IBM

DisplayWrite 5/2

Technical Reference

Office Systems Family

IBM PROGRAM LICENSE AGREEMENT

BEFORE OPENING THIS PACKAGE, YOU SHOULD CAREFULLY READ THE FOLLOWING TERMS AND CONDITIONS. OPENING THIS PACKAGE INDICATES YOUR ACCEPTANCE OF THESE TERMS AND CONDITIONS. IF YOU DO NOT AGREE WITH THEM, YOU SHOULD PROMPTLY RETURN THE PACKAGE UNOPENED AND YOUR MONEY WILL BE REFUNDED.

This is a license agreement and not an agreement for sale. IBM owns, or has licensed from the owner, copyrights in the Program. You obtain no rights other than the license granted you by this Agreement. Title to the enclosed copy of the Program, and any copy made from it, is retained by IBM. IBM licenses your use of the Program in the United States and Puerto Rico. You assume all responsibility for the selection of the Program to achieve your intended results and for the installation of, use of, and results obtained from, the Program. The Section in the enclosed documentation entitled "License Information" contains additional information concerning the Program and any related Program Services.

LICENSE

You may:

1) use the Program on only one machine at any one time, unless permission to use it on more than one machine at any one time is granted in the License Information (Authorized Use);

2) make a copy of the Program for backup or modification purposes only in support of your Authorized Use. However, Programs marked "Copy Protected" limit copying;

3) modify the Program and/or merge it into another program only in support of your Authorized Use; and

4) transfer possession of copies of the Program to another party by transferring this copy of the IBM Program License Agreement, the License Information, and all other documentation along with at least one complete, unaltered copy of the Program. You must, at the same time, either transfer to such other party or destroy all your other copies of the Program, including modified copies or portions of the Program merged into other programs. Such transfer of possession terminates your license from IBM. Such other party shall be licensed, under the terms of this Agreement, upon acceptance of this Agreement by its initial use of the Program.

You shall reproduce and include the copyright notice(s) on all such copies of the Program, in whole or in part.

You shall not:

1) use, copy, modify, merge, or transfer copies of the Program except as provided in this Agreement;

2) reverse assemble or reverse compile the Program; and/or

3) sublicense, rent, lease, or assign the Program or any copy thereof.

LIMITED WARRANTY

Warranty details and limitations are described in the Statement of Limited Warranty which is available upon request from IBM, its Authorized Dealer or its approved supplier and is also contained in the License Information. IBM provides a three-month limited warranty on the media for all Programs. For selected Programs, as indicated on the outside of the package, a limited warranty on the Program is available. The applicable Warranty Period is measured from the date of delivery to the original user as evidenced by a receipt.

Certain Programs, as indicated on the outside of the package, are not warranted and are provided "AS IS."

SUCH WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
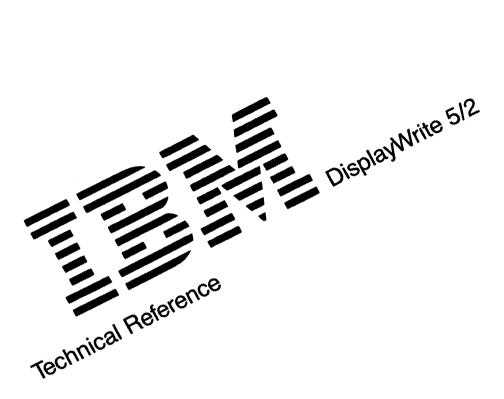
Some states do not allow the exclusion of implied warranties, so the above exclusion may not apply to you.

LIMITATION OF REMEDIES

IBM's entire liability and your exclusive remedy shall be as follows:

Z125-3301-02 10/86

IBM

DisplayWrite 5/2

Technical Reference

Office Systems Family

About This Book

This book is a supplement to the *DisplayWrite™ 5/2 Reference Guide*. It is intended for use by programmers and other individuals with a need for specific, specialized, technical information.

This book contains:

- Information about:

    - Installation

    - Characters and symbols

    - Printers supported by DisplayWrite 5/2 (DW 5/2)

    - Data files, which can be used with the DW 5/2 Merge and Get functions

    - How to use documents created with other systems or application programs in DW 5/2.

- A listing of many DW 5/2 messages, why these messages occurred, and steps for recovery.

- An index.

DisplayWrite is a trademark of International Business Machines Corporation.

Related Publications

Operating System/2™ Standard Edition 1.1, or Extended Edition 1.1. This book provides information about how to use Operating System/2 (OS/2).

DisplayWrite 5/2 Installation. This gives the steps you need to install the DW 5/2 program on your computer.

DisplayWrite 5/2 Getting Started. This book contains an overview of DW 5/2 and its features; information for starting the program; exercises introducing basic text processing functions and additional DW 5/2 features and functions; a list of resources for more information; and an index.

DisplayWrite 5/2 Reference Guide. This book contains a road map; an alphabetic listing and description of the tasks and functions provided by DW 5/2; and a glossary and index to help you find needed information.

DisplayWrite 5/2 Online Help

Online Help has been expanded to include Contextual Help, with information and steps you need to perform tasks; Topical Help, with a listing of tasks and topics; Extended Help, with information on each task or topic highlighted on a help panel; Keys Help, with a listing of the keys and key combinations that work together to perform tasks; and Commands Help, with a listing of the commands you can use to bypass menus using the Command Line function in Create, Revise, and View tasks.

For more information and instructions for using Help, see "Using Online Help" in *DisplayWrite 5/2 Getting Started.*

Disk Backup

All magnetic media are subject to physical damage, erasure, and loss
for a variety of reasons, including operator error, accidental occur-
rences, and machine malfunction. In addition, magnetic media are
subject to theft. Therefore, an integral part of any information system
should be to establish and implement backup (duplication) procedures.
The customer, **not IBM**, is solely responsible for establishing and
implementing all such procedures.

Contents

Install Support

This section contains information about displays, adapters, batch files, memory requirements, and code page switching.

Note: DW 5/2 does not support the IBM Voice Communications Adapter card and the IBM Voice Communications Operating Subsystem program. However, existing voice notes can be kept in the documents. They do not affect the operation of DW 5/2.

Displays

The IBM DW 5/2 Install program sets up all display types to run in APA mode.

* APA mode

  In APA mode, all the EBCDIC (Extended Binary-Coded Decimal Interchange Code) characters and symbols in the Characters Sets and the Symbols Sets can be displayed. For information about the EBCDIC characters and symbols that DW 5/2 supports, see "Charts for Symbols and Characters Sets" on page 9.

* Character mode

  In Character mode, a subset of the PC ASCII (Personal Computer American National Standard Code for Information Interchange) Character Set can be displayed. For information about the ASCII characters that DW 5/2 uses, see "Charts for Symbols and Characters Sets" on page 9.

The following are APA mode and Character mode comparisons in DW 5/2:

- In APA mode, DW 5/2 "dims" or "lowlights" non-selectable menu items. In Character mode, a solid box precedes menu items that are selectable.

- In APA mode, the character or number that may be used to select an item is underscored. In Character mode, it is displayed in a different color. On the Monochrome Display the character or number is underlined.

- In APA mode, underlined text is displayed underlined. In Character mode, underlined text is displayed in a different color, except on the Monochrome Display where underlined text is displayed underlined.

- In APA mode, the mouse cursor is displayed as an arrow. In Character mode, the mouse cursor is displayed as a video-reversed character box on the character at the mouse pointer location.

- In APA mode, with an EGA card and a Monochrome Display or an Enhanced Color Display, superscripted text and subscripted text are displayed slightly above and below the line. Also in APA mode, with a VGA adapter card and a Monochrome Display or a Color Display, superscripted text and subscripted text are displayed slightly above and below the line. In Character mode, superscripted text and subscripted text are displayed on the same line.

Color Support

Depending on your display type, adapter card, and adapter card memory, DW 5/2 displays in either full 16 color (8 colors plus brightness on the original 8), or 2 color (light and dark) mode.

Note: If you have an IBM Personal Computer Color Display and a CGA card, and you are running DW 5/2 in APA mode, your display colors will be black and white only.

- If your IBM Personal Computer configuration supports full color (16 colors), DW 5/2 uses only 8 of those 16 colors. The remaining 8 colors are bright versions of the 8 colors and are used to highlight text (for example, bold). For more information, see the "Color Support Chart" on page 5.

- If your IBM Personal Computer configuration supports two colors (light and dark), your display may also support a bright version of the light color when light is assigned to the foreground.

The Display Options menu in Work Station Defaults (through Profiles) allows you to specify the colors for:

- APA mode color support
- APA mode light/dark support
- Character mode color support.

Note: Light/dark support for Character mode cannot be changed.

To change from APA mode to Character mode, see "Batch Files for Starting DW 5/2" on page 6.

The acronyms and terms used in the Color Support Chart on the following page are:

Term **Definition**

CD   Color Display

          Note: VGA supports the IBM Personal System/2®
          8512, 8513, and 8514 Color Displays.

CGA   Color Graphics Adapter card

ECD   Enhanced Color Display

EGA   Enhanced Graphics Adapter card

Full Color   Eight Colors plus Brightness

Kb   kilobyte (1024 bytes)

Mono   Monochrome Display

          Note: VGA supports the IBM Personal System/2 8503
          Monochrome Display.

N/A   Not applicable

VGA   Video Graphics Array adapter

IBM Personal System/2 is a registered trademark of International Business
Machines Corporation.

Color Support Chart

This chart shows the color support provided by DW 5/2 for each display configuration listed in the chart.

Adapter type	Display Type	Amount of Memory on Adapter	Support for APA Mode	Support for Character Mode
EGA	ECD	256 /192/ 128 Kb	Full Color	Full Color
		64 Kb	Light/ Dark/ Bright	Full Color
	CD	N/A	Full Color	Full Color
	MONO	N/A	Light/ Dark/ Bright	Light/ Dark/ Bright
CGA	ECD	N/A	Light/ Dark	Full Color
	CD	N/A	Light/ Dark	Full Color
VGA	MONO	N/A	Light/ Dark/ Bright	Light/ Dark/ Bright
VGA	CD	N/A	Full Color	Full Color

Formatted View (Preview Mode) Support

Preview Mode is supported on the following adapter/display combinations:

- EGA (128/192/256 Kb memory) with all displays
- VGA with all displays
- CGA with CD.

The Install program created a batch file (DW5.CMD) for starting
DW 5/2. It was built specifically for you to reflect the information
that you provided during installation. When you start DW 5/2 by
typing **DW5**, OS/2 will execute this batch file.

The Install program created a directory (DW5-2) into which the
DW 5/2 program files were copied. This directory is created in the
root directory of the drive which you specified for installing DW 5/2.
The DW5.CMD file was stored in the root directory of this drive and
also in DW5-2.

The DW5.CMD file created by the Install program:

• Uses a series of commands to define the operating environment for
  your work, such as the default drive and directory.

• Executes the command that actually starts the DW 5/2 program.

The command that starts DW 5/2 has the following syntax:

`[Program_Path]DW52A100.EXE USER_PROFILE,ALT_PROGRAM_PATH,DISPLAY_MC`

Where:

• Program_Path is the drive and directory in which DW 5/2 was
  installed. This is the primary location for the programs and files
  that are used by DW 5/2.

• ALT_PROGRAM_PATH specifies an alternate drive and direc-
  tory from which programs and files will be accessed. When
  accessing a file, for example, a dictionary, DW 5/2 will look first
  in this path and then in the program path.

• DISPLAY_MODE specifies whether DW 5/2 should use the
  display in Character or APA mode.

If you specified C as the drive for installing DW 5/2, then the start command in DW5.CMD would look like this:

```
c:\DW5-2\DW52A100.EXE c:\DW5-2\PROFILE.PRF,c:\DW5-2\,a
```

To Create a New Batch File

To change the drive and directory for storing documents, the program path, the user profile and path name, or the display mode, you must create a new batch file.

1. Select Profiles in the DisplayWrite 5/2 menu.

2. Select Create Batch File in the Profiles menu.

3. Read the information and make the necessary changes in the Batch File Options (1 of 2) and (2 of 2) menus and press Enter.

4. Type the new batch file name in the Batch File Name menu and press Enter to create the batch file.

5. Press Esc in the Profiles menu to return to the DisplayWrite 5/2 menu.

   Note: See "Displays" on page 1 for more information about display modes for specific hardware configurations, and "Color Support" on page 2 for resulting color support.

To Start DW 5/2 with the New Batch File

1. Return to OS/2.

2. Type the new batch file name at the OS/2 Command Prompt and press Enter.

Note: If you have DW 5/2 defined as a menu item on the OS/2 Program Selector Panel, update the Program Selector Panel definition for DW 5/2 with the new batch file name. See the OS/2 documentation for instructions.

Memory Requirements

The amount of memory required to run DW 5/2 is equal to the
memory required for OS/2, which should already be installed on your
system. See the OS/2 documentation for information about OS/2
memory requirements.

Note: Generally, if the amount of real memory installed on your
system is less than the amount of virtual memory being used by your
system, you can improve system response time by increasing the
amount of installed real memory. For example, if the amount of real
memory installed on your system is 3 megabytes (Mb), the minimum
amount required and the amount of virtual memory being used is
4 Mb, by increasing real memory to 4 Mb, system response time will
improve.

Code Page Switching

All code page switching is done outside of the DW 5/2 environment.
See the OS/2 documentation for information about how to switch code
pages.

Characters and Symbols Support

This section contains information about characters and symbols sets.

DW 5/2 allows you to display and print a wide range of characters and symbols in addition to those engraved on your keyboard. The "Charts for Symbols and Characters Sets" identify the characters and symbols used in DW 5/2.

- If using DW 5/2 in APA mode, you can display the EBCDIC characters and symbols shown in the charts.

- If using DW 5/2 in Character mode, you can display the ASCII characters and symbols shown in the charts.

  Note: The ASCII character set contains many of the EBCDIC characters and symbols, as well as some unique ASCII characters. (Many IBM printer manuals refer to the ASCII character set as PC Character Set 1 and PC Character Set 2.)

Charts for Symbols and Characters Sets

The charts on the following pages represent all the symbols and characters that can be displayed and printed using DW 5/2.

- Use the Symbols Set chart to revise keyboard extensions Symbols Sets 1, 2, 3 and 4.

- Use the Characters Set chart to revise Characters Sets 5, 6, 7 and 8.

In these charts:

- The Keyboard Extension Choices column identifies the values used in the menus for revising Keyboard Extensions.

- The EBCDIC Graphic Character Names column identifies the EBCDIC Graphic Character.

- The EBCDIC columns identify the EBCDIC characters or symbols and their corresponding EBCDIC hexadecimal values.

- The ASCII columns identify the characters or symbols and their corresponding ASCII hexadecimal values. Characters that are

enclosed in a box print as an underscore on the IBM Proprinter™ (or equivalent).

Note: The hexadecimal values in both the EBCDIC and ASCII columns can be used as a reference to identify characters for Character Set Redefinition in Printer Function Table Tasks (Profiles). See "PFT Tasks for Typestyle/Character Set Support" on page 67.

Revising Keyboard Extensions

To revise a keyboard extension, complete these steps:

1. Select Profiles in the DisplayWrite 5/2 menu.

2. Select Revise Profile in the Profiles menu. Enter your profile name, if necessary, and press Enter.

3. Select Work Station in the Revise Profile menu.

4. Select Revise Keyboard Extensions in the Work Station menu.

5. Select Symbols Set 1, 2, 3, or 4, or Characters Set 5, 6, 7, or 8, and use the Keyboard Extension Choices column in the Characters and Symbols Set Charts to determine the changes you want to make.

Use the charts on the following pages to revise the keyboard extensions.

For additional information about using keyboard extensions while typing your documents, see "Keyboard Extensions" and "Keyboard Extensions, Revise" in the *DisplayWrite 5/2 Reference Guide*.

Proprinter is a trademark of International Business Machines Corporation.

Characters Set Chart

Keyboard Extension Choices	EBCDIC Graphics Character Names	EBCDIC Char	EBCDIC Hex	ASCII Code Page 437 Char	Hex	ASCII Code Page 850 Char	Hex	ASCII Code Page 860 Char	Hex	ASCII Code Page 863 Char	Hex	ASCII Code Page 865 Char	Hex
1	Space		40		20		20		20		20		20
2	Required Space		41		20		20		20		20		20
3	a Circumflex Small	â	42	â	83	â	83	â	83	â	83	â	83
4	a Diaeresis	ä	43	ä	84	ä	84	_	5F	_	5F	ä	84
5	a Grave Small	à	44	à	85	à	85	à	85	ā	85	à	85
6	a Acute Small	á	45	á	A0	á	A0	á	A0	_	5F	á	A0
7	a Tilde Small	ã	46	_	5F	ã	C6	ã	84	_	5F	-	5F
8	a Overcircle Small	å	47	å	86	å	86	_	5F	_	5F	å	86
9	c Cedilla Small	ç	48	ç	87	ç	87	ç	87	ç	87	ç	87
10	n Tilde Small	ñ	49	ñ	A4	ñ	A4	ñ	A4	_	5F	ñ	A4
11	Left Bracket	[	4A	[	5B	[	5B	[	5B	[	5B	[	5B
12	Period	.	4B	.	2E	.	2E	.	2E	.	2E	.	2E
13	Less Than Sign	<	4C	<	3C	<	3C	<	3C	<	3C	<	3C
14	Left Parenthesis	(	4D	(	28	(	28	(	28	(	28	(	28
15	Plus Sign	+	4E	+	2B	+	2B	+	2B	+	2B	+	2B
16	Exclamation Point	!	4F	!	21	!	21	!	21	!	21	!	21
17	Ampersand	&	50	&	26	&	26	&	26	&	26	&	26
18	e Acute Small	é	51	é	82	é	82	é	82	é	82	é	82
19	e Circumflex Small	ê	52	ê	88	ê	88	ê	88	ê	88	ê	88
20	e Diaeresis Small	ë	53	ë	89	ë	89	_	5F	ë	89	ë	89
21	e Grave Small	è	54	è	8A	è	8A	è	8A	è	8A	è	8A
22	i Acute Small	í	55	í	A1	í	A1	í	A1	_	5F	í	A1
23	i Circumflex Small	î	56	î	8C	î	8C	_	5F	î	8C	î	8C
24	i Diaeresis Small	ï	57	ï	8B	ï	8B	_	5F	ï	8B	ï	8B
25	i Grave Small	ì	58	ì	8D	ì	8D	ì	8D	_	5F	ì	8D

Characters Set Chart

Keyboard Extension Choices	EBCDIC Graphics Character Names	EBCDIC Char	EBCDIC Hex	ASCII Code Page 437 Char	ASCII Code Page 437 Hex	ASCII Code Page 850 Char	ASCII Code Page 850 Hex	ASCII Code Page 860 Char	ASCII Code Page 860 Hex	ASCII Code Page 863 Char	ASCII Code Page 863 Hex	ASCII Code Page 865 Char	ASCII Code Page 865 Hex
26	Sharp s Small	β	59	β	E1	β	E1	β	E1	β	E1	β	E1
27	Right Bracket	]	5A	]	5D	]	5D	]	5D	]	5D	]	5D
28	Dollar Sign	$	5B	$	24	$	24	$	24	$	24	$	24
29	Asterisk	*	5C	*	2A	*	2A	*	2A	*	2A	*	2A
30	Right Parenthesis	)	5D	)	29	)	29	)	29	)	29	)	29
31	Semicolon	;	5E	;	3B	;	3B	;	3B	;	3B	;	3B
32	Circumflex Accent	^	5F	^	5E	^	5E	^	5E	^	5E	^	5E
33	Minus Sign, Hyphen	−	60	−	2D	−	2D	−	2D	−	2D	−	2D
34	Slash	/	61	/	2F	/	2F	/	2F	/	2F	/	2F
35	A Circumflec Capital	Â	62	_	5F	Â	B6	Â	8F	Â	84	_	5F
36	A Diaeresis Capital	Ä	63	Ä	8E	Ä	8E		5F		5F	Ä	8E
37	A Grave Capital	À	64	_	5F	À	B7	Ā	91	Ā	8E	_	5F
38	A Acute Capital	Á	65	_	5F	Á	B5	Á	86	_	5F	_	5F
39	A Tilde Capital	Ã	66	_	5F	Ã	C7	Ã	8E	_	5F	_	5F
40	A Overcircle Capital	Å	67	Ā	8F	Å	8F	_	5F	_	5F	Ā	8F
41	C Cedilla Capital	Ç	68	Ç	80	Ç	80	Ç	80	Ç	80	Ç	80
42	N Tilde Capital	Ñ	69	Ñ	A5	Ñ	A5	Ñ	A5	_	5F	Ñ	A5
43	Vertical Line Broken	¦	6A			7C	¦	DD			7C	¦	A0			7C
44	Comma	,	6B	,	2C	,	2C	,	2C	,	2C	,	2C
45	Percent Sign	%	6C	%	25	%	25	%	25	%	25	%	25
46	Underline, Continuous Underscore	_	6D	_	5F	_	5F	_	5F	_	5F	_	5F
47	Greater Than Sign	>	6E	>	3E	>	3E	>	3E	>	3E	>	3E
48	Question Mark	?	6F	?	3F	?	3F	?	3F	?	3F	?	3F
49	o Slash Small	ø	70	o	6F	ø	9B	o	6F	o	6F	ø	9B
50	E Acute Capital	É	71	É	90	É	90	É	90	É	90	É	90

Characters Set Chart

Keyboard Extension Choices	EBCDIC Graphics Character Names	EBCDIC Char	EBCDIC Hex	ASCII Code Page 437 Char	Hex	ASCII Code Page 850 Char	Hex	ASCII Code Page 860 Char	Hex	ASCII Code Page 863 Char	Hex	ASCII Code Page 865 Char	Hex
51	E Circumflex Capital	Ê	72	—	5F	Ê	D2	Ê	89	Ê	92	—	5F
52	E Diaersis Capital	Ë	73	—	5F	Ë	D3	E̅	5F	Ë	94	—	5F
53	E Grave Capital	È	74	—	5F	È	D4	E̅	92	È	91	—	5F
54	I Acute Capital	Í	75	—	5F	Í	D6	Í	8B	—	5F	—	5F
55	I Circumflex Capital	Î	76	—	5F	Î	D7	—	5F	Î	A8	—	5F
56	I Diaeresis Capital	Ï	77	—	5F	Ï	D8	—	5F	Ï	95	—	5F
57	I Grave Capital	Ì	78	—	5F	Ì	DE	Ì	98	—	5F	—	5F
58	Grave Accent	`	79	`	60	`	60	`	60	`	60	`	60
59	Colon	:	7A	:	3A	:	3A	:	3A	:	3A	:	3A
60	Number Sign	#	7B	#	23	#	23	#	23	#	23	#	23
61	At Sign	@	7C	@	40	@	40	@	40	@	40	@	40
62	Apostrophe	'	7D	'	27	'	27	'	27	'	27	'	27
63	Equal Sign	=	7E	=	3D	=	3D	=	3D	=	3D	=	3D
64	Quotation Marks	"	7F	"	22	"	22	"	22	"	22	"	22
65	O Slash Capital	Ø	80	O	4F	Ø	9D	O	4F	O	4F	Ø	9D
66	a Small	a	81	a	61	a	61	a	61	a	61	a	61
67	b Small	b	82	b	62	b	62	b	62	b	62	b	62
68	c Small	c	83	c	63	c	63	c	63	c	63	c	63
69	d Small	d	84	d	64	d	64	d	64	d	64	d	64
70	e Small	e	85	e	65	e	65	e	65	e	65	e	65
71	f Small	f	86	f	66	f	66	f	66	f	66	f	66
72	g Small	g	87	g	67	g	67	g	67	g	67	g	67
73	h Small	h	88	h	68	h	68	h	68	h	68	h	68
74	i Small	i	89	i	69	i	69	i	69	i	69	i	69
75	Left Angle Quotes	«	8A	«	AE	«	AE	«	AE	«	AE	«	AE

Characters Set Chart

Keyboard Extension Choices	EBCDIC Graphics Character Names	EBCDIC Char	Hex	ASCII Code Page 437 Char	Hex	ASCII Code Page 850 Char	Hex	ASCII Code Page 860 Char	Hex	ASCII Code Page 863 Char	Hex	ASCII Code Page 865 Char	Hex
76	Right Angle Quotes	»	8B	»	AF	»	AF	»	AF	»	AF	—	5F
77	dth Icelandic Small	ð	8C	—	5F	ð	D0	—	5F	—	5F	—	5F
78	y Acute Small	ý	8D	—	5F	ý	EC	—	5F	—	5F	—	5F
79	Thorn Icelandic	þ	8E	—	5F	þ	E7	—	5F	—	5F	—	5F
80	Plus or Minus Sign	±	8F	±	F1	±	F1	±	F1	±	F1	±	F1
81	Degree Symbol	°	90	°	F8	°	F8	°	F8	°	F8	°	F8
82	j Small	j	91	j	6A	j	6A	j	6A	j	6A	j	6A
83	k Small	k	92	k	6B	k	6B	k	6B	k	6B	k	6B
84	l Small	l	93	l	6C	l	6C	l	6C	l	6C	l	6C
85	m Small	m	94	m	6D	m	6D	m	6D	m	6D	m	6D
86	n Small	n	95	n	6E	n	6E	n	6E	n	6E	n	6E
87	o Small	o	96	o	6F	o	6F	o	6F	o	6F	o	6F
88	p Small	p	97	p	70	p	70	p	70	p	70	p	70
89	q Small	q	98	q	71	q	71	q	71	q	71	q	71
90	r Small	r	99	r	72	r	72	r	72	r	72	r	72
91	a Underline Small (Ordinal Indicator, F.)	ª	9A	ª	A6	ª	A6	ª	A6	—	5F	ª	A6
92	a Underline Small (Ordinal Indicator, M.)	º	9B	º	A7	º	A7	º	A7	—	5F	º	A7
93	ae Diphthong Small	æ	9C	æ	91	æ	91	—	5F	—	5F	æ	91
94	Cedilla Accent	،	9D	■	FE	،	F7	■	FE	،	A5	■	FE
95	AE Diphthong Capital	Æ	9E	Æ	92	Æ	92	—	5F	—	5F	Æ	92
96	International Currency Sym.	¤	9F	☼	0F	¤	CF	☼	CF	¤	98	¤	AF
97	Micro Symbol, Mu	µ	A0	µ	E6	µ	E6	µ	E6	µ	E6	µ	E6
98	Tilde Accent	~	A1	~	7E	~	7E	~	7E	~	7E	~	7E
99	s Small	s	A2	s	73	s	73	s	73	s	73	s	73
100	t Small	t	A3	t	74	t	74	t	74	t	74	t	74

Characters Set Chart

Keyboard Extension Choices	EBCDIC Graphics Character Names	EBCDIC Char	Hex	ASCII Code Page 437 Char	Hex	ASCII Code Page 850 Char	Hex	ASCII Code Page 860 Char	Hex	ASCII Code Page 863 Char	Hex	ASCII Code Page 865 Char	Hex
101	u Small	u	A4	u	75	u	75	u	75	u	75	u	75
102	v Small	v	A5	v	76	v	76	v	76	v	76	v	76
103	w Small	w	A6	w	77	w	77	w	77	w	77	w	77
104	x Small	x	A7	x	78	x	78	x	78	x	78	x	78
105	y Small	y	A8	y	79	y	79	y	79	y	79	y	79
106	z Small	z	A9	z	7A	z	7A	z	7A	z	7A	z	7A
107	Exclamation Point Inverted	¡	AA	¡	AD	¡	AD	¡	AD	—	5F	¡	AD
108	Question Mark Inverted	¿	AB	¿	A8	¿	A8	¿	A8	—	5F	¿	A8
109	D Icelandic Capital	Ð	AC	—	5F	Ð	D1	—	5F	—	5F	—	5F
110	Y Acute Capital	Ý	AD	—	5F	Ý	ED	—	5F	—	5F	—	5F
111	Thorn Icelandic Capital	Þ	AE	—	5F	Þ	E8	—	5F	—	5F	—	5F
112	Registered Trademark	®	AF	·	FA	®	A9	·	FA	·	FA	·	FA
113	Cent Sign	¢	B0	¢	9B	¢	BD	¢	9B	¢	9B	—	5F
114	Pound Sign	£	B1	£	9C	£	9C	£	9C	£	9C	£	9C
115	Yen Sign	¥	B2	¥	9D	¥	BE	—	5F	—	5F	—	5F
116	Peseta Sign	Pt	B3	Pt	9E	·	FA	Pt	9E	—	5F	Pt	9E
117	Florin Sign	f	B4	f	9F	f	9F	—	5F	f	9F	f	9F
118	Section Symbol (USA)	§	B5	§	15	§	F5	§	15	§	8F	§	15
119	Paragraph Symbol (USA)	¶	B6	¶	14	¶	F4	¶	14	¶	86	¶	14
120	One Quarter	1/4	B7	1/4	AC	1/4	AC	1/4	AC	1/4	AC	1/4	AC
121	One Half	1/2	B8	1/2	AB	1/2	AB	1/2	AB	1/2	AB	1/2	AB
122	Three Quarters	3/4	B9	■	FE	3/4	F3	■	FE	3/4	AD	■	FE
123	Logical Not, "End of Line" Symbol	¬	BA	¬	AA	¬	AA	¬	AA	¬	AA	¬	AA
124	Logical Or, Vertical Line Unbroken	|	BB	|	7C	|	7C	|	7C	|	7C	|	7C
125	Macron Accent, Overline	‾	BC	—	5F	‾	EE	—	5F	~	A7	—	5F

Characters Set Chart

Keyboard Extension Choices	EBCDIC Graphics Character Names	EBCDIC		ASCII Code Page 437		ASCII Code Page 850		ASCII Code Page 860		ASCII Code Page 863		ASCII Code Page 865	
		Char	Hex	Char	Hex	Char	Hex	Char	Hex	Char	Hex	Char	Hex
126	Diaeresis Accent	¨	BD	▓	FE	¨	F9	■	FE	■	A4	■	FE
127	Acute Accent	´	BE	´	27	´	EF	´	27	´	A1	´	27
128	Double Underscore	=	BF	─	5F	=	F2	─	5F	=	8D	─	5F
129	Left Brace	{	C0	{	7B	{	7B	{	7B	{	7B	{	7B
130	A Capital	A	C1	A	41	A	41	A	41	A	41	A	41
131	B Capital	B	C2	B	42	B	42	B	42	B	42	B	42
132	C Capital	C	C3	C	43	C	43	C	43	C	43	C	43
133	D Capital	D	C4	D	44	D	44	D	44	D	44	D	44
134	E Capital	E	C5	E	45	E	45	E	45	E	45	E	45
135	F Capital	F	C6	F	46	F	46	F	46	F	46	F	46
136	G Capital	G	C7	G	47	G	47	G	47	G	47	G	47
137	H Capital	H	C8	H	48	H	48	H	48	H	48	H	48
138	I Capital	I	C9	I	49	I	49	I	49	I	49	I	49
139	Syllable Hyphen	¯	CA	¯	2D	¯	F0	¯	2D	¯	2D	¯	2D
140	o Circumflex Small	ô	CB	ô	93	ô	93	ô	93	ô	93	ô	93
141	o Diaeresis Small	ö	CC	ö	94	ö	94	─	5F	—	5F	ö	94
142	o Grave Small	ò	CD	ò	95	ò	95	ò	95	¯	5F	ò	95
143	o Acute Small	ó	CE	ó	A2	ó	A2	ó	A2	ó	A2	ó	A2
144	o Tilde Small	õ	CF	─	5F	õ	E4	õ	94	—	5F	—	5F
145	Right Brace	}	D0	}	7D	}	7D	}	7D	}	7D	}	7D
146	J Capital	J	D1	J	4A	J	4A	J	4A	J	4A	J	4A
147	K Capital	K	D2	K	4B	K	4B	K	4B	K	4B	K	4B
148	L Capital	L	D3	L	4C	L	4C	L	4C	L	4C	L	4C
149	M Capital	M	D4	M	4D	M	4D	M	4D	M	4D	M	4D
150	N Capital	N	D5	N	4E	N	4E	N	4E	N	4E	N	4E

Characters Set Chart

Keyboard Extension Choices	EBCDIC Graphics Character Names	EBCDIC Char	EBCDIC Hex	ASCII Code Page 437 Char	Hex	ASCII Code Page 850 Char	Hex	ASCII Code Page 860 Char	Hex	ASCII Code Page 863 Char	Hex	ASCII Code Page 865 Char	Hex
151	O Capital	O	D6	O	4F	O	4F	O	4F	O	4F	O	4F
152	P Capital	P	D7	P	50	P	50	P	50	P	50	P	50
153	Q Capital	Q	D8	Q	51	Q	51	Q	51	Q	51	Q	51
154	R Capital	R	D9	R	52	R	52	R	52	R	52	R	52
155	i Dotless Small	ı	DA	—	5F	ı	D5	—	5F	—	5F	—	5F
156	u Circumflex Small	û	DB	û	96	û	96	—	5F	û	96	û	96
157	u Diaeresis Small	ü	DC	ü	81	ü	81	ü	81	ü	81	ü	81
158	u Grave Small	ù	DD	ù	97	ù	97	ù	97	ù	97	ù	97
159	u Acute Small	ú	DE	ú	A3	ú	A3	ú	A3	ú	A3	ú	A3
160	y Diaeresis Small	ÿ	DF	ÿ	98	ÿ	98	—	5F	—	5F	ÿ	98
161	Reverse Slash	\	E0	\	5C	\	5C	\	5C	\	5C	\	5C
162	Numeric Space		E1		20		20		20		20		20
163	S Capital	S	E2	S	53	S	53	S	53	S	53	S	53
164	T Capital	T	E3	T	54	T	54	T	54	T	54	T	54
165	U Capital	U	E4	U	55	U	55	U	55	U	55	U	55
166	V Capital	V	E5	V	56	V	56	V	56	V	56	V	56
167	W Capital	W	E6	W	57	W	57	W	57	W	57	W	57
168	X Capital	X	E7	X	58	X	58	X	58	X	58	X	58
169	Y Capital	Y	E8	Y	59	Y	59	Y	59	Y	59	Y	59
170	Z Capital	Z	E9	Z	5A	Z	5A	Z	5A	Z	5A	Z	5A
171	Two Superscript	²	EA	²	FD	²	FD	²	FD	²	FD	²	FD
172	O Circumflex Capital	Ô	EB	—	5F	Ô	E2	Ô	8C	Ô	99	—	5F
173	O Diaeresis Capital	Ö	EC	Ö	99	Ö	99	—	5F	—	5F	Ö	99
174	O Grave Capital	Ò	ED	—	5F	Ò	E3	Ò	A9	—	5F	—	5F
175	O Acute Capital	Ó	EE	—	5F	Ó	E0	Ó	9F	—	5F	—	5F

Characters Set Chart

Keyboard Extension Choices	EBCDIC Graphics Character Names	EBCDIC Char	EBCDIC Hex	ASCII Code Page 437 Char	Hex	ASCII Code Page 850 Char	Hex	ASCII Code Page 860 Char	Hex	ASCII Code Page 863 Char	Hex	ASCII Code Page 865 Char	Hex
176	O Tilde Capital	Õ	EF	—	5F	Õ	EF	Õ	99	—	5F	—	5F
177	Zero	0	F0	0	30	0	30	0	30	0	30	0	30
178	One	1	F1	1	31	1	31	1	31	1	31	1	31
179	Two	2	F2	2	32	2	32	2	32	2	32	2	32
180	Three	3	F3	3	33	3	33	3	33	3	33	3	33
181	Four	4	F4	4	34	4	34	4	34	4	34	4	34
182	Five	5	F5	5	35	5	35	5	35	5	35	5	35
183	Six	6	F6	6	36	6	36	6	36	6	36	6	36
184	Seven	7	F7	7	37	7	37	7	37	7	37	7	37
185	Eight	8	F8	8	38	8	38	8	38	8	38	8	38
186	Nine	9	F9	9	39	9	39	9	39	9	39	9	39
187	Three Superscript	³	FA	ⁿ	FC	³	FC	ⁿ	FC	³	A6	ⁿ	FC
188	U Circumflex Capital	Û	FB	—	5F	Û	EA	—	5F	Û	9E	—	5F
189	U Diaeresis Capital	Ü	FC	Ü	9A	Ü	9A	Ü	9A	Ü	9A	Ü	9A
190	U Grave Capital	Ù	FD	—	5F	Ù	EB	Ù	9D	Ù	9D	—	5F
191	U Acute Capital	Ú	FE	—	5F	Ú	E9	Ú	96	—	5F	—	5F

Symbols Set Chart

Keyboard Extension Choices	EBCDIC Graphics Character Names	EBCDIC Char	EBCDIC Hex	ASCII Code Page 437 Char	ASCII Code Page 437 Hex	ASCII Code Page 850 Char	ASCII Code Page 850 Hex	ASCII Code Page 860 Char	ASCII Code Page 860 Hex	ASCII Code Page 863 Char	ASCII Code Page 863 Hex	ASCII Code Page 865 Char	ASCII Code Page 865 Hex
1	Space		40		20		20		20		20		20
2	Required Space		41		20		20		20		20		20
3	Equal Sign Superscript	≈	42	—	5F	—	5F	—	5F	—	5F	—	5F
4	Minus Sign Superscript	-	43	—	5F	—	5F	—	5F	—	5F	—	5F
5	Plus Sign Superscript	+	44	—	5F	—	5F	—	5F	—	5F	—	5F
6	Infinity Symbol Super- script	∞	45	—	5F	—	5F	—	5F	—	5F	—	5F
7	Pi Superscript	π	46	—	5F	—	5F	—	5F	—	5F	—	5F
8	Delta Superscript	Δ	47	—	5F	—	5F	—	5F	—	5F	—	5F
9	Right Arrow Superscript	→	48	—	5F	—	5F	—	5F	—	5F	—	5F
10	Slash Superscript	/	49	—	5F	—	5F	—	5F	—	5F	—	5F
11	Left Bracket	[	4A	[	5B	[	5B	[	5B	[	5B	[	5B
12	Dagger	†	4B	—	5F	—	5F	—	5F	—	5F	—	5F
13	Less Than Sign	<	4C	<	3C	<	3C	<	3C	<	3C	<	3C
14	Left Parenthesis	(	4D	(	28	(	28	(	28	(	28	(	28
15	Copyright Symbol	©	4E	⌐	A9	©	B8	—	5F	⌐	A9	⌐	A9
16	Radical	√	4F	√	FB	—	5F	√	FB	√	FB	√	FB
17	Less Than or Equal Sign	≤	50	≤	F3	—	5F	≤	F3	≤	F3	≤	F3
18	Macron Accent	¯	51	_	5F	—	5F	—	5F	—	5F	—	5F
19	Left Angle Bracket Super- script	‹	52	▌	DE	—	5F	▌	DE	▌	DE	▌	DE
20	Right Angle Bracket Super- script	›	53	▐	DD	—	5F	▐	DD	▐	DD	▐	DD
21	Prescription Symbol	℞	54	▬	DC	▬	DC	▬	DC	▬	DC	▬	DC
22	"Is Not an Element of" Symbol	∉	55	—	5F	—	5F	—	5F	—	5F	—	5F
23	"Therefore" Symbol	∴	56	—	5F	—	5F	—	5F	—	5F	—	5F
24	Increase	↗	57	—	5F	—	5F	—	5F	—	5F	—	5F
25	Decrease	↘	58	—	5F	—	5F	—	5F	—	5F	—	5F

Symbols Set Chart

Keyboard Extension Choices	EBCDIC Graphics Character Names	EBCDIC Char	EBCDIC Hex	ASCII Code Page 437 Char	Hex	ASCII Code Page 850 Char	Hex	ASCII Code Page 860 Char	Hex	ASCII Code Page 863 Char	Hex	ASCII Code Page 865 Char	Hex
26	Double Dagger	‡	59	—	5F	—	5F	—	5F	—	5F	—	5F
27	Right Bracket	"	5A	"	5D	"	5D	"	5D	"	5D	"	5D
28	Product Dot, Mult. Bullet	•	5B	•	F9	·	FA	•	F9	•	F9	•	F9
29	Not Equal Sign	≠	5C	¬	AA	¬	AA	¬	AA	¬	AA	¬	AA
30	Right Parenthesis	)	5D	)	29	)	29	)	29	)	29	)	29
31	Diaeresis Accent	¨	5E	■	FE	Ê	F9	■	FE	Ê	A4	■	FE
32	Circumflex Accent	ε	5F	ε	5E	ε	5E	ε	5E	ε	5E	ε	5E
33	Minus Sign, Hyphen	–	60	–	2D	–	2D	–	2D	–	2D	–	2D
34	Greater Than or Equal Sign	X	61	X	F2	—	5F	X	F2	X	F2	X	F2
35	Or Symbol	V	62	—	5F	—	5F	—	5F	—	5F	—	5F
36	And Symbol	∧	63	—	5F	—	5F	—	5F	—	5F	—	5F
37	Parallel Symbol	‖	64	⋮	B1	⋮	B1	⋮	B1	⋮	B1	⋮	B1
38	Angle Symbol	∠	65	—	5F	—	5F	—	5F	—	5F	—	5F
39	Left Angle Bracket	<	66	—	5F	—	5F	—	5F	—	5F	—	5F
40	Right Angle Bracket	>	67	—	5F	—	5F	—	5F	—	5F	—	5F
41	Minus or Plus Sign	∓	68	—	5F	—	5F	—	5F	—	5F	—	5F
42	Lozenge	¤	69	—	5F	—	5F	—	5F	—	5F	—	5F
43	Minute Symbol	'	6A	'	27	'	27	'	27	'	27	'	27
44	Female Symbol	♀	6B	♀	0C	♀	0C	♀	0C	♀	0C	♀	0C
45	Male Symbol	♂	6C	♂	0B	♂	0B	♂	0B	♂	0B	♂	0B
46	Underscore	_	6D	—	5F	—	5F	—	5F	—	5F	—	5F
47	Greater Than Sign	>	6E	>	3E	>	3E	>	3E	>	3E	>	3E
48	Integral Symbol	∫	6F	—	5F	—	5F	—	5F	—	5F	—	5F
49	Intersection, Logical Product	∩	70	∩	EF	—	5F	∩	EF	∩	EF	∩	EF
50	Union, Logical Sum	∪	71	—	5F	—	5F	—	5F	—	5F	—	5F

Symbols Set Chart

Keyboard Extension Choices	EBCDIC Graphics Character Names	EBCDIC Char	Hex	ASCII Code Page 437 Char	Hex	ASCII Code Page 850 Char	Hex	ASCII Code Page 860 Char	Hex	ASCII Code Page 863 Char	Hex	ASCII Code Page 865 Char	Hex
51	"Is Included In" Symbol	⊂	72	—	5F	—	5F	—	5F	—	5F	—	5F
52	"Includes" Symbol	⊃	73	—	5F	—	5F	—	5F	—	5F	—	5F
53	Circle Plus, Closed Sum	⊕	74	—	5F	—	5F	—	5F	—	5F	—	5F
54	Right Angle Symbol	∟	75	⌊L⌋	1C	⌊L⌋	1C	⌊L⌋	1C	⌊L⌋	1C	⌊L⌋	1C
55	(Unassignable)		76	—	5F	—	5F	—	5F	—	5F	—	5F
56	Circle x, Closed Product	⊗	77	—	5F	—	5F	—	5F	—	5F	—	5F
57	Breve Accent	˘	78	—	5F	—	5F	—	5F	—	5F	—	5F
58	Grave Accent	`	79	`	60	`	60	`	60	`	60	`	60
59	Divide Sign	÷	7A	÷	F6	÷	F6	÷	F6	÷	F6	÷	F6
60	Plus or Minus Sign	±	7B	±	F1	+	F1	±	F1	±	F1	±	F1
61	Degree Symbol	o	7C	o	F8	o	F8	o	F8	o	F8	o	F8
62	Acute Accent	´	7D	´	27	´	EF	´	27	´	A1	´	27
63	Seconds Symbol	ʺ	7E	ʺ	22	ʺ	22	ʺ	22	ʺ	22	ʺ	22
64	Registered Trademark Sym.	®	7F	•	FA	®	A9	•	FA	•	FA	•	FA
65	Double Overline	=	80	■	DF	■	DF	■	DF	■	DF	■	DF
66	Alpha Small	α	81	α	E0	—	5F	α	E0	α	E0	α	E0
67	Beta Small	β	82	β	E1	β	E1	β	E1	β	E1	β	E1
68	Psi Small	ψ	83	—	5F	—	5F	—	5F	—	5F	—	5F
69	Phi Small	φ	84	ø	ED	—	5F	ø	ED	ø	ED	ø	ED
70	Epsilon Small	ε	85	ε	EE	—	5F	ε	EE	ε	EE	ε	EE
71	Pi Small	π	86	π	E3	—	5F	π	E3	π	E3	π	E3
72	Lambda Small	λ	87	—	5F	—	5F	—	5F	—	5F	—	5F
73	Eta Small	η	88	—	5F	—	5F	—	5F	—	5F	—	5F
74	Iota Small	ι	89	—	5F	—	5F	—	5F	—	5F	—	5F
75	Upper Left Box Corner	⌐	8A	⌐	DA	⌐	DA	⌐	DA	⌐	DA	⌐	DA

Symbols Set Chart

Keyboard Extension Choices	EBCDIC Graphics Character Names	EBCDIC Char	EBCDIC Hex	ASCII Code Page 437 Char	ASCII Code Page 437 Hex	ASCII Code Page 850 Char	ASCII Code Page 850 Hex	ASCII Code Page 860 Char	ASCII Code Page 860 Hex	ASCII Code Page 863 Char	ASCII Code Page 863 Hex	ASCII Code Page 865 Char	ASCII Code Page 865 Hex
76	Left Middle Box Side	├	8B	├	C3	├	C3	├	C3	├	C3	├	C3
77	Lower Left Box Corner	└	8C	└	C0	└	C0	└	C0	└	C0	└	C0
78	Center Box Bar Vertical	│	8D	│	B3	│	B3	│	B3	│	B3	│	B3
79	Upper Left Parenthesis Section	⎛	8E	--	5F	—	5F	—	5F	—	5F	—	5F
80	Lower Left Parenthesis Section	⎝	8F	--	5F	—	5F	—	5F	—	5F	—	5F
81	Permille Symbol	‰	90	--	5F	—	5F	—	5F	—	5F	—	5F
82	Theta Small (Open Form)	ϑ	91	--	5F	—	5F	—	5F	—	5F	—	5F
83	Kappa Small	κ	92	--	5F	—	5F	—	5F	—	5F	—	5F
84	Omega Small	ω	93	--	5F	—	5F	—	5F	—	5F	—	5F
85	Mu Small	μ	94	μ	E6	μ	E6	μ	E6	μ	E6	μ	E6
86	Nu Small	ν	95	--	5F	—	5F	—	5F	—	5F	—	5F
87	Omicron Small	o	96	--	5F	—	5F	—	5F	—	5F	—	5F
88	Rho Small	ρ	97	--	5F	—	5F	—	5F	—	5F	—	5F
89	Gamma Small	γ	98	--	5F	—	5F	—	5F	—	5F	—	5F
90	Theta Small	θ	99	--	5F	—	5F	—	5F	—	5F	—	5F
91	Middle Box Top	┬	9A	┬	C2	┬	C2	┬	C2	┬	C2	┬	C2
92	Box Cross, Box Corner	┼	9B	┼	C5	┼	C5	┼	C5	┼	C5	┼	C5
93	Middle Box Bottom	┴	9C	┴	C1	┴	C1	┴	C1	┴	C1	┴	C1
94	Trademark Symbol	™	9D	♦	04	—	5F	—	5F	♦	04	—	5F
95	Upper Rt. Parenthesis Section	⎞	9E	--	5F	—	5F	—	5F	—	5F	—	5F
96	Lower Rt. Parenthesis Section	⎠	9F	--	5F	—	5F	—	5F	⌐	5F	—	5F
97	"Congruent To" Symbol	≅	A0	≈	F7	—	5F	≈	F7	≈	F7	≈	F7
98	Tilde Accent	~	A1	~	7E	~	7E	~	7E	~	7E	~	7E
99	Sigma Small	σ	A2	σ	E5	—	5F	σ	E5	σ	E5	σ	E5
100	Tau Small	τ	A3	τ	E7	—	5F	τ	E7	τ	E7	τ	E7

Symbols Set Chart

Keyboard Extension Choices	EBCDIC Graphics Character Names	EBCDIC Char	EBCDIC Hex	ASCII Code Page 437 Char	Hex	ASCII Code Page 850 Char	Hex	ASCII Code Page 860 Char	Hex	ASCII Code Page 863 Char	Hex	ASCII Code Page 865 Char	Hex
101	Xi Small	ξ	A4	—	5F	—	5F	—	5F	—	5F	—	5F
102	Multiply Sign	×	A5	—	5F	×	9E	—	5F	—	5F	—	5F
103	Delta Small	δ	A6	δ	EB	—	5F	δ	EB	δ	EB	δ	EB
104	Chi Small	χ	A7	—	5F	—	5F	—	5F	—	5F	—	5F
105	Upsilon Small	υ	A8	—	5F	—	5F	—	5F	—	5F	—	5F
106	Zeta Small	ζ	A9	—	5F	—	5F	—	5F	—	5F	—	5F
107	Upper Right Box Corner	┐	AA	┐	BF	┐	BF	┐	BF	┐	BF	┐	BF
108	Right Middle Box Side	┤	AB	┤	B4	┤	B4	┤	B4	┤	B4	┤	B4
109	Lower Right Box Corner	┘	AC	┘	D9	┘	D9	┘	D9	┘	D9	┘	D9
110	Center Box Bar Horizontal	─	AD	─	C4	─	C4	─	C4	─	C4	─	C4
111	Lower Right/Upper Left Brace Section	⌠	AE	—	5F	—	5F	—	5F	—	5F	—	5F
112	Upper Right/Lower Left Brace Section	⌡	AF	—	5F	—	5F	—	5F	—	5F	—	5F
113	Zero Subscript	$_0$	B0	—	5F	—	5F	—	5F	—	5F	—	5F
114	One Subscript	$_1$	B1	—	5F	—	5F	—	5F	—	5F	—	5F
115	Two Subscript	$_2$	B2	—	5F	—	5F	—	5F	—	5F	—	5F
116	Three Subscript	$_3$	B3	—	5F	—	5F	—	5F	—	5F	—	5F
117	Four Subscript	$_4$	B4	—	5F	—	5F	—	5F	—	5F	—	5F
118	Five Subscript	$_5$	B5	—	5F	—	5F	—	5F	—	5F	—	5F
119	Six Subscript	$_6$	B6	—	5F	—	5F	—	5F	—	5F	—	5F
120	Seven Subscript	$_7$	B7	—	5F	—	5F	—	5F	—	5F	—	5F
121	Eight Subscript	$_8$	B8	—	5F	—	5F	—	5F	—	5F	—	5F
122	Nine Subscript	$_9$	B9	—	5F	—	5F	—	5F	—	5F	—	5F
123	Perpendicular Symbol	⊥	BA	—	5F	—	5F	—	5F	—	5F	—	5F
124	Total Symbol	⌀	BB	—	5F	—	5F	—	5F	—	5F	—	5F
125	Large Bullet, Closed Circle	●	BC	·	FA	·	FA	·	FA	·	FA	·	FA

Symbols Set Chart

Keyboard Extension Choices	EBCDIC Graphics Character Names	EBCDIC Char	EBCDIC Hex	ASCII Code Page 437 Char	ASCII Code Page 437 Hex	ASCII Code Page 850 Char	ASCII Code Page 850 Hex	ASCII Code Page 860 Char	ASCII Code Page 860 Hex	ASCII Code Page 863 Char	ASCII Code Page 863 Hex	ASCII Code Page 865 Char	ASCII Code Page 865 Hex
126	Pound Sign	£	BD	£	9C	£	9C	£	9C	£	9C	£	9C
127	Internat'l Currency Symbol	¤	BE	☒	0F	¤	CF	☒	0F	¤	98	¤	AF
128	Yen Sign	¥	BF	¥	9D	¥	BE	—	5F	—	5F	—	5F
129	Left Brace	{	C0	{	7B	{	7B	{	7B	{	7B	{	7B
130	Del, Delt, Nabla	∇	C1	—	5F	—	5F	—	5F	—	5F	—	5F
131	Infinity Symbol	∞	C2	∞	EC	—	5F	∞	EC	∞	EC	∞	EC
132	Psi Capital	Ψ	C3	—	5F	—	5F	—	5F	—	5F	—	5F
133	Phi Capital	Φ	C4	Φ	E8	—	5F	Φ	E8	Φ	E8	Φ	E8
134	Left Arrow	←	C5	⬅	1B	⬅	1B	⬅	1B	⬅	1B	⬅	1B
135	Pi Capital	Π	C6	—	5F	—	5F	—	5F	—	5F	—	5F
136	Lambda Capital	Λ	C7	—	5F	—	5F	—	5F	—	5F	—	5F
137	Paragraph Symbol (USA)	¶	C8	¶	14	¶	14	¶	14	¶	86	¶	14
138	Up Arrow	↑	C9	↑	18	↑	18	↑	18	↑	18	↑	18
139	Syllable Hyphen	–	CA	—	2D	–	F0	–	2D	–	2D	–	2D
140	Solid Diamond	◆	CB	◆	04	◆	04	◆	04	◆	04	◆	04
141	Caron Accent	ˇ	CC	—	5F	—	5F	—	5F	—	5F	—	5F
142	Bottle Symbol	♦	CD	—	5F	—	5F	—	5F	—	5F	—	5F
143	Vertical Line Unbroken	│	CE	│	7C	│	7C	│	7C	│	7C	│	7C
144	Substitute Blank	ƀ	CF	▓	B0	▓	B0	▓	B0	▓	B0	▓	B0
145	Right Brace	}	D0	}	7D	}	7D	}	7D	}	7D	}	7D
146	Double Underscore	=	D1	—	5F	=	F2	—	5F	=	8D	—	5F
147	Section Symbol (USA)	§	D2	§	15	§	15	§	15	§	8F	§	15
148	Omega Capital	Ω	D3	Ω	EA	—	5F	Ω	EA	Ω	EA	Ω	EA
149	Partial Differential Symbol	∂	D4	—	5F	—	5F	—	5F	—	5F	—	5F
150	Sine Symbol	∿	D5	~	7E	~	7E	~	7E	~	7E	~	7E

Symbols Set Chart

Keyboard Extension Choices	EBCDIC Graphics Character Names	EBCDIC Char	EBCDIC Hex	ASCII Code Page 437 Char	Hex	ASCII Code Page 850 Char	Hex	ASCII Code Page 860 Char	Hex	ASCII Code Page 863 Char	Hex	ASCII Code Page 865 Char	Hex
151	Down Arrow	↓	D6	↓	19	↓	19	↓	19	↓	19	↓	19
152	Liter Symbol	ℓ	D7	—	5F	—	5F	—	5F	—	5F	—	5F
153	Gamma Capital	Γ	D8	Γ	E2	—	5F	Γ	E2	Γ	E2	Γ	E2
154	Theta Capital	Θ	D9	Θ	E9	—	5F	Θ	E9	Θ	E9	Θ	E9
155	Open Square	□	DA	■	DB	■	DB	■	DB	■	DB	■	DB
156	Solid Square, Histogram	■	DB	■	FE	■	FE	■	FE	■	FE	■	FE
157	Slash Square (Cancelled) Square	⊠	DC	/	2F	/	2F	/	2F	/	2F	/	2F
158	Overline	‾	DD	—	5F	—	5F	—	5F	—	5F	—	5F
159	Upper Summation Section	⌐	DE	—	5F	—	5F	—	5F	—	5F	—	5F
160	Lower Summation Section	∟	DF	—	5F	—	5F	—	5F	—	5F	—	5F
161	Backslash	\	E0	\	5C	\	5C	\	5C	\	5C	\	5C
162	Numeric Space		E1		20		20		20		20		20
163	Sigma Capital	Σ	E2	Σ	E4	—	5F	Σ	E4	Σ	E4	Σ	E4
164	Right Arrow	→	E3	—	5F	—	5F	—	5F	—	5F	—	5F
165	Xi Capital	Ξ	E4	—	5F	—	5F	—	5F	—	5F	—	5F
166	"Proportional To" Symbol	∝	E5	—	5F	—	5F	—	5F	—	5F	—	5F
167	Delta Capital	Δ	E6	⌂	7F	⌂	7F	⌂	7F	⌂	7F	⌂	7F
168	Identity Symbol	≡	E7	≡	F0	—	5F	≡	F0	≡	F0	≡	F0
169	Upsilon Capital	Υ	E8	—	5F	—	5F	—	5F	—	5F	—	5F
170	"Approximately Equal To" Symbol	≈	E9	≈	F7	—	5F	≈	F7	≈	F7	≈	F7
171	"Equivalent To" Symbol, Cycle Symbol	~	EA	∩	EF	—	5F	∩	EF	∩	EF	∩	EF
172	Logical Not	¬	EB	¬	AA	¬	AA	¬	AA	¬	AA	¬	AA
173	Arrow Indicator	▶	EC	—	5F	—	5F	—	5F	—	5F	—	5F
174	Solid Triangle	▲	ED	—	5F	—	5F	—	5F	—	5F	—	5F
175	Upper Integral Section	⌠	EE	⌠	F4	—	5F	⌠	F4	⌠	F4	⌠	F4

Symbols Set Chart

Keyboard Extension Choices	EBCDIC Graphics Character Names	EBCDIC Char	EBCDIC Hex	ASCII Code Page 437 Char	Hex	ASCII Code Page 850 Char	Hex	ASCII Code Page 860 Char	Hex	ASCII Code Page 863 Char	Hex	ASCII Code Page 865 Char	Hex
176	Lower Integral Section	J	EF	J	F5	—	5F	J	F5	J	F5	J	F5
177	Zero Superscript	0	F0	—	5F	—	5F	—	5F	—	5F	—	5F
178	One Superscript	1	F1	—	5F	1	FB	—	5F	—	5F	—	5F
179	Two Superscript	2	F2	2	FD	2	FD	2	FD	2	FD	2	FD
180	Three Superscript	3	F3	n	FC	n	FC	n	FC	3	A6	n	FC
181	Four Superscript	4	F4	—	5F	—	5F	—	5F	—	5F	—	5F
182	Five Superscript	5	F5	—	5F	—	5F	—	5F	—	5F	—	5F
183	Six Superscript	6	F6	—	5F	—	5F	—	5F	—	5F	—	5F
184	Seven Superscript	7	F7	—	5F	—	5F	—	5F	—	5F	—	5F
185	Eight Superscript	8	F8	—	5F	—	5F	—	5F	—	5F	—	5F
186	Nine Superscript	9	F9	—	5F	—	5F	—	5F	—	5F	—	5F
187	Zero Slash	Ø	FA	▒	B2	▒	B2	▒	B2	▒	B2	▒	B2
188	One Eighth	1/8	FB	—	5F	—	5F	—	5F	—	5F	—	5F
189	Three Eighths	3/8	FC	—	5F	—	5F	—	5F	—	5F	—	5F
190	Five Eighths	5/8	FD	—	5F	—	5F	—	5F	—	5F	—	5F
191	Seven Eighths	7/8	FE	—	5F	—	5F	—	5F	—	5F	—	5F

DW 5/2 saves its characters on disk and in memory in EBCDIC form.

When the Get function is used, and the document being retrieved is either a standard ASCII file or Data File, the ASCII characters are automatically converted by DW 5/2 to EBCDIC characters. The same is true when ASCII character data from a data file is merged with a shell document in the Merge with Data File function.

Where possible, like characters are converted to like characters. However, certain ASCII characters are converted to different characters since they have no EBCDIC equivalent. These characters are shown in the following charts.

Note: If the EBCDIC character is not available on the printer, the ASCII character is printed.

ASCII Code Page 437 to EBCDIC Conversion Chart

Symbols		EBCDIC
ASCII Code Page 437	EBCDIC	Graphic Character Names
⌐	©	Copyright Symbol
⦙	ƀ	Substitute Blank
▓	‖	Parallel Symbol
▓	Ø	Zero Slash
■	□	Open Square
▬	℞	Prescription Symbol
▌	>	Right Angle Bracket Superscript
▌	<	Left Angle Bracket Superscript
▬	=	Double Overline
≈	≃	Approximate Equal
·	®	Registered Trademark Symbol
∩	₃	Superscript 3

ASCII Code Page 850 to EBCDIC Conversion Chart

ASCII Code Page 850	EBCDIC	EBCDIC Graphic Character Names
⁞⁞	Ƅ	Substitute Blank
▓	‖	Parallel Symbol
▒	Ø	Zero Slash
■	□	Open Square
▬	℞	Prescription Symbol
▬	=	Double Overline
•	Pt	Peseta

The table above has the "Symbols" header spanning the ASCII Code Page 850 and EBCDIC columns.

ASCII Code Page 860 to EBCDIC Conversion Chart

ASCII Code Page 860	EBCDIC	EBCDIC Graphic Character Names
⁞⁞	Ƅ	Substitute Blank
▓	‖	Parallel Symbol
▒	Ø	Zero Slash
■	□	Open Square
▬	℞	Prescription Symbol
▮	>	Right Angle Bracket Superscript
▮	<	Left Angle Bracket Superscript
▬	=	Double Overline
≈	≅	Approximate Equal
•	®	Registered Trademark Symbol
∩	^{3}	Superscript 3

ASCII Code Page 863 to EBCDIC Conversion Chart

Symbols		EBCDIC
ASCII Code Page 863	**EBCDIC**	**Graphic Character Names**
⌐	©	Copyright Symbol
⦙⦙	b	Substitute Blank
▨	‖	Parallel Symbol
▩	Ø	Zero Slash
■	□	Open Square
▬	℞	Prescription Symbol
▮	>	Right Angle Bracket Superscript
▮	<	Left Angle Bracket Superscript
▬	=	Double Overline
≈	≃	Approximate Equal
•	®	Registered Trademark Symbol
∩	₃	Superscript 3

ASCII Code Page 865 to EBCDIC Conversion Chart

Symbols		EBCDIC
ASCII Code Page 865	**EBCDIC**	**Graphic Character Names**
⌐	©	Copyright Symbol
⦙⦙	b	Substitute Blank
▨	‖	Parallel Symbol
▩	Ø	Zero Slash
■	□	Open Square
▬	℞	Prescription Symbol
▮	>	Right Angle Bracket Superscript
▮	<	Left Angle Bracket Superscript
▬	=	Double Overline
≈	≃	Approximate Equal
•	®	Registered Trademark Symbol
∩	₃	Superscript 3

Printer Support

DW 5/2 has the following printing enhancements:

- Non-IBM Proportional Spacing Mode (PSM)
- PostScript™[1] Support
- Graphics Mode Printing.

Non-IBM PSM Support

With Non-IBM PSM support, DW 5/2 now has the capability to support fonts such as Helvetica Bold 12-point and Times Roman 10-point by providing Font Width Tables for the printer and fonts you select during Install.

PostScript

PostScript is a page description language that comes as resident software in PostScript printers. IBM DisplayWrite 5/2 supports the twelve basic PostScript fonts. They are:

- Times-Roman: Upright, Bold, Italic, BoldItalic
- Helvetica: Upright, Bold, Oblique, BoldOblique
- Courier: Upright, Bold, Oblique, BoldOblique.

Note: Symbols from the PostScript Symbol font are also included.

---

[1] PostScript is a trademark of Adobe Systems Incorporated.

Graphics Mode Printing

Graphics Mode Printing provides printing for documents containing
text, graphics, and images. The following fonts can be generated for
DisplayWrite 5/2 Graphics Mode Printing:

- CG Times

- CG Times Bold, Bold Italic, Italic

- CG Triumvirate

- CG Triumvirate Bold, Bold Italic, Italic

- Courier

- Courier Bold, Bold Italic, Italic.

___

Printers

During the Install program, you installed up to three printers to use
with DW 5/2. If you did not install all three printers and would like to
add additional printers, or if you want to change printer port destina-
tions, see *DisplayWrite 5/2 Installation.*

The following is a list of the printers supported by DW 5/2, the Printer
Function Table (PFT) name, and the Print Ready Notes (PRN) file
name for each printer.

The PFT is a file containing information about printer controls used to
support your printer, and the PRN file is a "print ready" file that lists
the printer characteristics and functions supported for your printer.

Printer Name	PFT Name	PRN File
IBM 3812-001 PagePrinter Model 1 (US PC Characters)	IBM3812A.PFT	IBM3812.PRN
IBM 3812-002 PagePrinter Model 2 (EBCDIC & PC International Character Set)	IBM3812E.PFT	IBM3812.PRN
IBM 3852-2 Color JetPrinter™	IBM3852.PFT	IBM3852.PRN
IBM 4201-001 Proprinter	IBM4201.PFT	IBM4201.PRN
IBM 4201-002 Proprinter II	IBM4201.PFT	IBM4201.PRN
IBM 4201-003 Proprinter III	IBM42013.PFT	IBM42013.PRN
IBM 4202-001 Proprinter XL	IBM4201.PFT	IBM4201.PRN
IBM 4202-002 Proprinter II XL	IBM4201.PFT	IBM4201.PRN
IBM 4202-003 Proprinter III XL	IBM42013.PFT	IBM42013.PRN
IBM 4207-001 Proprinter X24	IBM4207.PFT	IBM4207.PRN
IBM 4207-002 Proprinter X24E	IBM42072.PFT	IBM42072.PRN

JetPrinter is a trademark of International Business Machines Corporation.

Printer Name	PFT Name	PRN File
IBM 4208-001 Proprinter XL24	IBM4207.PFT	IBM4207.PRN
IBM 4208-002 Proprinter XL24E	IBM42072.PFT	IBM42072.PRN
IBM 4216-020 Personal PagePrinter Model 20 (Proprinter XL emu-lation)	IBM4216.PFT	IBM4216.PRN
IBM 4216-030 Personal PagePrinter II (PostScript)	PSCRIPT.PFT	PSCRIPT.PRN
IBM 5152-002 Graphics	IBM5152.PFT	IBM5152.PRN
IBM 5201-001 Quietwriter® Model 1	IBM5201.PFT	IBM5201.PRN
IBM 5201-002 Quietwriter Model 2	IBM5201.PFT	IBM5201.PRN
IBM 5202-001 Quietwriter III	IBM5202.PFT	IBM5202.PRN
IBM 5204 Quickwriter™ Printer	IBM5204.PFT	IBM5204.PRN
C.Itoh[2] C-715A	CTHC715A.PFT	CTHC715A.PRN
Citizen[3] 120-D	CTZN120D.PFT	CTZN120D.PRN
Citizen Tribute[4] 124	CTZN124.PFT	CTZN124.PRN
Citizen Tribute 224	CTZN224.PFT	CTZN224.PRN

Quietwriter is a registered trademark of International Business Machines Corporation.

Quickwriter is a trademark of International Business Machines Corporation.

[2] C. Itoh is a trademark of C. Itoh Electronics Corporation.

[3] Citizen is a trademark of Citizen American Corporation.

[4] Tribute is a trademark of Citizen American Corporation.

Printer Name	PFT Name	PRN File
Diablo[5] 630	DIAB630.PFT	DIAB630.PRN
Epson[6] EX-800	EEX800.PFT	EEX800.PRN
Epson EX-1000	EEX800.PFT	EEX800.PRN
Epson FX[7]-86	EFX286.PFT	EFX286.PRN
Epson FX-86e	EFX286E.PFT	EFX286E.PRN
Epson FX-286	EFX286.PFT	EFX286.PRN
Epson FX-286e	EFX286E.PFT	EFX286E.PRN
Epson LQ-500	ELQ500.PFT	ELQ500.PRN
Epson LQ-800 (with Identity Module)	ELQ1000A.PFT	ELQ1000A.PRN
Epson LQ-800 (without Identity Module)	ELQ1000B.PFT	ELQ1000B.PRN
Epson LQ-850	ELQ1050.PFT	ELQ1050.PRN
Epson LQ-1000 (with Identity Module)	ELQ1000A.PFT	ELQ1000A.PRN
Epson LQ-1000 (without Identity Module)	ELQ1000B.PFT	ELQ1000B.PRN
Epson LQ-1050	ELQ1050.PFT	ELQ1050.PRN
Epson LQ-2500	ELQ2500.PFT	ELQ2500.PRN
Epson LX-800	ELX800.PFT	ELX800.PRN

[5] Diablo is a trademark of Xerox Corporation.

[6] Epson is a trademark of Seiko Epson Corporation.

[7] FX is a trademark of Epson American, Incorporated.

Printer Name	PFT Name	PRN File
Hewlett-Packard LaserJet	HPLASER.PFT	HPLASER.PRN
Hewlett-Packard LaserJet +	HPLASERP.PFT	HPLASERP.PRN
Hewlett-Packard LaserJet series II	HPLASER2.PFT	HPLASER2.PRN
Hewlett-Packard 2225C ThinkJet Printer	HPTHKJET.PFT	HPTHKJET.PRN
Hewlett-Packard QuietJet Plus Personal Printer	HPQITJET.PFT	HPQITJET.PRN
NEC[8] Pinwriter[9] CP6	NECP6.PFT	NECP6.PRN
NEC Pinwriter P6	NECP6.PFT	NECP6.PRN
NEC Pinwriter CP7	NECP7.PFT	NECP7.PRN
NEC Pinwriter P7	NECP7.PFT	NECP7.PRN
NEC Pinwriter P9XL	NECP9XL.PFT	NECP9XL.PRN
NEC Pinwriter P2200	NECP2200.PFT	NECP2200.PRN
OKIDATA[10] MICRO-LINE[11] 192 Plus	OKIML192.PFT	OKIML192.PRN
OKIDATA MICRO-LINE 193 Plus Printer	OKIML192.PFT	OKIML192.PRN
OKIDATA MICRO-LINE 292 Personal Printer	OKIML293.PFT	OKIML293.PRN
OKIDATE MICRO-LINE 293 Personal Printer	OKIML293.PFT	OKIML293.PRN
OKIDATA MICRO-LINE 393 Personal Printer	OKIML393.PFT	OKIML393.PRN
OKIDATA MICRO-LINE 393C Personal Printer	OKIML393.PFT	OKIML393.PRN

---

[8] NEC is a trademark of Nippon Electric Company, Limited.

[9] Pinwriter is a trademark of NEC Corporation.

[10] OKIDATA is a trademark of Oki America, Incorporated.

[11] MICROLINE is a U.S. trademark of Oki America, Incorporated.

Printer Name	PFT Name	PRN File
Panasonic KX-P1080i	PKX1080I.PFT	PKX1080I.PRN
Panasonic KX-P1091i	PKX1091I.PFT	PKX1091I.PRN
Panasonic KX-P1524	PKX1524.PFT	PKX1524.PRN
QMS[12]-PS 810 (PostScript)	PSCRIPT.PFT	PSCRIPT.PRN
Star[13] NB24-10	STNB2410.PFT	STNB2410.PRN
Star NB24-15	STNB2415.PFT	STNB2415.PRN
Star NX-15	STARNX15.PFT	STARNX15.PRN
Star NX-1000	STNX1000.PFT	STNX1000.PRN
Star SG-10	STARSG10.PFT	STARSG10.PRN
Star SG-15	STARSG10.PFT	STARSG10.PRN
TI OmniLaser[14] Model 2108 (PostScript)	PSCRIPT.PFT	PSCRIPT.PRN
TI OmniLaser Model 2115 (PostScript)	PSCRIPT.PFT	PSCRIPT.PRN
Toshiba[15] P351 3-IN-ONE	TOSHP351.PFT	TOSHP351.PRN
Toshiba P351 3-IN-ONE Printer Model 2	TOSHP351.PFT	TOSHP351.PRN
Toshiba P351SX 3-IN-ONE Printer	TOP351SX.PFT	TOP351SX.PRN

---

[12] QMS is a trademark of QMS, Incorporated.

[13] Star is a trademark of Star Micronics, Incorporated; Star Manufacturing Company, Limited.

[14] TI OmniLaser is a trademark of Texas Instruments Incorporated.

[15] Toshiba is a trademark of Toshiba America Incorporated.

When a printer is selected during DW 5/2 Installation, the files which are necessary for print support are set up in specific directories for each printer port (LPT1, LPT2, and LPT3). For Character Mode printing, the printer-specific directories are:

- \DW5-2\PRINTER1
- \DW5-2\PRINTER2
- \DW5-2\PRINTER3.

For each printer port, all character mode support files (PFT, PRN, FWT, TS, and FNT) are stored in the appropriate directory.

For Graphics Mode Printing and for PostScript printers the printer-specific directories are:

- \DW5-2F\PRINTER1
- \DW5-2F\PRINTER2
- \DW5-2F\PRINTER3.

For each printer port, all graphics mode and PostScript support files (FWT, TS, and FNT) are stored in the appropriate directory.

Note: The Graphics Mode Print option is always installed for the PostScript printers.

See *DisplayWrite 5/2 Installation* to change or add printers using Change Printer Configuration from the DW 5/2 Install menu.

Printer Support Files

There are always two support files for each printer: the PFT and the PRN. If your printer is on the "Customized Font Supported Printers" on page 42, there may be other support files: the Font Configuration Table (FCT) and the Font Width Table (FWT). Customized Font Support also produces a Font Set file (FNT) and a Typestyle Read Me file (TS).

During Install, you indicated the printers you are using with DW 5/2 by selecting the appropriate printer names. The Install program inserted the PFT names for these printers in your Profile.

If a PFT was provided by a printer dealer or manufacturer and you specified that printer table name during the Install program, **you must copy that PFT to your DW 5/2 printer-specific directory before you can print using DW 5/2**.

If the printer you are using is not listed in the "Printers" section and you do not have a PFT for your printer, a PFT containing the minimum printer functions is provided for you in DW 5/2. This PFT is inserted as the system default in your profile for printer 1 and is listed in the Options for Printer 1 menu. Use this system default (DEFAULT.PFT) when printing documents without pitch or typestyle changes.

DEFAULT.PFT supports IBM PC Character Set 1.
DEFAULT2.PFT, which is also provided for you in DW 5/2, supports the same minimum printer functions as DEFAULT.PFT but supports IBM PC Character Set 2.

Notes:

1. DEFAULT2.PFT should not be used unless your printer supports IBM PC Character Set 2.

2. If DEFAULT2.PFT is used and your printer does not support IBM PC Character Set 2, some characters may not be available, and printing results can be unpredictable.

   To print more complex documents (with pitch and typestyle changes), you must install a printer with support for those functions or define a new PFT.

3. Defining a new PFT is not recommended but may be accomplished using the procedure in "Creating/Revising a PFT" on page 65.

Each printer supported by DW 5/2 has a PRN file you can print.
These files provide additional information about which DisplayWrite
functions are supported by your printer, as well as the print character-
istics of your printer. See "Printers" on page 32 for the appropriate
PRN file name for your printer.

Printing the PRN File

The PRN file can be printed during Install. Follow the instructions on
the screen during Printer Install to print this file.

You can also print the PRN file using DW 5/2 by following these
steps:

1. Select Print in the DisplayWrite 5/2 menu and press Enter.

2. Select Print Document in the Print menu and press Enter. The
   Print Document (1 of 2) menu is displayed.

3. To print the PRN file, type the printer-specific directory name, fol-
   lowed by the PRN file name as the document name and press
   Enter. For example, if you installed DW 5/2 on the C drive with
   the IBM Quietwriter III as your printer 1 (LPT1), you would type
   the document name as follows:

   C:\DW5-2\PRINTER1\IBM5202.PRN

4. When the Document Type menu appears, type **A** for the Docu-
   ment Type and press Enter. A message stating that this print
   request has been added to the print queue appears on the message
   line.

You can also print the PRN file using the Print command in OS/2.

Support for Typestyles

A typestyle indicates the typeface (or font) and pitch for printing. For example, Courier identifies a typeface, and 10 pitch indicates 10 characters per inch.

In DW 5/2, a range of typestyles is available for each supported pitch. In your DW 5/2 document, specify *one* of the typestyle numbers in the range to print in the selected pitch. The range indicates the IBM registered typestyle numbers for that pitch. The number you specify determines the typeface. See the PRN for your printer or the typestyle file generated during Install to see the typestyles your printer supports.

Note: The typestyle file (TS) for each printer with customized font support consists of the printer name with a .TS extension, for example, HPLASER.TS.

The following is a list of the typestyle numbers supported in DW 5/2 and the associated pitch for each range of typestyles.

Typestyle Number	Pitch
1-65	10 pitch
66-153	12 pitch
154-200	Proportional
211-239	15 pitch
240-249	5 pitch
250-259	17.1 pitch
260-279	8.55 pitch
4096-61439	Proportional (Selectable Height)

Typestyle numbers are specified in the Typestyle (Typeface and Pitch) menu using Format (F7) or Document Options (Ctrl + F7) when creating or revising a document.

Customized Font Supported Printers

The following is a list of printers with customized font support:

- IBM 3812 PagePrinter, Models 1 and 2
- IBM 4201 Proprinter III
- IBM 4202 Proprinter III XL
- IBM 4207 Proprinter X24
- IBM 4207 Proprinter X24E
- IBM 4208 Proprinter XL24
- IBM 4208 Proprinter XL24E
- IBM 5201 Quietwriter, Models 1 and 2
- IBM 5202 Quietwriter III
- IBM 5204 Quickwriter
- Epson LQ-2500
- Hewlett-Packard LaserJet
- Hewlett-Packard LaserJet+
- Hewlett-Packard LaserJet series II
- NEC Pinwriter P9XL
- NEC Pinwriter P2200
- OKIDATA MICROLINE 393 Personal Printer
- OKIDATA MICROLINE 393C Personal Printer
- Star NB24-15.

Notes:

1. If your printer has customized font support, you will go directly to the Font Install menu after selecting your printers.

2. It is a good idea print the PRN file for your printer before installing the fonts. The PRN file may contain information you need for Font Install. See "Printing the PRN File" on page 40.

3. The first time you install fonts for a printer, the shipped PFT will be customized for your specific font selections and saved in the printer-specific directory. When DW 5/2 has been installed and

you change printer configuration for the same printer, the customized PFT in your printer-specific directory will be customized again.

Font Sets

A font set defines a set of Printer, Graphics Print, or PostScript fonts that have been installed for the printer using the Install program. You can define up to four font sets for each printer.

Font sets 1 through 3 each contain a set of character mode printer fonts that are available on the printer at one time. A set of printer fonts may include internal fonts, font cartridges, and downloaded (soft) fonts.

Note: Soft fonts must be manually downloaded. See the PRN file for your printer for more information about soft fonts.

Font set 4 defines a set of Graphics Print or PostScript fonts that have been installed for the printer. Font set 4 is set up by Install when installing Graphics Print on each printer, or when installing a PostScript printer.

Each font set contains DW 5/2 typestyles, typestyle heights and character sets that correspond to the Printer, Graphics Print, and PostScript fonts you select.

Document Printer and Document Font Set

The document printer and document font set indicate the printer (1 through 3) and font set (1 through 4) used by DW 5/2 to process a document. For example, you can associate a document that contains graphics and images with a Graphics Print printer, or with a PostScript printer. You can also associate a document that requires specific printer fonts with the printer and font set that support those fonts.

To associate a document with a printer and font set you have installed, select Document Printer and Font Set in the Document Options menu during Create or Revise. If the printer and font set displayed in this menu is correct, press Esc to exit this menu. If the printer and font set are not correct, change the printer and font set to the desired values and press Enter.

DW 5/2 uses the Document Printer and Font Set to calculate line endings for proportional (selectable height) typestyles and to ensure that the document is printed using the printer and fonts you selected to print the document.

To print a document using the Document Printer and Font Set, select Document Printer and Font Set in the Print Document (2 of 2) menu.

Printer and font sets can be changed for a document when you are in the document. You can select a document printer and font set and print pages to that printer using the Print Page key. You can then select a different printer and font set while in the document and print pages to that printer without leaving the document.

Note: When changing the document printer and font set in a document containing proportional (selectable height) typestyles, re-paginate the document to ensure that the current line endings match the fonts of the active font set.

Font Set Installation

During installation, you can install up to three sets of printer fonts and one set of Graphics Print fonts or PostScript fonts for each printer. Each set of fonts is called a Font Set.

To determine the supported fonts, see either the PRN or the TS file in the printer-specific directory.

- If you specified font set information for your printer during installation, the fonts and their associated typestyle numbers are found in the TS file generated during Installation.

  Note: Typestyles for Font Sets 1-3 are listed in the .TS file located in the \DW5-2 printer-specific directory. Typestyles for Font Set 4 are listed in the .TS file located in the \DW5-2F printer-specific directory.

- For printers without customized font support, default system font information is located in the PRN file in the printer-specific directory.

- For proportional (selectable height) fonts with font width tables (FWTs) files in the printer-specific directory, DW 5/2 uses the escapement values of the characters and symbols to adjust line

endings when editing, paginating, and checking spelling of the text in a document. When printing, these typestyles are used to select a particular printer, Graphics Print, or PostScript font based on the proportional typestyle and typestyle height selected.

Note: If the document's typestyle does not match a typestyle in your font set which is active at print time, DW 5/2 prints the document using the best available font substitute.

The printer font installation uses a font configuration table (FCT) for each printer with customized font support to process the printer fonts supported by that printer. An FCT exists for each PFT for which Font Install is supported. The file has the same filename as the shipped PFT with a .FCT extension.

The information in the FCT file is used to customize the PFT and to provide you with a list of typestyle numbers to use when selecting fonts.

The FCT contains all the text shown on the display when you select printer fonts for a printer. The FCT also defines the printer fonts and the associated DW 5/2 typestyles, typestyle heights, and character sets supported by DW 5/2. The FCT contains the printer control sequences required to select each printer font defined in the file. Information in the FCT is used to customize the following files for your printer:

- Font Set File (FNT)
- Typestyle Read Me File (TS)
- Printer Function Table (PFT)
- Font Width Tables (FWT).

The Font Set File contains information for the printer font set (1 through 3) installed. This file contains the typestyles, typestyle heights, and character sets associated with the printer fonts. This file makes it possible for DW 5/2 to match the typestyle information in a document to typestyle information corresponding to the printer fonts on a printer when a particular font set is active. The file is created by Install and stored in the printer-specific directory. The file has the same name as the shipped PFT with a .FNT extension.

The Typestyle Read Me File contains the following information for each printer font in each font set installed:

- Typestyle
- Typestyle height
- Typestyle pitch
- Printer font description.

The file is stored in the printer-specific directory. The file has the same name as the shipped PFT with a .TS extension. You can print this file during Printer Font Installation.

The customized PFT contains information from the base PFT, plus the typestyle definitions that match the printer fonts you installed. The base PFT contains control information and character set definitions that correspond to the printer. The Printer Font Installation uses the information in the FCT to create the typestyle definitions in the customized PFT.

The font width table (FWT) file contains the character and symbol escapements for a proportional (selectable height) printer font. This information is used to determine how many characters and symbols fit on a line when you paginate, edit, convert, spell check, and print text in these typestyles.

You can change the printer font information by executing the Install program, selecting Change Printer Configuration, and then by following the steps to specify font information for a printer.

Note: Printer Font Install is supported only for the printers that are listed under "Customized Font Supported Printers" on page 42.

Note: Do not modify the contents of the FCT, FNT, FWT files, or the typestyle or character set definitions in the PFT.

Printer Font Install Procedures

Printer Font Install is started after the printer type and model have been selected. If Printer Font Install is not supported for the PFT being used (see "Customized Font Supported Printers" on page 42), see the PRN file for font information. If Printer Font Install is supported, the following menus appear:

Font Classification

This menu displays when a printer was selected for which multiple menus of font element selections are supported. This menu is constructed using the classification names from the FCT. Make the necessary selections from this menu.

Note: If only a single menu of font element selections is supported, the Font Classification menu does not display.

The last entry on the menu is always Font Selection Complete.

When an option is chose, a Font Element Selections menu will be displayed for the Font Classification selected.

If Font Selection Complete is chosen, no font selections are made and the printer does not support non-selectable internal fonts, the Font Classification menu is redisplayed with this message:

At least one Font Selection must be chosen.

If the number of non-selectable fonts plus the number of selectable fonts is greater than 13 (the maximum allowed), the Font Classification menu is displayed with this message:

More than n Font Selections have been chosen. Reduce the number of selections.

If Font Selection Complete is chosen and font selections have been changed, the new font selections definitions are saved.

Font Element Selections

This menu is displayed from any menu where a printer was selected for which only a single menu of font element selections is supported.

The Font Element Selections menu is constructed using the Selection Identifiers and font element names from the FCT. Make the necessary selections from this menu.

Default Values for Menu Selections

If Font Selections have previously been made, they will be displayed on the menu. selections from this menu.

Font Sets

This menu is displayed after Font Selection is complete. Make the necessary selections from this menu.

When Save Font Set Definitions is selected, the following files will be customized for your selections:

- Font Set File (FNT)
- Typestyle Read Me File (TS)
- Printer Function Table (PFT).

For selections which support proportional (selectable height) fonts, the appropriate FWTs will be set up in the printer-specific directory.

Set up the FWTs to be used for Typographical Proportional Fonts

For the Typographical and Non-IBM PSM fonts selected, the FWTs used for these fonts are copied to the appropriate printer-specific directory:

Printer-specific directory for LPT\FWxxxxx.pts.

Note: x is the typestyle number; i is the optional identifier (A to Z) used to distinguish multiple character set definitions of the same typestyle; pts is the point size (144 for 14.4, PS for PostScript fonts).

Slots Selected for Font Set n

This menu is presented only for a slot printer to prompt for slot information. The menu screen can appear once for each font set on a slot printer.

Fonts Selected for Font Set n

This menu lists:

- All non-selectable fonts which are always available for your printer
- The font selections you have selected.

The menu screen can appear once for each Font Set on a printer. Make the necessary selections from this menu.

If you press Esc you return to the Font Sets menu without saving any changes.

Default Values for menu selection

If the font set is already defined, the selections will be displayed on the menu.

Selection Errors

If the number of internal fonts selected is greater than the Internal Font selections which can be active at one time on your printer, the Font Selection menu is redisplayed with an error message stating the maximum number of internal fonts that you can select.

If the number of external fonts selected is greater than the External Font selections which can be active at one time on your printer, the Font Selection menu is redisplayed with an error message stating the maximum number of external fonts that you can select.

If the total number of fonts selected is greater than the total font selections which can be active at one time on your printer, the Font Selection menu is redisplayed along with an error message stating the maximum number of fonts that you can select.

Do You Want to Print a list of Typestyles to be Used for the Selected Fonts?

A list of typestyles to be used for the selected fonts is generated using information from the FCT and stored in the printer-specific directory for future reference and may be optionally printed within Font Install.

You can also print the TS file using DW 5/2 or OS/2. See "Printing the PRN File" on page 40.

Are You Sure You Want to Delete Font Set Info?

This menu is displayed if you select Cancel Printer Font Installation. Make the necessary selections from this menu.

Attempt to Recover from an I/O Error

This menu appears when an I/O error occurs. Make the necessary selections from this menu.

Graphics Print Font Install

The Graphics Print Font Install stores the Font Set File, the Typestyle Read Me file, and the FWTs for the Graphics Print fonts and PostScript fonts installed for a printer in a Graphics Print Font specific directory named \DW5-2F\PRINTERx\.

Note: x is the LPT number for which you are installing.

DisplayWrite 5/2 uses the Font Set File for Graphics Print fonts and PostScript fonts hen processing font set 4.

Note: The Graphics Print option is always installed for PostScript printers.

Font Librarian

The Font Librarian is used to generate and maintain fonts used in Graphics Print and Formatted View.

During the Graphics Print install, some fonts are automatically generated. You can generate other fonts using the available typeface definitions and the Font Librarian.

To use the Font Librarian:

1. Type **FL.CMD** at the OS/2 system prompt. The Font Librarian menu displays with the following choices:

   - Font Installation
   - Erase Font.

2. Use the cursor movement keys to scroll through the menu, then press the space bar to make your selections. When you have made your selections, press Enter.

Font Installation

Selecting Font Installation displays a list of your printers (from which you select one). The font generation program examines your system, and, based on the typefaces you have available, displays options.

1. The Font Librarian displays a list of available typefaces. Select one (or more) by pressing the space bar.

   Note: If a typeface is not selected, Courier is the default. If you are using the Courier default, the Font Install process changes because Courier is not a proportional typeface.

2. When you have selected the typefaces you want to install, press Enter.

3. Next, select the point sizes from three groups of point sizes:

   - 6 to 14

     Select this group to generate 6, 8, 10, 12, and 14-point fonts. These are common sizes for body text and section headings.

   - 18 to 24

     Select this group to generate 18, 20, and 24-point fonts. These are commonly used for headings.

   - 36 to 72

     Select this group to generate 36, 48, and 72-point fonts. These are large types used for titles.

4. Highlight the point size using the space bar. As you highlight each selection, the message line displays the specific point sizes to be generated.

5. Select a character set, either the full set or one (or more) selections from the Standard, European, Math, and Symbol sets.

6. To generate screen fonts, select Yes or No.

Notes:

1. Not generating each screen font minimizes time and storage. For example, generating a screen font for Courier 10 pitch uses 50,000 bytes. When you have generated a screen font in a specific typeface, all other fonts in that typeface are generated on the screen.

2. If you select No, DW 5/2 displays your text in the closest available screen font. Typeface is displayed in approximation, and the spacing and line breaks are displayed accurately.

3. The Font Librarian calculates space requirements and displays a request to confirm the operation.

4. Creating fonts may take some time. The exact time will vary based on your font selection, your printer, and the specific computer you are using.

Courier Install

If you have selected Courier as the typeface, your selections are displayed in an array of pitches and in four styles: Roman, Bold, Italic, and Bold Italic.

1. Use the space bar to highlight each Courier selection.

2. After making your selections, press Enter.

Erase Font

Because each font requires considerable disk space, you can delete a font you no longer need.

To Erase a Font

1. Type **FL** at the OS/2 system prompt to access the Font Librarian.

2. Select **Erase Font** from the Font Librarian menu.

3. Select your printer from the list of installed printers.

4. Highlight the typeface for the font you want to erase using the space bar and press Enter.

Notes:

1. To erase only specific fonts created from that typeface, use the cursor movement keys to locate the size/pitch selections and press Enter to erase only those typefaces. All fonts you selected are erased from your disk.

2. If text in a document uses a font you have erased, DW 5/2 uses a font of the closest type size.

Document Interchange Support

This section contains information on Document Interchange and
ASCII to EBCDIC conversion.

DW 5/2 provides a range of capabilities for interchanging documents
with other IBM programs or systems by using the Revisable-Form
Text Document Content Architecture (RFTDCA) and Final-Form
Text Document Content Architecture (FFTDCA).

In DW 5/2, Revisable-Form Text (RFT) is used to indicate RFTDCA,
and Final-Form Text (FFT) is used to indicate FFTDCA.

Notes:

1. DW 5/2 can revise and interchange documents containing text and
   voice notes. However, it does not support the IBM Voice Com-
   munications Adapter Card and the IBM Voice Communications
   Operating Subsystem program. Keeping existing voice notes in
   your documents does not affect the operation of DW 5/2.

2. DW 5/2 can work with RFT documents created by other members
   of the IBM DisplayWrite Series. "Round-tripping" of text docu-
   ments among these systems is possible through RFTDCA.

3. DisplayWrite 5/2 can also work with an ASCII file. Formats sup-
   ported are Standard ASCII and 7-bit ASCII.

DW 5/2 supports RFT documents as follows:

• Printing

• Viewing

• Revising

• The Get function in Create or Revise tasks reads RFT documents
  (selected pages or the entire document) into a DW 5/2 document

- The End/Save function in Create or Revise tasks provides support for saving a DW 5/2 document in RFT format

- The Utilities task Document Conversion:

  - Converts RFT documents to DW 5/2 documents

  - Converts DW 5/2 document to RFT documents.

When a DisplayWrite/36, DisplayWrite Assistant™, AS/400™ or DisplayWrite/370 document is to be revised using DW 5/2, the DisplayWrite/36, DisplayWrite Assistant, AS/400, and DisplayWrite/370 user should save the document in RFT format.

FFT Documents

DW 5/2 supports FFT documents as follows:

- Printing

- Utilities task Document Conversion:

  - Converts FFT documents to DW 5/2 documents

  - Converts DW 5/2 documents to FFT documents.

ASCII Files

DW 5/2 supports ASCII files as follows:

- The Get function in Create or Revise tasks reads an ASCII file into a DW 5/2 document

- The Notepad function in Create, Revise, or View tasks saves text from a DW 5/2 document into an ASCII file.

DisplayWrite Assistant is a trademark of International Business Machines Corporation.

AS/400 is a trademark of International Business Machines Corporation.

DW 5/2 can also directly revise a DisplayWrite 3 document. When you revise a DisplayWrite 3 document in DW 5/2, the original DisplayWrite 3 (.TXT) document is converted to a DW 5/2 (.DOC) document. If you want to keep a DisplayWrite 3 version of the document, copy this version before revising it in DW 5/2.

Note: DisplayWrite 3 cannot directly revise a document created in DW 5/2. Therefore, if interchanging documents with DisplayWrite 3, save the DW 5/2 document in RFT format.

DisplayWrite 4, DisplayWrite 4/2, DisplayWrite 4 Version 2, and DW 5/2 documents have the same format; therefore, a document created or revised in DisplayWrite 4, DisplayWrite 4/2, or DisplayWrite 4 Version 2 can be revised in DW 5/2, and a document created or revised in DW 5/2 can be revised in DisplayWrite 4, DisplayWrite 4/2 and DisplayWrite 4 Version 2.

Note: Using DisplayWrite 4, DisplayWrite 4/2, or DisplayWrite 4 Version 2 to revise a DW 5/2 document is not advised. DW 5/2 has additional functions not found in DisplayWrite 4, DisplayWrite 4/2, or DisplayWrite 4 Version 2.

The following tables define the typestyles and typestyle heights supported by DW 5/2 for the proportional typestyles currently supported by DisplayWrite/370 (DW/370). The DW/370 typestyles marked with an asterisk (*) are also supported by DisplayWrite/36 (DW/36).

DW 5/2 will display the DW 5/2 typestyle and typestyle heights in the typestyle status field when processing DW/370 font IDs during Create, Revise, and View. DW 5/2 will also display the typestyle and typestyle heights in menus showing typestyle and typestyle height when processing DW/370 proportional typestyles during Create and Revise.

DW 5/2 will use the DW 5/2 typestyles and typestyle heights that correspond to the DW/370 typestyles when editing, paginating, and printing text in these typestyles.

If you revise a DW 5/2 typestyle and typestyle height that corresponds to a DW/370 typestyle in a document, DW 5/2 will store the DW 5/2 typestyle and typestyle height in the document.

Note: DW 5/2 does not display or store the DW/370 typestyle.

DW 5/2 Typestyle	DW 5/2 Typestyle Height (points)	DW/370 Typestyle
4407	6	451
4407	7	601
4407	8	751*
4407	9	901
4407	10	1051*
4407	11	1201
4407	12	1351*
4407	14	1501
4407	16	1651
4407	18	1805
4407	20	1951
4407	24	2101
4407	30	2251
4407	36	2401

DW 5/2 Typestyle	DW 5/2 Typestyle Height (points)	DW/370 Typestyle
4427	6	453
4427	7	603
4427	8	753
4427	9	903
4427	10	1053*
4427	11	1203
4427	12	1353
4427	14	1503
4427	16	1653*
4427	18	1803*
4427	20	1953
4427	24	2103*
4427	30	2253
4427	36	2403

DW 5/2 Typestyle	DW 5/2 Typestyle Height (points)	DW/370 Typestyle
4535	6	456
4535	7	606
4535	8	756
4535	9	906
4535	10	1056*
4535	11	1206
4535	12	1356
4535	14	1506
4535	16	1656
4535	18	1806
4535	20	1956
4535	24	2106
4535	30	2256
4535	36	2406

DW 5/2 Typestyle	DW 5/2 Typestyle Height (points)	DW/370 Typestyle
4555	6	458
4555	7	608
4555	8	758
4555	9	908
4555	10	1058
4555	11	1208
4555	12	1358
4555	14	1508
4555	16	1658
4555	18	1808
4555	20	1958
4555	24	2108
4555	30	2258
4555	36	2408

DW 5/2 Typestyle	DW 5/2 Typestyle Height (points)	DW/370 Typestyle
33079	6	461
33079	7	611
33079	8	761
33079	9	911
33079	10	1061
33079	11	1211
33079	12	1361
33079	14	1511
33079	16	1661
33079	18	1811
33079	20	1961
33709	24	2111
33079	30	2261
33079	36	2411

DW 5/2 Typestyle	DW 5/2 Typestyle Height (points)	DW/370 Typestyle
33099	6	463
33099	7	613
33099	8	763
33099	9	913
33099	10	1063
33099	11	1213
33099	12	1363
33099	14	1513
33099	16	1663
33099	18	1813
33099	20	1963
33099	24	2113
33099	30	2263
33099	36	2413

DW 5/2 Typestyle	DW 5/2 Typestyle Height (points)	DW/370 Typestyle
33207	6	466
33207	7	616
33207	8	766
33207	9	916
33207	10	1066
33207	11	1216
33207	12	1366
33207	14	1516
33207	16	1666
33207	18	1816
33207	20	1966
33207	24	2116
33207	30	2266
33207	26	2416

DW 5/2 Typestyle	DW 5/2 Typestyle Height (points)	DW/370 Typestyle
33227	6	468
33227	7	618
33227	8	768
33227	9	918
33227	10	1068
33227	11	1218
33227	12	1368
33227	14	1518
33227	16	1668
33227	18	1818
33227	20	1968
33227	24	2118
33227	30	2268
33227	36	2418

These tasks are intended for use by programmers, technicians, and experts on printer functions.

PFT tasks allow you to create or revise PFTs. You can create new tables to support other printers, or you can modify the tables shipped with DW 5/2 to suit your needs.

Notes:

1. If the technical information for your printer is not available, contact your printer dealer or manufacturer.

2. If you modify a PFT shipped with DW 5/2, the modified PFT is no longer supported by IBM.

3. The maximum allowable PFT size that can be created or revised is 8177 bytes.

DW 5/2 PFTs are provided on the DW 5/2 program diskette and are copied during the DW 5/2 Install process. **PFTs must be located in the printer-specific directory to enable DW 5/2 to find them**.

Note: PFTs from the Printer Font Install and the Install program are located in the printer-specific directory. PFTs that you have copied or created must be located in the printer-specific directory to enable DW 5/2 to find them.

DW 5/2 online Help is provided for Printer Function Table Tasks. Access online Help by pressing F1, then press F3 for Topical Help with an index of Help topics. Select Printer Function Tables from the index.

The following files are included with DW 5/2 to support Printer Function Tasks:

• The **\DW5-2\PFTWS.PRN** file lists the printer controls DW 5/2 supports in a worksheet format to assist you when you create PFTs.

• The **\DW5-2\PFTNOTES.PRN** file describes how to create or revise PFTs using PFT tasks.

- The **\DW5-2\PFTTEST.DOC** file provides a sample document to use for testing PFTs.

To print these files:

1. Select Print Document from the Print Menu and press Enter. Type the file name (from one of the three listed above) as the Document Name in the Print Document menu and press Enter.

2. When the Document Type menu appears, type **A** for the Document Type and press Enter. A message stating that this print request has been added to the print queue appears on the message line.

Printer Description Tables

Printer Description Tables (PDTs) created in DisplayWrite 3 or PFTs created in DisplayWrite 4, DisplayWrite 4/2, and DisplayWrite 4 Version 2 can be used with DW 5/2.

Notes:

1. **DW 5/2 PFTs** can only be used with **DisplayWrite 5/2**.

2. The DisplayWrite 3 PDT is converted to a DW 5/2 PFT when revised. This conversion must be completed before you can print.

To Use a DisplayWrite 3 PDT

1. Select Profiles in the DisplayWrite 5/2 menu.

2. Select Revise Table under Printer Function Table in the Profiles menu.

3. Read the information and press Enter in the Printer Function Table Tasks screen.

4. Type the table name of the DisplayWrite 3 PDT in the Revise Printer Function Table Selection menu using a .PDT extension.

5. Type your printer choice to run the print tests, type the appropriate paper handling choice for your printer, then press Enter.

6. Type a table comment and press Enter.

7. If you choose to modify the new PFT, do so now by selecting items in the Revise Printer Function Table menu.

8. Select Function Selection Tests in the Revise Printer Function Table menu.

9. Select Run All Printer Tests in the Function Selection Tests menu. Before each print test, you will be prompted to make the printer ready. If you press Enter, the print test will start. If you press Esc, all print tests are cancelled.

   Note: Check the tests and, if necessary, make any additional changes to the PFT. If you make changes, run the Function Selection Tests again.

10. Press Esc in the Function Selection Tests menu. Press Esc again in the Revise Printer Function Table menu to display the End/Save menu.

11. Select End and Save in the End/Save menu and press Enter.

    Note: DW 5/2 automatically creates a new PFT using the contents of the PDT. The original PDT still exists. The newly-created PFT is not saved until you select End and Save or Save and Continue in the End/Save menu.

12. Press Esc in the Profiles menu to return to the DisplayWrite 5/2 menu.

Creating/Revising a PFT

CAUTION:
IBM recommends that you do not modify PFTs provided by IBM. Modified PFTs will not be supported by IBM.

1. Select Profile in the DisplayWrite 5/2 menu.

2. Select Create Table under Printer Function Table in the Profile menu.

3. Read the information and press Enter to get the Create Printer Function Table Selection menu.

4. Type a name (one to eight characters with a .PFT extension) as the table name.

5. Type your printer choice to run the print tests in the Revise Printer Function Table Selection menu, and type the appropriate paper handling choice for your printer. Press Enter.

6. Type a comment for your table in the Printer Function Table comment menu and press Enter.

   Note: A table comment helps identify the PFT. The default table comment is:

   ++ Printer Function Table ++.

7. Build your table by selecting each option in the Create Printer Function Table menu, and type in the printer controls for each screen. This process is discussed in \DW5-2\PFTNOTES.PRN.

8. The last option to select is Function Selection Tests. After running all the Function Selection Tests, select End and Save in the End/Save menu.

   Note: Check the tests and, if necessary, make any additional changes to the PFT. If you make changes, run the Functional Selection Tests again.

9. Select Revise Profile in the Profiles menu and type the profile name.

10. Select Work Station in the Revise Profile menu and press Enter.

11. Select Options for Printer (printer 1, 2, or 3) in the Workstation Defaults menu, set paper handling (choose from the list of options), and type the PFT name selected in step 4 on page 65 as the printer table name. Press Enter.

12. Press Esc twice to get to the End/Save menu. Select End and Save and press Enter.

13. Press Esc to return to the DisplayWrite 5/2 menu.

14. To print the test document, select Print in the DisplayWrite 5/2 menu and press Enter.

15. Select Print Document in the Print menu and press Enter.

16. Type \DW5-2\PFTTEST.DOC as the Document Name and press Enter.

PFT tasks for Typestyle/Character Sets allow you to assign typestyle numbers to fonts supported by your printer. A typestyle definition is a pair of printer control sequences that select and cancel a particular printer font and a reference to a character set that includes the characters that can print using the typestyle.

When defining a new typestyle or modifying an existing typestyle within PFT tasks, follow these steps:

1. Revise the Printer Function Table through Profiles for the printer you are using.

2. Redefine the DW 5/2 character set to match the character set of your printer's font.

3. Define the default typestyle, an individual or unique typestyle, or a group of similar typestyles to use the redefined DW 5/2 character set and to select the printer's font.

Notes:

1. Use the information in \DW5-2\PFTNOTES.PRN as a guide.

2. Do not revise the typestyle and character set information if you are revising a PFT that was generated by Printer Font Install.

PFT Tasks for Character Set Support

Each typestyle supported in a PFT is associated with a character set. The character set of a particular typestyle may include characters from the PC character set, characters, or symbols. To print a character from one of these, the character must be supported on your printer. Character sets supported for your printer are identified in your printer's PRN file.

To view all the characters your printer supports, see the Typestyle/Character Sets section of the \DW5-2\PFTTEST.DOC file and follow the instructions.

The PFT tasks allow you to redefine character sets to adapt to your printer. DW 5/2 defines character sets for printing using control sequences. Your printer may use a different hexadecimal control sequence than DW 5/2 has defined to print the same character or symbol. If so, use the Character Set Redefinition menus (under Typestyles/Characters) to specify the correct control sequence for your printer. See "To Redefine Character Sets" on page 70 for the steps to use.

For example, the IBM Proprinter cannot print the paragraph symbol (¶) unless the special control sequence (X'1B'X'5E) is sent to the printer immediately preceding the symbol.

The following three character sets are supported by PFT tasks and can be redefined and combined, using the Character Set Redefinition menu to accommodate the character sets supported by your printer.

- PC Character Set − ASCII hexadecimal values, used by most printers for characters and symbols

- Characters − ASCII hexadecimal values for characters (supports the DW 5/2 Characters Sets)

- Symbols − ASCII hexadecimal values for symbols (supports the DW 5/2 Symbols Sets).

Notes:

1. You can redefine eight versions of the PC character set, nine versions of characters, and nine versions of symbols.

2. If a combination of the PFT tasks character sets are required to better support your printer's character set, use both a character and a symbols character set.

For the PC Character Set Redefinition menu, the ASCII graphic character is displayed regardless of the display mode (Character or APA). The ASCII hexadecimal values for the PC Character Set characters are listed in "Charts for Symbols and Characters Sets" on page 9.

If you are using DW 5/2 in APA mode, the EBCDIC graphic characters are displayed along with the EBCDIC graphic character name. If you are using DW 5/2 in Character mode, the ASCII equivalent of the EBCDIC graphic character is displayed on these menus. Therefore, the character displayed may not be the character you want to define to print.

To identify the graphic character to redefine, use the "Charts for Symbols and Characters Sets" on page 9 to locate the EBCDIC graphic character name.

Note: For differences between EBCDIC and ASCII characters see "ASCII to EBCDIC Conversion" on page 27.

The PFTs installed with DW 5/2 define the typestyles you may have for your printer. If using alternate typestyles, modify the PFT for your printer to indicate the typestyles and their associated character sets.

Note: Some characters or symbols your printer can print may not be listed in the Character Set Redefinition menus. You can define a less-used character or symbol to be the desired character or symbol. When you type the character in a document, the character may not be displayed correctly, but the character should print as defined.

To Redefine Character Sets

1. Select Profiles in the DisplayWrite 5/2 menu.

2. Select Revise Table under Printer Function Table in the Profiles menu.

3. Read the information and follow the prompt to press Enter in the Printer Function Table Task screen.

4. Type the table name of the printer table you are using in the Revise Printer Function Table Selection menu.

5. Type a table comment (or change an existing table comment), and press Enter.

6. Select Typestyles/Character Sets in the Revise Printer Function Table menu.

7. Select Character Set Redefinition in the Typestyles/Character Sets menu, then:

   a. To define a new character set, enter one of the character set numbers which identifies your printer's character set.

   b. To modify the character set of an existing typestyle, enter the character set number of the set being used for that typestyle in the Character Set Selection menu and press Enter.

   Notes:

   a. In the Character Set Selection menu, numbers 2 through 9 are used to redefine the PC Character Set; numbers 11 through 19 are used to redefine Characters; and numbers 21 through 29 are used to redefine Symbols. A typestyle definition can reference a PC, Characters, and a Symbols set number.

   b. The character set numbers being used by an existing typestyle can be determined by viewing the definition for that typestyle.

   c. If a combination of the PFT tasks character sets is required to better support your printer's character set, use a Character and a Symbol set.

8. Type the control sequences you want in the Redefinition menus.

   Note: Use the hexadecimal values in the "Charts for Symbols and Characters Sets" on page 9 to help identify characters that may be difficult to read on some displays. Use the information provided with your printer to type the appropriate control sequences.

9. Press Enter to save your redefined character set.

10. Press Esc to return to the Typestyles/Characters Sets menu.

11. Follow the steps in "To Define a Typestyle Definition" (beginning with step 7) to use the character set you have redefined.

To Define a Typestyle Definition

Once the required DW 5/2 character set is redefined to match your printer's character set, a typestyle number must be assigned to access the new character set and its associated typeface.

1. Select Profiles in the DisplayWrite 5/2 menu.

2. Select Revise Table under Printer Function Table in the Profiles menu.

3. Read the information and follow the prompt to press Enter in the Printer Function Table Task screen.

4. Type the table name for the printer you are using in the Revise Printer Function Table Selection menu.

5. Type a table comment (or change an existing table comment), and press Enter.

6. Select Typestyles/Character Sets in the Revise Printer Function Table menu.

7. Select one of the Typestyle Definitions in the Typestyles/Character Sets menu:

   • **Default:** Select Default to use the default typestyle for your printer. Then specify a PC character set. The default typestyle is used to print typestyles not specifically defined.

   • **Individual:** Select an Individual typestyle when defining one typestyle that uses either a unique PFT Task Character Set or printer font selection and reset controls.

   • **Group:** Select a Group typestyle when defining a set of typestyles that use the same PFT Task Character Set, and the same printer font selections, and reset controls.

   Note: For most printers, the font selection controls are independent of the pitch control, and pitch control does not need to be entered in the typestyle menu.

8. In the menus that follow, enter the character set numbers being used to define the typestyle's character set. Enter any initialization and reset controls required to select and reset the printer font assigned to this typestyle. Press F1 for Help, if needed.

   Note: If your printer supports print element changes, you may need to include a pause control in the initial control sequence for the typestyle.

9. Press Enter to save your changes in the Typestyle Definition menus.

10. Press Esc three times to get the End/Save menu and press Enter. This returns you to the Profiles menu.

   Note: Be sure the Profile you are using contains the correct printer table name for your printer.

User-defined Control

A user-defined control is a sequence of controls or a file that contains a sequence of controls (or both). These controls enable you to use a specific printer function that your printer supports but cannot be specifically accessed using DW 5/2 functions or DW 5/2-defined controls. For example, a user-defined control can download a printer font, select double high printing, select another type of text emphasis control, or pause the printing so font cartridges can be changed, if supported.

A user-defined control is referenced by a 1 to 3-digit number. Define this control number in the PFT for the printer you want to use. The definition of the control consists of hexadecimal numbers representing the appropriate control sequence that indicates to your printer what function to perform.

The control sequence, or the control file, is accessed during printing whenever a user-defined control is encountered within the document. If the print control number you specify in the document is not defined in the PFT you are using, the print control is ignored during print. If the print control number you specify in the document is defined in the PFT, the control sequence and contents of the control file are sent to the printer.

To Create a User-defined Control

1. Select Profiles in the DisplayWrite 5/2 menu.

2. Select Revise Table under Printer Function Table in the Profiles menu.

3. Read the information and follow the prompt to press Enter in the Printer Function Table Tasks screen.

4. Type the table name of the printer you are using in the Revise Printer Function Table Selection menu and press Enter.

5. Type a table comment and press Enter.

6. Select User-defined Controls in the Revise Printer Function Table menu.

7. Type a control number in the User-defined Control Selection menu to identify the control or control file and press Enter.

8. Type the control sequence and the control sequence filename for your user-defined control in the User-defined Control Definition menu.

   Note: You can specify both a control sequence and a control sequence filename. The control sequence is sent to the printer first, followed by the contents of the control sequence file.

9. Press Enter to save the control sequences.

10. Press Esc twice to get the End/Save menu. Select End and Save and press Enter. This returns you to the Profiles menu.

To Insert a User-defined Control in a Document

1. In the typing area, position the cursor where you want to insert the control and press Instructions (F8).

2. Select User-defined Control in the Instructions menu and press Enter.

3. Type the control number in the User-defined Control menu.

4. Press Enter to insert the user-defined control.

   You can also insert a user-defined control by using the Command Line command USE.

Notes:

1. If using the Print Document menu, the PDC command, or Print Page (Ctrl + 2) to print selected pages of a document that has user-defined controls, and these controls are being used for functions such as downloading of fonts, or setting conditions in the printer, be sure to include the pages containing the appropriate user-defined controls.

2. If your PFT uses reverse collate, for example, a user-defined control on page 3 activates the function specified in the user-defined control from page 3 through page 1.

3. Make sure that the user-defined control does not alter the print position after the control is issued. For example, inserting a user-defined control for a subscript that does not contain values for ending the subscript leaves the print position lower than the base line. You may need to define a second user-defined control to return the print position to the base line after using the subscript control.

4. If a user-defined control accesses a file, be sure the file is available to the system when printing the document.

Forward/Reverse Collating

Forward collating specifies that the pages of your documents are printed in ascending order, for example, from page 1 to page 3. Reverse collating specifies that the pages in your documents are printed in descending order, for example, page 3 to 1.

Unless otherwise stated in the PRN file for your printer, forward collating is selected in the PFT.

Note: Reverse collating is preferred if your printer ejects pages with the print side face up, so that pages will be stacked in collated order.

To change the collating setting, follow these steps:

1. Select Profiles in the DisplayWrite 5/2 menu.

2. Select Revise Table under Printer Function Table in the Profile menu.

3. Read the information and follow the prompt to press Enter in the Printer Function Table Selection menu.

4. Type the printer choice on which you plan to run the print test, type the appropriate paper handling choice for your printer in the Revise Printer Function Table Selection menu, and press Enter.

5. Type a table comment and press Enter.

6. Select Paper/Page Options in the Revise Printer Function Table menu.

7. Select Paper Handling in the Paper/Page Options menu.

8. In the Collate field, type **F** for forward, or **R** for reverse and press Enter.

9. Press Esc until the End/Save menu is displayed.

10. Select End and Save and press Enter.

11. Press Esc to return to the DisplayWrite 5/2 menu.

Note: Be sure the profile you are using contains the correct PFT name for your printer.

Data Files Support

This section contains information about the Merge with Data File function, Get Data File function, Data File Formats, and user-supplied Programs.

The Merge with Data File and Get Data File functions can use ASCII data files generated by application programs other than DW 5/2. The data file can contain up to:

- 65,000 records

- 100 fields per record

- 2,000 characters per record

- 17 numeric characters per numeric field (15 digits plus an optional leading sign plus (+) or minus (−) and an optional decimal point (.)

- 500 characters per character field.

Note: ASCII Fixed Length Data Files and DisplayWrite Data Files can also be generated using DW 5/2. This creates a data file of up to 510 characters per record. All other limits described above apply.

Supported Data File Formats

You can use the following data file formats:

- IBM Personal Decision Series™ (PDS) Version 1.0 and 2.0
- WKS, WK1, WRK, WR1[16].
- Fixed Length ASCII
- BASIC Sequential
- DIF[17]
- SYLK[18]
- dBASE II, dBASE III, dBASE III Plus[19]
- DisplayWrite

Note: A user-supplied program to interpret other data file formats can be used. For more information, see "User-supplied Program" on page 85.

Personal Decision Series is a trademark of International Business Machines Corporation.

[16] WKS, WK1, WRK, and WR1 are trademarks of Lotus Development Corporation.

[17] DIF is a trademark of Lotus Development Corporation.

[18] SYLK is a trademark of Microsoft Corporation.

[19] dBase II, dBase III, and dBase III Plus are trademarks of Ashton-Tate.

The following are examples of applications that generate the supported data file formats.

Date File Format	Example of Application
PDS	IBM Personal Decision Series - Data Edition, Version 1.0 and 2.0
WKS	Lotus 1-2-320, Lotus Development Corporation, Release 1A
WK1	Lotus 1-2-3, Lotus Development Corporation, Release 2.0
WRK	Symphony, Lotus Development Corporation, Release 1.0
WR1	Symphony, Lotus Development Corporation, Release 1.1
Fixed Length ASCII	BASIC Random (Character type data only), Release 2.1, or other ASCII editors
BASIC Sequential	BASIC Sequential, Release 2.1
DIF	VisiCalc, Visicorp21, Version 1.1; Lotus 1-2-3, Lotus Development Corporation, Release 1A and 2.01; and Personal Application Systems Version 1.0
SYLK	Multiplan, Microsoft Corporation, Version 1.1
dBase II	dBase II, Ashton-Tate, Version 2.4
dBase III	dBase III, Ashton-Tate, Version 1.1
dBase III Plus	dBase III Plus, Ashton-Tate, Version 1.1
DisplayWrite	Produced by Edit File Description and Data File option in DW 5/2, or other ASCII editors

Using PDS File Formats

The PDS file *must*:

- Be associated with a library (sub-directory) name

- Reside in the same sub-directory as the library with which the file is associated

- Be identical to the PDS file description name. However, the file name extensions are different

---

[20] Lotus 1-2-3 is a trademark of Lotus Development Corporation.

[21] Visicorp is a trademark of Lotus Development Corporation.

- Be a text-type. Use the PDS Copy File function to copy other types of files to text-type files.

  DW 5/2 recognizes and automatically uses file definitions for PDS text-type files.

Using WKS, WK1, WRK, WR1, DIF, and SYLK Data File Formats

- Use column headings or the _n format (underscore number) as field names for spreadsheets.

- Use only *one* row for the field names in the spreadsheet.

  Note: This row must be the *first row* that contains alphanumeric data.

- Follow the rules for DW 5/2 field names in "Form Letters with Data Files" in the *Display Write 5/2 Reference Guide*.

- Precede or follow the field name row with a separator line, if necessary.

- Use only special characters, such as an asterisk (*) or dash (-) in the separator line. A blank row is also a separator line, and it is not merged with the shell document.

- Convert the DIF data file format using the conversion programs provided with VisiCalc and Lotus 1-2-3 application program packages.

For VisiCalc files only

- Files in the DIF data file format *must* be saved by column.

- Character (label) data, which includes field names, must be left-aligned to correctly merge with the shell document. Left-aligning character data avoids the possibility of leaving blanks in the wrong places within the form letter.

For DIF and SYLK files

- If the numeric data is expressed in scientific notation, the field length is determined from an equivalent decimal form.

In a Spreadsheet

- Each row is treated as a record
- Each column is treated as a set of fields
- Each cell is treated as an individual field of a record.

  Note: If a particular field has only numeric data for each record in the file description, the field is considered a numeric field. Otherwise it is a character field.

Using BASIC Sequential and Fixed Length ASCII Data File Formats

1. Create the file description using DW 5/2.

2. For a Fixed Length ASCII data file format, match the field types and field lengths of the field descriptions with the field types and field lengths in the data file. If they are not identical, the shell document and the data file will not merge correctly.

3. For Fixed Length ASCII data files you may need to include a field in the file description for the line ending characters. This field length is typically two for the carrier return and line feed.

   For a BASIC Sequential data file format, the field length in each field description must be greater than or equal to the length of the longest data value in the corresponding field of the data file.

Using dBASE II, dBASE III, and dBASE III Plus File Formats

- The logical field type converts to a numeric type in DW 5/2.

- The variable names in the shell document and the field names used on the Select Data Records menu and Sort Data Records menu *must* be uppercase.

Using DisplayWrite Data File Formats

This is a new option. The DisplayWrite Data File is an ASCII file which can be created using the Edit File Description/Data File option in DisplayWrite 5/2 or other ASCII editors. The following information describes how DisplayWrite Data File formats are treated, as opposed to a Fixed Length ASCII file.

Note: All operations described below do **NOT** change the actual data file. These operations are performed only on system files.

- Data records that contain fewer characters than are defined in the file description will be padded on the right with ASCII blanks to the length specified by the file description.

- Data records that contain more characters than are defined in the file description will have the excess characters truncated. These excess characters will not appear in the data record.

- A data record is terminated with either the ASCII character sequence Carrier Return/Line Feed (ODOA) or End of File. This implies that data records in this format cannot have imbedded ODOA combinations.

- The Carrier Return/Line Feeds are converted to ASCII spaces for output purposes.

- End of File markers (1A) in the data file will be discarded.

- All single byte controls with the exception of those listed above will be treated as data.

- All rules which apply to other data file formats also apply to DisplayWrite Data File formats.

Lotus International Character Set to EBCDIC Conversion

DW 5/2 saves its characters on disk and in memory in EBCDIC form.

When Merge or Get functions are used and the data file being accessed is a Lotus 1-2-3 WK1 file, the Lotus International Character Set (LICS) is automatically converted by DW 5/2 to EBCDIC characters.

Where possible, like characters are converted to like characters. However, certain LICS characters are converted to different characters since they have no EBCDIC equivalent. These characters are shown in the chart on the following page. For more information about LICS, see the "Lotus 1-2-3, Release 2.0" documentation.

In some cases, Lotus stores "floating" point numbers with a different precision than is displayed. For example, 15.01 may be stored internally as 15.00999999. This causes the Select Data Records function to not select records according to the way Lotus displays them if the "How to Compare " field is equal. The Select function will select according to how DW 5/2 displays the data in the merged document.

Note: To resolve this, select floating point numbers from Lotus files using ranges. For example, to select 15.01 from the field NUM1, use:

NUM1 >= 15.00

AND

NUM1 <= 15.02.

Note: LICS characters will be selected and sorted using the collating sequence currently in OS/2. This may cause unexpected results when selecting and sorting a data file that contains code points greater than 128.

LICS to EBCDIC Conversion Chart

			LICS				EBCDIC

Code	Char	Graphic Char Name		Hex	Char	Graphic Char Name
150	▬	Ordinal Indicator		6D	▬	Underscore
151	▲	Begin Attrib. (Display only)		ED	▲	Solid Triangle
152	▼	End Attrib.(Display only)		CI	▽	Del
153	■	Unknown (Display only)		DB	■	Solid Square
154	•	Hard Space (Display only)		5B	•	Product Dot
155	←	Merge Char(Display only)		C5	←	Left Arrow
164	‟	Low Open Dbl Quotes		7F	''	Double Quotes
180	„	Low Close Dbl Quotes		7F	''	Double Quotes
183	·	Middle Dot		BC	●	Large Bullet
215	Œ	Uppercase OE Dipthong		D6	O	Uppercase O
221	Ÿ	Uppercase Y w/Umlaut		E8	Y	Uppercase Y
247	œ	Lowercase oe w/Dipthong		96	o	Lowercase o

This information is intended for programmers who want to write a personalized program to generate or convert data files to work with the DW 5/2 Merge with Data File or Get Data File functions.

The data files generated by the user-supplied program must adhere to the following work file formats.

Work File Formats

If you write a program to convert a data file and generate its file description, the program should generate **one or both** of the following:
- A fixed length ASCII data file
- A file description that contains the field name, field type, and field length for each field in the file.

The fixed length ASCII data file must contain:
- Fixed length fields
- Fixed length records
- ASCII data
- Field values padded with trailing spaces
- The last sector padded with zeros.

The file description consists of fixed length (32 byte) records. The first two records are control records containing information about the file. The remaining records are field description records, with each record describing one field in the file.

The following chart shows the format of control record 1.

Offset	Length	Description	Allowed Value
0	10	DW 5/2 File Identifier	hex 8000000920 004F7B4A5D
10	1	File Type	hex 0A
11	1	Reserved	
12	3	Number of Fields	1 to 100, see Note 1.
15	17	Reserved	

The following chart shows the format of control record 2.

Offset	Length	Description	Allowed Value
0	2	Format Number	hex 3030
2	30	Reserved	

The following chart shows the format of a field description record.

Offset	Length	Description	Allowed Value
0	16	Field Name	See Notes 1 and 2
16	1	Field Type	See Notes 1 and 3
17	3	Field Length	See Notes 1 and 3
20	12	Reserved	

Notes:

1. This information is represented in ASCII form and is left-justified with spaces (hex 20) padded on the right.

2. When a field name is not included in the file description, the name must be a string of spaces (hex 20). When a field name is included, the first character must be alphabetic. Any remaining characters can be alphabetic, numeric, or underscores. The field name should be padded on the right with spaces (hex 20).

3. The field type is either 1 (hex 31) for ASCII character or 2 (hex 32) for ASCII numeric. If the field type is character, the maximum field length is 500. If the field type is numeric, the maximum field length is 17: 15 digits, an optional leading plus (+) or minus (−) sign and the optional decimal point (.).

Field Descriptions

All field descriptions must adhere to these rules:

Field Names:

- Cannot contain more than 16 characters including underscores, numbers, or letters
- Must start with a letter
- Cannot contain punctuation marks
- Are uppercase and lowercase sensitive
- Must be unique.

Field Types are either:

- Numeric
- Character.

   Note: A numeric field can contain only numbers, an optional decimal point (.), and an optional leading plus (+) or minus (−) sign.

Field Lengths can be:

- Numeric: 1 − 17 characters
- Character: 1 − 500 characters.

Design Specifications

A user-supplied program must adhere to the following design and data specifications.

Note: User-supplied programs are called by the OS/2 DOSEXECPGM function.

A user-supplied program:

- Must be a valid OS/2 program
- Must limit its input/output operations to disk only

- Must be in .EXE file format

- Must have an .EXE extension. If you do not specify an extension, DW 5/2 will provide the default .EXE.

- Should disable OS/2 hard-error processing via the DOSERROR function. This prevents OS/2 from issuing hardware messages to the display.

To return control to DW 5/2, a user-supplied program must:

- Return the active drive and directory to their original states before the program began
- Close all files opened by the program
- Return through DOSEXIT.

Data Specifications

The following information describes the calling mechanism and the names of the temporary files that DW 5/2 requires your program to produce. Information is passed to the user-supplied program using the following calling mechanism:

- First Parameter

  The Data File Name specified in the Data File menu. The maximum length is 44 bytes.

- Second Parameter

  The path to the directory where temporary files are saved. The maximum length is 32 bytes, and the path ends with a backslash (\).

- Third Parameter

  The file description name specified in the user-supplied program menu. The maximum length is 44 bytes. If no file description name is specified, this parameter is null.

All parameters passed to the user-supplied program are supplied in the command line. Each input parameter is separated by a blank (ASCII hex 20).

Note: For more information, see the OS/2 documentation.

Temporary Files

DW 5/2 requires two files that meet the requirements specified in
"Work File Formats" on page 85. Either or both of these files can be
temporary. The temporary files can be:

- A data file named $SYSFILE.$$T
- A file description named $SYSDESC.$$T

Your program must create at least *one* of these temporary files. The
absence of both files indicates a conversion error, and the merge will
not occur.

- If a $SYSFILE.$$T file is not found, the data file specified in the
  Data File menu is used. If a $SYSDESC.$$T file is not found, the
  file description specified in the User-Supplied Program menu is
  used.

- If files already exist with either of these names ($SYSFILE.$$T or
  $SYSDESC.$$T), the files are overwritten.

  Note: If your program is unsuccessful, it must delete both tempo-
  rary files once they are closed.

Messages

This section contains a list of messages that require action from you in order for the system to continue. These messages may display on the screen or be printed in output, for example, Merge messages.

The messages are arranged alphabetically by the first character. When a message begins with the name of a document enclosed in quotation marks, look up the first character that follows the document name.

Each message includes a cause and an action. The cause describes what may have caused the message, and the action describes a possible response to the message.

Note: There may be more than one cause or action for each message.

A Set Exception Action was found. Your print job is ended.

Cause: Your final-form text document contained formatting errors. A Set Exception Action code indicates Cancel on Error in the originating application program.

Action: Return to the original application program, since the document was not created using DW 5/2.

Adjust Line Endings is set to No for line.

Cause: You attempted to adjust a line; Adjust Line Endings is set to No in the Line Spacing/Justification menu.

Action: Set Adjust Line Endings to Yes in the Line Spacing/Justification menu only if you need to adjust the line. If you set this menu item to Yes, you can adjust the line endings.

Note: This message occurs in headers and footers when re-aligning existing Align codes. The re-alignment has been completed correctly.

Cannot copy or move text to target document.

Cause: In Split Screen, the Block function was used to attempt to copy or move text from one document to the other (target) document with the target document in a state that makes it unalterable (such as cursor draw).

Action: Escape from the Block function (source screen) and go to the target document. Escape out of active mode (if you are in Cursor Draw, press Esc). This takes you to the typing frame. Perform the Copy or Move function again.

Cannot copy or move text while viewing target document.

Cause: In Split Screen, the block function was used to attempt to copy or move text from the source document being edited to the target document while the target document was being viewed.

Action: End the target document. Access Split Screen to revise the target document.

Cannot cursor draw in PSM text.

Cause: You started Cursor Draw or attempted to draw in proportionally spaced text.

Action: Change the typestyle number to another pitch. You can make a format change at the point where you want to draw a figure or change the typestyle for the entire document.

Cannot cursor draw past right margin when Adjust Line Endings is set to yes.

Cause: In Cursor Draw, you tried to draw beyond the right margin when Adjust Line Endings is set to Yes in the Line Spacing/Justification menu.

Action: Reposition your drawing or set Adjust Line Endings to No in the Line Spacing/Justification menu.

Cannot open file. Maximum number of files is open.

Cause: The maximum number of files that can be open for your system was reached. You cannot use the task you selected. It requires that more files be open than your system has available.

Action: Steps taken to correct this are performed outside of the DW 5/2 environment. See the OS/2 documentation for information.

Cannot process field "name" in record "number." Merge is cancelled.

Cause: You exceeded the buffer limit for keyboard changes in the field.

Action: Reduce the number of characters in the field of the record or select characters that require fewer keyboard change codes.

Cannot start Spelling. LEXAM.DLL file must be in specified path.

Cause: You attempted to activate the Spell function and LEXAM.DLL cannot be found.

Note: LEXAM.DLL must reside in a subdirectory listed on the LIBPATH statement of the CONFIG.SYS file. Otherwise, the file will not be loaded, and the Spell function cannot be initialized.

Action: Recopy the program file from your original diskette to a subdirectory specified in the LIBPATH statement of the CONFIG.SYS file. Try again using the new copy or re-install the product.

Conflict between choices. Change Last Typing Line or Paper Size.

Cause: You changed the last typing line or the paper size. The last typing line is beyond the end of the paper.

Action: Change (one or both):

• The Last Typing Line in the Page Layout/Paper Options (1 of 2) menu

• The paper size (Paper Width, Paper Length) in the Page Layout/Paper Options (2 of 2) menu.

To do this, select Page Layout/Paper Options in one of the following menus: the Format menu, the Change Document Format menu, or the Change Alternate Format menu.

Constant is not valid.

Cause: You typed a letter for the value of the constant when the value must be a number.

Action: Type a number for the constant in the Enter or Change Constant menu and press Enter to continue your work.

"Document name" contains formatting errors.

Note: If there is a formatting error message, but you are satisfied with the way your document printed, ignore the message.

Cause: Errors were found while printing your document; Cancel on Error is set to No in the Print Document Options menu.

Action: Check the printed document for substitute characters (underscores) that may have printed, for long lines or long pages, for tabs that are beyond the right margin, and for pitches that were not printed as expected. To obtain specific formatting error messages, set Cancel on Error to Yes, and Print Mode to Foreground in the Print Document Options menu through the Profiles menu (Work Station Defaults), and print the document again.

Data file structure is not valid.

Cause: In the Merge with Data File function or Get Data File function, you are using a data file with too many fields (more than 100) or too many records (more than 65,000).

Action: Use a data file with fewer fields or records.

Cause: In Merge with Data File or Get Data File functions, you are using a data file with too many characters in a field. Character fields cannot exceed 500 characters. Numeric fields cannot exceed 17 characters: 15 digits, an optional leading plus (+) or minus (−) sign, and an optional decimal point (.).

Action: Reduce the number of characters in the field.

Data is not valid in field "name" in record "number." Merge is ended.

Cause: The variable code in the shell document referenced a numeric field containing data that is not valid.

Action: Check the data in the data file. Numeric data can not exceed 17 characters: 15 digits, an optional leading plus (+) or minus (−) sign, and an optional decimal point (.).

Data to be sorted is too large. Merge is cancelled.

Cause: In Merge, using the Sort Data Records function, you tried to sort ASCII data that exceeds 64K characters.

Note: A data file larger than 64K can be sorted. The Sort Data Records function identifies only those fields that need to be sorted. However, numeric fields expand to twice their actual size during the sort function. Data files containing more than 32K of numeric data to be sorted will also cause the above error message.

Action: Specify fewer sort fields (especially numeric) on the Sort Data Records menu, or select fewer records for Merge when using the Select Data Records function.

Directory error for "document name."

Cause: The directory name you included in your document name is not on the specified disk drive.

Action: Specify the drive unit that contains the named directory, or change the directory name to one that is on your disk.

Cause: The directory included in the document name may be full.

Action: Delete some documents from the directory, or copy or move the document to a different directory.

Cause: You may have misspelled the directory name.

Action: Check to make sure you have typed the directory name correctly.

Disk error accessing Help file "DW52A100.HP1."

Cause: You pressed Help (F1), or Keys Help (Alt + 5), and a disk error occurred when the system attempted to access the Help document.

Action: Recopy the program file from your original diskette to your fixed disk. Try again using the new copy.

Disk error. "Document name" is not deleted.

Cause: After converting a revisable-form text document for the Revise task, or after converting a DW 5/2 document to revisable-form text, an error occurred while trying to delete the original document, and DW 5/2 did not delete the original document.

Action: Repeat the procedure for deleting a document.

Disk error. Format is replaced with the Document Format default.

Cause: A disk error occurred while accessing the Document Format or the Alternate Format for revision (Create/Revise).

Action: The system replaces your format with the Document Format default or the Alternate Format default. If the disk drive door is open, close it. Press Esc in the Change Document Format menu or the Change Alternate Format menu and try again.

Disk error on drive "drive specification."

Cause: An error occurred during disk access. The diskette door may be open, the wrong diskette may be in the drive, or the diskette is placed in the drive incorrectly. **Warning:** Data may be lost.

Action: It may be possible to correct this by selecting Recover in the Utilities menu to recover the document. After recovering the document, check for lost data. If the diskette drive door is open, close it.

Disk full occurred while retaining text. Block delete is cancelled.

Cause: The disk you are using does not have enough space to save a temporary backup copy of the block of text you want to delete. The system cancelled the block delete.

Action: Delete documents you no longer need. This will provide space on the disk. Or, you can copy the file to a drive unit that is not full and try again.

Disk is full on "drive specification."

Cause: The disk in the specified drive unit is full. An incomplete output document may remain on your disk.

Action: Use a different diskette or fixed-disk drive, copy the document, and restart the task.

Note: To correct a full disk error, you will need to erase files on your fixed disk to create space. Be careful to erase only those files you no longer need. Once space has been created on your disk, restart the task.

Disk is full. Restart the task using another diskette.

Cause: The disk you are using is full. An incomplete output document may remain on the disk.

Action: Use a different diskette or fixed disk, copy the document, and restart the task.

Diskette on drive "drive specification" is not supported.

Cause: The disk in the specified drive was not formatted for use with your system.

Action: Address a different drive unit if the drive in error contains information you want to save.

Action: Erase and reformat the diskette in the specified drive unit.

Diskette on drive "drive specification" is write-protected.

Cause: You attempted to write to a diskette that has a write-protect tab.

Action: Remove the write-protect tab from the diskette, if you do not want to protect the current contents of the diskette. Then, try again.

Action: Use a different diskette.

Document name conflict.

Cause: You specified a revisable-form text document with a .DOC extension for the Revise task. The .DOC extension is used for the converted DW 5/2 document.

Action: Rename the revisable-form text document, changing the extension to something other than .DOC (preferably to .RFT). Then, try again.

Cause: While converting to a revisable-form text document, the name you specified for the DW 5/2 document during the Create or Revise tasks was the same name you specified for the converted document.

Action: Rename the converted document making the name different from the name of the DW 5/2 document.

"Document name" is already in use.

Cause: You specified a document that is already open for another task, such as background print.

Action: Wait until the other task ends before attempting to use the document.

Cause: The file may be open due to a power failure, or the disk was removed from the disk drive before a task was completed.

Action: Select Recover in the Utilities menu or Utilities in List Services to recover the document.

"Document name" is full.

Cause: The document you are updating is full.

Action: Delete some text from the full document, or create a new document by selecting Create in the DisplayWrite 5/2 menu.

Note: A document can be a maximum of 2.4 Mb.

"Document name" is not a supported file type.

Cause: The document name specified is not an expected file type for this DW 5/2 task. For example, the task may require a DW 5/2 file type, and you specified a file with an ASCII file type, or the task may require a revisable-form text file, and you specified a DW 5/2 file.

Action: Change the document name in the menu of the task you are performing to a file with a type supported by the task. Then, try again.

File description cannot be used. Data is not valid.

Cause: You are using a file description containing data that is not valid. For example, the file description may be damaged.

Action: Create a new file description for the file. Select Edit File Description from the Merge menu. Type the name of your file description and press Enter. Type the field name, field type, starting position, and field length in the Field Description menu and press Enter. Repeat this for each field you need to define.

File description contains no fields. Task is cancelled.

Cause: You attempted to Merge or Get a file or file description that has no fields. Or, you tried to revise or delete a field description in a file description that has no fields.

Action: Ensure that you are using the correct file and file description.

File Description describes data record with length too large to edit.

Cause: You specified a file description with a record length greater than 510.

Action: The file description can still be edited using the Edit File Description function. The data file, however, is too large to edit using DW 5/2.

Format of file conflicts with specified data file format.

Cause: During the Merge with Data File function, or Get Data File function, the Data File Format you specified in the Data File menu does not match the format of the file.

Action: Type the correct number for the Data File Format.

Cause: During the Merge with Data File function, or Get Data File function, the data file you specified in the Data File menu may be damaged and unusable.

Action: Check the data file.

Help file "DW52A100.HP1" is not found.

Cause: You pressed Help (F1) in DW 5/2, and Help was not accessed or was not available.

Action: Re-install DW 5/2 or copy the DW52A100.HP1 file from the diskette onto your program directory.

Lines found are not valid. Tab stop is missing.

Cause: In your document, you inserted tabs where no defined tab setting exists; the tab setting was missing. During pagination, lines of text were found that extended past the last defined tab setting and the right margin.

Action: Define additional tab settings and new margins in the Margins and Tabs menu, if necessary. Or, delete the tab(s) that extends past the last defined tab setting and the right margin.

Long line. "Document name" is ended.

Cause: The system reached a line that would print past the right paper edge. Cancel on Error is set to Yes in the Print Document Options menu. The print job is cancelled.

Action: Check the document to verify that the right margin is set to the left of the right paper edge. The margin should not be set beyond the physical limits of the printer. Check your printer documentation. If necessary, revise or paginate the document.

Cause: An incorrect paper size was selected in the Page Layout/Paper Options (2 of 2) menu; or you set Adjust Line Endings to No in the Line Spacing/Justification menu or the Paginate menu, and a line extends past the right paper edge. Cancel on Error is set to Yes in the Print Document Options menu.

Action: Revise the document and look for the paper edge symbol on the scale line. Determine if you should change the paper size or adjust the lines so they end to the left of the paper edge symbol.

- If you need to change the paper size (Paper Width, Paper Length), select Page Layout/Paper Options in the Change Document format menu or the Change Alternate Format menu. You can reach these menus by pressing Document Options (Ctrl + F7), or use the LAYA or LAYD command with Command Line.

- If you need to adjust the lines, select Line Spacing/Justification in one of the following menus: the Format menu, the Change Document Format menu, or the Change Alternate Format menu; or use the ADJ, ADJA, or ADJD command with Command Line. Set Adjust Line Endings to Yes in the Line Spacing/Justification menu.

Cause: A header or footer extends beyond the right paper edge.

Action: Revise the header or footer so that it is not printed beyond the right paper edge. To revise the header or footer, select either Header or Footer in one of the following menus: Format menu, Change Document Format menu, or Change Alternate Format menu; or use the HDR, HDRA, HDRD, FTR, FTRA or FTRD command with Command Line.

Cause: A printer was used that does not support the pitch specified in your document, and the printer defaulted to a wider pitch. For example, your document was created in 12 pitch, and the printer printed the document in 10 pitch.

Action: Print the document on a printer that supports the pitch or change the pitch within the document and paginate.

Maximum size is reached. No more fields may be created.

Cause: The file already contains the maximum number of fields (100) allowed.

Action: Delete and combine fields as necessary to bring the total number of fields below 100. Select Revise or Delete a Description in the Edit Description Fields menu to delete or combine the fields.

Memo file "file name" is not found.

Cause: While converting a dBASE III or dBASE III Plus data file, a memo field was found, but no corresponding memo file could be found.

Action: See your dBASE III or dBASE III Plus documentation for information about creating or deleting a memo field. All corrective action will be taken outside of the DW 5/2 environment.

Merge is not complete.

Cause: The Merge with Data File function ended before completion due to one of the following reasons:

- Invalid numeric data was found in the data file.
- An error was found in the shell document.
- The disk is full.
- There is a disk error.

Action: To correct this and continue merging the file:

- Specify valid numeric data in the data file.
- Correct the error in the shell document.
- Use another disk or delete some unnecessary files from the disk you are using and continue your work.

Merge is not complete. Use a restart number to complete the output.

Cause: During the Merge with Data File function, you pressed Ctrl + Break, or an error occurred. The restart number in the Merge with Data File Status screen is the record ID number of the last record that completed processing.

Action: To correct this and continue merging the file:

- If an error occurred, correct the error.
- Enter the Merge with Data File function again.
- Specify the same selection and sort criteria previously used.
- Type the Restart Number in the Merge with Data File (1 of 2) menu.

Merge was not successful. Output contains "number" messages.

Cause: This message indicates the number of errors that occurred during a Merge task. The error messages are listed in the personalized document (merged document) or on the printed copy.

Action: Locate the error messages in the merged document or the printout and correct the errors.

No printer tables were found.

Cause: The printer function tables specified in the active profile were not found on the program drive unit during print loading.

Action: Ensure your printer function tables were copied to the program default directory. If the printer function tables are not on the correct directory, recopy the tables from the original DW 5/2 diskettes or from the directory where they currently reside.

No valid printer tables were found.

Cause: While loading the Print task, none of the printer function tables specified in the active profile were valid. The printer function tables are not valid because the syntax or format is not valid in the table, the tables are not a compatible level for DW 5/2, or the tables are not found in the specified drive.

Action: Recopy the printer function tables from the original DW 5/2 diskettes or from the directories where they currently reside.

Not enough memory to load Spelling dictionary.

Cause: You attempted to add or change a dictionary or supplement name at the Change Dictionary or Supplement menu, and there was not enough memory on your hard disk to load the new dictionary or supplement.

Action: Erase unnecessary files on your directory. Be careful to erase only those files you no longer need. After erasing the files, try again.

Action: Install additional memory on your fixed disk and try again.

Operation is not valid.

Cause: In the Margins and Tabs menu, the cursor was not placed at the left margin character while typing a number for the Set All Tabs option, or you tried to move one of the following:

- The left margin symbol to the left of the left paper edge or to the right of the right margin
- The right margin symbol to the left of the left margin
- Depending on the pitch of your typestyle, the right margin symbol to the right of the following position:
  - 228 for a 5 pitch
  - 390 for an 8.55 pitch
  - 455 for a 10 pitch
  - 546 for a 12 pitch
  - 546 for a proportional pitch
  - 682 for a 15 pitch
  - 780 for a 17.1 pitch.

Action: Reset the margins in the Margins and Tabs menu and try again.

Cause: An attempt was made to delete or block a single Begin Formatted Text or End Formatted Text code.

Action: Use the Block function to delete and include both the Begin Formatted Text and End Formatted Text codes in your Block definition.

Cause: A attempt was made to center or right align a line of text which contains embedded tabs, or to left, center, or right align a blank line.

Action: Remove the embedded tabs, or if your cursor was positioned on a blank line, move the cursor to the correct position (a line with text) and try again.

Print control not valid. "Document name" ended.

Cause: In your document a specified user-defined control number was specified for which a print control file could not be found.

Action: Check that the print control file associated with this control number is on one of the program drives. If not, copy the file to the location specified in the printer function table for that control number.

Reference List "number" cannot be resolved.

Cause: The line size at the Locate Reference List "number" code is too small. The Reference List requires a minimum line size for legibility. This minimum line size is based on several variables and may change each time a Reference List is resolved.

Action: Find the Locate Reference List "number" code. In place of the Reference List, there will be a message which explains the situation. Make the necessary changes and paginate the document. The error message is removed during pagination.

The following are error messages that may appear:

- **(Error) Reference List "number" not resolved. The distance between the current left and right margins is "number." The minimum distance required to resolve reference list is "number."**

  Cause: Reference List "number" requires a line size which is greater than the line size at the Reference List "number" code.

  Action: Either change the left or right margins so the distance between them is equal to or greater than the distance required, or move the Locate Reference List code to an area of the document where the distance between the margins or the column width is equal to or greater than the distance required.

- **(Error) Reference List "number" not resolved. The current column width is "number." The minimum column width required to resolve Reference List "number" is "number".**

Cause: The Reference List "number" requires a column width which is greater than the column width at the Locate Reference List "number" code. This occurs while in multi-column mode.

Action: Either increase the column width to the width required, or move the Locate Reference List code to an area of the document where the column width or distance between the margins is equal to or greater than the distance required.

- **(Error) Document contains Reference List error messages.**

  Cause: While Reference Lists were being resolved, errors occurred and corresponding messages were placed in the resolved Reference List.

  Action: Find the character string "___error" in the document. This will locate all errors produced in Reference Lists during pagination.

- **(Error) Text Not found for Reference List item "item name" in Reference List "number".**

  Cause: The item text for an item in a list is missing. This is usually the result of importing Reference List Entry codes from other documents. This message is located in place of the missing item text. All references to this item are listed as though actual text existed.

  Action: Locate any of the Reference List Entry codes for this item and edit the item text. This creates new text for this item. All other references of this item will automatically refer to this new text. Follow this same procedure for any other items with missing text. Paginate the document. The new text will replace the error message.

Return is not allowed because of pitch change.

Cause: The current line is in a pitch different from the pitch you specified in the document format. You cannot specify a mid-line pitch change, so the mid-line Return is not allowed.

Action: Place the Return at the beginning of the line. Or, if you want a mid-line change, select a typestyle with the same pitch as the current line.

Software error. Record screen, then press Ctrl + Break to exit.

Cause: A program error occurred due to abnormal conditions, such as a damaged program or documents that were altered by a program.

Action: Check your documents to see if they have been altered by a program. If your documents have *not* been altered, use a backup copy of your program. Load the program and try again.

If the error occurs again, please be prepared to furnish the following information in this order when reporting the problem:

1. The keystroke sequence (steps) leading up to the failure.

   For example, "Select Create on the DisplayWrite 5/2 menu. With the cursor located at the top of the page, select Format (F7), and select Header on the Format menu. The error occurs before the header text area is displayed."

2. The error code given in the error message.

3. The entire system configuration (hardware and software) at the time of failure.

4. A copy of your document if the error is confined to a particular document.

Specified columns do not fit within margin.

Cause: The widths specified in the Define Related Column Width menu do not fit between the left and right margins.

Action: Press Esc to redefine the widths in the Define Related Column Width menu.

Action: Press Esc twice to get the Define Text Columns menu and change the number of spaces between columns.

Action: Use Format (F7) to change the margin definitions or pitch.

Start column plus field length causes data to exceed maximum.

Cause: The starting position plus the field length specified causes the data record size to exceed the maximum number of allowable bytes. If the function was initiated via Edit File Description and Data File, the maximum is 510. If the function was initiated via Edit File Description, the maximum is 2000.

Action: Change the starting position or field length specified to ensure the record length does not exceed the maximum.

Note: This may not be possible if the current record length already equals the maximum size.

Action: Select Revise or Delete a Description in the Edit Description Fields menu to restructure your data file to contain no more than the maximum number of bytes per record by either decreasing the length of existing fields or by removing any gaps between existing fields.

Supplement is full. First word not added is the first word highlighted.

Cause: The word currently being added will cause the supplement to exceed its maximum size (62K). Words were added up to the first one highlighted in the document.

Action: Select Store Supplement to Document in the Spell menu, then return to the DisplayWrite 5/2 menu. Select Revise Document in the DisplayWrite 5/2 menu and revise this newly-created document. Remove any unnecessary words from the document. Reload your supplement using this document.

Action: Use the Change Dictionary or Supplement function which allows you to change the Active Supplement. Enter the name of a new or smaller supplement.

Supplement is full. Word is not added to the supplement.

Cause: During prompted spell check, Add to Supplement was selected in the Prompted Spell menu, but the dictionary supplement is full. DW 5/2 did not add the word to the supplement, and the word remains highlighted on your screen.

Action: Select one of the following menu items in the Prompted Spell menu: Highlight and Continue to leave the highlighting, Ignore and

Continue to remove the highlighting, or press Ctrl + Break to end spelling.

Action: Change the Active Supplement to a smaller supplement and restart the task.

Table of Contents cannot be resolved.

Cause: The line size at the Locate Table of Contents code is too small. The Table of Contents requires a minimum line size for legibility. This minimum line size is based on several variables and may change each time the Table of Contents is resolved.

Action: Find the Locate Table of Contents code. In place of the Table of Contents, there will be a message explaining the situation. Make the necessary changes and paginate the document. The error message is removed during pagination.

The following are error messages that may appear:

* **(Error) Table of Contents not resolved. The distance between the current left and right margins is "number." The minimum distance required to resolve the Table of Contents is "number."**

  Cause: The Table of Contents requires a line size which is greater than the line size at the Locate Table of Contents code.

  Action: Either change the left or right margins so the distance between them is equal to or greater than the distance required, or move the Locate Table of Contents code to an area of the document where the distance between the margins or the column width is equal to or greater than the distance required.

* **(Error) Table of Contents not resolved. The current column width is "number." The minimum column width required to resolve the Table of Contents is "number."**

  Cause: The Table of Contents requires a column width which is greater than the column width at the Locate Table of Contents code. This occurs while in multi-column mode.

  Action: Either increase the column width to the width required, or move the Locate Table of Contents code to an area of the document where the column width or distance between the margins is equal to or greater than the distance required.

Text Note document has no unused pages.

Cause: There are no more blank text note pages available in this document.

Action: Specify the name of another document to store this text note.

Unable to insert a page end. Paginate the document.

Cause: Too many pages were inserted between whole page numbers. For example, you cannot insert a page between page 2.1.1 and page 2.1.2.

Action: Paginate the document.

Notes:

1. If Preserve Page Numbers is set to Yes, you are unable to paginate. Set Preserve Page Numbers to No, paginate, then set Preserve Page Numbers to Yes. If Preserve Page End is set to Yes, set Adjust Line Endings to No, and Adjust Page Endings to No. This renumbers the pages to whole numbers without adjusting either lines or pages.

2. If you are using Get, only 19 pages can be inserted between whole number pages, for example, between page 10.0.0 and page 11.0.0.

Unable to process the input file(s).

Cause: During the Merge with Data File function or Get Data File function, an error was found in the user-supplied program, or the format of the data file being converted was not compatible with the user-supplied program.

Action: Correct the error in the user-supplied program, or use a data file with a format compatible with the user-supplied program.

Unsupported character. "Document name" ended.

Cause: A character was found that is not supported by your printer, and Cancel on Error is set to Yes in the Print Document options menu.

Action: If you want the document to print with substitute characters (underscores), set Cancel on Error to No in the Print Document Options menu through the Profiles menu (Work Station Defaults). Then, print the document again.

Action: If you want all the characters to be printed, use a printer that supports these characters or change the characters in your document.

Note: Your documents must be formatted correctly to print.

Unsupported function. "Document name" is ended.

Cause: Your printer cannot handle the data given it to format because the specified printer function is not supported by that printer. For example, multiple passes were required to print a line, but your printer supports only carrier returns with line feeds.

Action: Set Cancel on Error to No in the Print Document Options menu through the Profiles menu (Work Station Defaults). Then, check the output to determine what did not print correctly and try again.

Unable to process page. Wait for other pages to process.

Cause: When Print Page (Ctrl + 2) was pressed, the print queue was full.

Action: Wait for print jobs to process or cancel a previous print request that is waiting in the print queue.

Unable to Insert a Page End in a Text Note page.

Cause: Text Notes can be only one page long.

Action: Inserting a Page End code is not allowed while entering text notes.

Warning! "Document name" is nearly full.

Cause: You are revising a document, and the document is nearly full. There may not be enough room to continue work on this document. If you continue, you may lose data, and the document may need recovery.

Action: First, save the document to ensure changes are saved. Then, delete some text from the document or move part of the text to another document using Notepad (Ctrl + F4). If you must recover the document, select Recover in the Utilities menu or Utilities in List Services.

Index

typestyle   38, 40, 63
  defining   71
    printer function tables   41
    printer support   40
    PRN file   40
typestyle definition   67
typestyle file   41
typestyle lists   50
typestyle numbers   41
typographical PSM fonts   48

U

user-defined control   72
  creating   73
  inserting   73
user-supplied program   85

V

VGA (Video Graphics Array)
  adapter   2, 4
    Personal System/2 8503   4
    Personal System/2 8513   4
VisiCalc files   80

W

WKS files
  column headings   80
  data file format   80
  rows   80
  separator lines   80
work file format
  field description   87
  field lengths   87
  field names   87
  field types   87
  file description   85, 86
workstation   66
WRK files
  column headings   80
  data file format   80
  rows   80

WRK files *(continued)*
  separator lines   80

Special Characters

.TS file   41
\DW5-2\PFTNOTES.PRN file   40
\DW5-2\PFTTEST.DOC test document   40
\DW5-2\PFTWS.PRN
 worksheet   40

1) IBM will provide the warranty described in IBM's Statement of Limited Warranty. If IBM does not replace defective media or, if applicable, make the Program operate as warranted or replace the Program with a functionally equivalent Program, all as warranted, you may terminate your license and your money will be refunded upon the return of all of your copies of the Program.

2) For any claim arising out of IBM's limited warranty, or for any other claim whatsoever related to the subject matter of this Agreement, IBM's liability for actual damages, regardless of the form of action, shall be limited to the greater of $5,000 or the money paid to IBM, its Authorized Dealer or its approved supplier for the license for the Program that caused the damages or that is the subject matter of, or is directly related to, the cause of action. This limitation will not apply to claims for personal injury or damages to real or tangible personal property caused by IBM's negligence.

3) In no event will IBM be liable for any lost profits, lost savings, or any incidental damages or other consequential damages, even if IBM, its Authorized Dealer or its approved supplier has been advised of the possibility of such damages, or for any claim by you based on a third party claim.

Some states do not allow the limitation or exclusion of incidental or consequential damages so the above limitation or exclusion may not apply to you.

GENERAL

You may terminate your license at any time by destroying all your copies of the Program or as otherwise described in this Agreement.

IBM may terminate your license if you fail to comply with the terms and conditions of this Agreement. Upon such termination, you agree to destroy all your copies of the Program.

Any attempt to sublicense, rent, lease, or assign, or, except as expressly provided herein, to transfer any copy of the Program is void.

You agree that you are responsible for payment of any taxes, including personal property taxes, resulting from this Agreement.

No action, regardless of form, arising out of this Agreement may be brought by either party more than two years after the cause of action has arisen except for breach of the provisions in the Section entitled "LICENSE" in which event four years shall apply.

This Agreement will be construed under the Uniform Commercial Code of the State of New York.