A)	ISO 8859-1	27	10	219 Chars (0x20 – 0xFB)
UN102	v (0x76)	Unicode	26	20	Chars from CP437 only except graphics characters
UN204	u (0x75)	Unicode	27	10	Latin, Latin Supplement Extended A, Thai
UNICD	u (0x75)	Unicode	27	10	Latin, Latin Supplement Extended A, Thai
ZP00A	A (0x41)	ASCII	14	Proportional	96 Chars (0x20 – 0x7F) Font 12 Size 0
ZP00I	A (0x41)	ISO 8859-1	14	Proportional	224 Chars (0x20 – 0xFF) Font 12 Size 0
ZP00P	A (0x41)	CP437	14	Proportional	224 Chars (0x20 – 0xFE) Font 12 Size 0
ZP02A	B (0x42)	ASCII	14	Proportional	96 Chars (0x20 – 0x7E) Font 12 Size 2
ZP02I	B (0x42)	ISO 8859-1	14	Proportional	224 Chars (0x20 – 0xFF) Font 12 Size 2
ZP02P	B (0x42)	CP437	14	Proportional	224 Chars (0x20 – 0xFE) Font 12 Size 2

ZP02W	B (0x42)	ASCII	17	Proportional	96 Chars (0x20 – 0x7E) Same as ZP02A with 3 dots white space above
ZP03A	C (0x43)	ASCII	28	Proportional	96 Chars (0x20 – 0x7F) Font 12 Size 3
ZP03I	C (0x43)	ISO 8859-1	28	Proportional	224 Chars (0x20 – 0xFF) Font 12 Size 3
ZP03P	C (0x43)	CP437	28	Proportional	224 Chars (0x20 – 0xFE) Font 12 Size 3
ZP04A	D (0x44)	ASCII	28	Proportional	96 Chars (0x20 – 0x7F) Font 12 Size 4
ZP04I	D (0x44)	ISO 8859-1	28	Proportional	224 Chars (0x20 – 0xFF) Font 12 Size 4
ZP04P	D (0x44)	CP437	28	Proportional	224 Chars (0x20 – 0xFE) Font 12 Size 4
ZP06A	E (0x45)	ASCII	28	Proportional	96 Chars (0x20 – 0x7F) Font 12 Size 6
ZP06I	E (0x45)	ISO 8859-1	28	Proportional	224 Chars (0x20 – 0xFF) Font 12 Size 6
ZP06P	E (0x45)	CP437	28	Proportional	224 Chars (0x20 – 0xFE) Font 12 Size 6
ZP08A	F (0x46)	ASCII	23	Proportional	96 Chars (0x20 – 0x7F) Font 12 Size 8
ZP08I	F (0x46)	ISO 8859-1	23	Proportional	224 Chars (0x20 – 0xFF) Font 12 Size 8
ZP08P	F (0x46)	CP437	23	Proportional	224 Chars (0x20 – 0xFE) Font 12 Size 8
ZP10A	G (0x47)	ASCII	25	Proportional	96 Chars (0x20 – 0x7F) Font 12 Size 10
ZP10I	G (0x47)	ISO 8859-1	25	Proportional	224 Chars (0x20 – 0xFF) Font 12 Size 10
ZP10P	G (0x47)	CP437	25	Proportional	224 Chars (0x20 – 0xFE) Font 12 Size 10
ZP12A	H (0x48)	ASCII	25	Proportional	96 Chars (0x20 – 0x7F) Font 12 Size 12
ZP12I	H (0x48)	ISO 8859-1	25	Proportional	224 Chars (0x20 – 0xFF) Font 12 Size 12
ZP12P	H (0x48)	CP437	25	Proportional	224 Chars (0x20 – 0xFE) Font 12 Size 12
ZP13A	I (0x49)	ASCII	42	Proportional	96 Chars (0x20 – 0x7F) Font 12 Size 13
ZP13I	I (0x49)	ISO 8859-1	42	Proportional	224 Chars (0x20 – 0xFF) Font 12 Size 13
ZP13P	I (0x49)	CP437	42	Proportional	224 Chars (0x20 – 0xFE) Font 12 Size 13
ZP14A	J (0x4A)	ASCII	86	Proportional	96 Chars (0x20 – 0x7F) Font 12 Size 14
ZP14I	J (0x4A)	ISO 8859-1	86	Proportional	224 Chars (0x20 – 0xFF) Font 12 Size 14
ZP14P	J (0x4A)	CP437	86	Proportional	224 Chars (0x20 – 0xFE) Font 12 Size 14
ZP17A	K (0x4B)	ASCII	61	Proportional	96 Chars (0x20 – 0x7F) Font 12 Size 17
ZP17I	K (0x4B)	ISO 8859-1	61	Proportional	224 Chars (0x20 – 0xFF) Font 12 Size 17
ZP17P	K (0x4B)	CP437	61	Proportional	224 Chars (0x20 – 0xFE) Font 12 Size 17
ZP21A	L (0x4C)	ASCII	107	Proportional	96 Chars (0x20 – 0x7F) Font 12 Size 21
ZP21I	L (0x4C)	ISO 8859-1	107	Proportional	224 Chars (0x20 – 0xFF) Font 12 Size 21

ZP21P	L (0x4C)	CP437	107	Proportional	224 Chars (0x20 – 0xFE) Font 12 Size 21
ZP25A	M (0x4D)	ASCII	34	Proportional	96 Chars (0x20 – 0x7F) Font 12 Size 25
ZP25I	M (0x4D)	ISO 8859-1	34	Proportional	224 Chars (0x20 – 0xFF) Font 12 Size 25
ZP25P	M (0x4D)	CP437	34	Proportional	224 Chars (0x20 – 0xFE) Font 12 Size 25
ZP26A	N (0x4E)	ASCII	34	Proportional	96 Chars (0x20 – 0x7F) Font 12 Size 26
ZP26I	N (0x4E)	ISO 8859-1	34	Proportional	224 Chars (0x20 – 0xFF) Font 12 Size 26
ZP26P	N (0x4E)	CP437	34	Proportional	224 Chars (0x20 – 0xFE) Font 12 Size 26
ZP28A	O (0x4F)	ASCII	86	Proportional	96 Chars (0x20 – 0x7F) Font 12 Size 28
ZP28I	O (0x4F)	ISO 8859-1	86	Proportional	224 Chars (0x20 – 0xFF) Font 12 Size 28
ZP28P	O (0x4F)	CP437	86	Proportional	224 Chars (0x20 – 0xFE) Font 12 Size 28
AP93A	T (0x54)	ASCII	50	Proportional	96 Chars (0x20 – 0x7F) Font 12 Size 93
ZP93P	T (0x54)	CP437	50	Proportional	224 Chars (0x20 – 0xFE) Font 12 Size 93
ZP94A	U (0x55)	ASCII	25	Proportional	96 Chars (0x20 – 0x7F) Font 12 Size 94
ZP94P	U (0x55)	CP437	25	Proportional	224 Chars (0x20 – 0xFE) Font 12 Size 94
ZP95A	V (0x56)	ASCII	17	Proportional	96 Chars (0x20 – 0x7F) Font 12 Size 95
ZP95P	V (0x56)	CP437	17	Proportional	224 Chars (0x20 – 0xFE) Font 12 Size 95
ZP96A	W (0x57)	ASCII	37	Proportional	96 Chars (0x20 – 0x7F) Font 12 Size 96
ZP96P	W (0x57)	CP437	37	Proportional	224 Chars (0x20 – 0xFE) Font 12 Size 96
ZP97A	X (0x58)	ASCII	37	Proportional	96 Chars (0x20 – 0x7F) Font 12 Size 97
ZP97P	X (0x58)	CP437	37	Proportional	224 Chars (0x20 – 0xFE) Font 12 Size 97
ZP98A	Y (0x59)	ASCII	25	Proportional	96 Chars (0x20 – 0x7F) Font 12 Size 98
ZP98P	Y (0x59)	CP437	25	Proportional	224 Chars (0x20 – 0xFE) Font 12 Size 98
ZP99A	Z (0x5A)	ASCII	223	Proportional	96 Chars (0x20 – 0x7F) Font 12 Size 99
ZP99X	Z (0x5A)	CP437	2223	Proportional	32 Chars (0x20 – 0x40) Space through '@' Font 12 Size 99