

SEG ANNUAL MEETING EXPANDED ABSTRACTS

WordKeeper™ for MS-DOS®

User's Manual

Society of Exploration Geophysicists
Tulsa, Oklahoma

SEG ANNUAL MEETING EXPANDED ABSTRACTS FOR MS-DOS

Table of Contents

Introduction	2
General Product Summary	2
User Support	2
Copyright Information	3
Installation and Start Up	4
Hardware and Software Requirements	4
Supported Components	4
Installation Procedure	5
Starting WordKeeper	5
Application Overview	6
General Description of WordKeeper	6
The Search/Browse Screen	6
The Search Fields	7
Executing a Search	8
The Display Screens	8
WordKeeper Command Lines and Windows	9
Search Strategies	10
Performing Searches—Logical Operators	10
Performing Searches—Proximity Operators	11
Performing Searches—Truncation Symbols	11
WordKeeper Command Line Options	12
The Search/Browse Screen Command Line Options	12
The Display Screens Command Line Options	13
Troubleshooting	22
Appendix A—Special Character Mapping Conventions	24

INTRODUCTION

Welcome to the SEG Annual Meeting Expanded Abstracts on CD-ROM with WordKeeper™ search-retrieve software for the MS-DOS® platform. The Annual Meeting Expanded Abstracts are published by the Society of Exploration Geophysicists and are a condensed form of technical presentations from SEG's International Expositions and Annual Meetings. WordKeeper™ menu driven software, with its search and browse functions, gives you fast access to the ASCII text of the abstract summary, monochrome page images of the entire abstract, and gray scale images of selected figures.

The text is organized as a fielded database. Each abstract is considered a record in the database. The fields are the typical elements of an abstract: subject area, title, author, summary, etc. Every text word is indexed, allowing you to perform searches on all words or phrases in the database. A search will deliver all of the abstracts that contain your search criteria.

You may also display and print images of the abstract pages allowing you to view tables, figures, equations, and other graphical information just as they appeared in the abstract book. When gray scale figures appear in an abstract, a separate gray image of the graphic is available.

The SEG Annual Meeting Expanded Abstracts are available in two series. The Current Series, on one CD, contains the 1993, 1994, and 1995 Expanded Abstracts with searchable ASCII text from the title, author/affiliation and summary areas, plus page and gray scale images. In addition, a composite ASCII database contains the previously mentioned textual areas for the years 1981 through 1995. An optional Historical Series, on three CD's, contains the textual information, monochrome page and gray scale images of the Expanded Abstracts for the years 1981 through 1994.

In the text format, non-ASCII characters have been mapped to an ASCII character set based on the emerging international standard, SGML. The code map is available in Appendix A.

User Support

For assistance we suggest that you first consult the User's Manual. Also, the README file provides a higher level of detail about the application.

To access your README file, simply exit to a DOS prompt from WordKeeper. You may do this by selecting **F9: Options** from the application. This action will place you in the WordKeeper software directory where the README file was copied during the installation process. You will then enter the **TYPE** command, followed by the file name — **README.DOC** — the piping symbol (**|**), and the **MORE** command; then press **<RET>**. To exit this command press **Ctrl C** to break.

If after reviewing this User Manual or the README file, you still require assistance, contact the WordKeeper Help Desk. A toll-free number has been established for our U.S. and Canadian users which is:

800 767-7785

Our international users may contact the Help Desk by dialing:

804 261-3151

In the event your call is not directly connected to a Help Desk representative, a phone message system will record the question. A prompt response will be forthcoming.

To assist you quickly and accurately, we request that you be ready to provide a clear description of the specific problem you are encountering with WordKeeper and the type of hardware on which you are running this application.

The Help Desk hours of operation are 8:30 a.m. to 5:00 p.m. Eastern time, Monday through Friday. The Help Desk is not in operation during normal USA holidays. For information regarding these specific dates, please contact a Help Desk representative.

If written correspondence or further documentation is required, you may fax, e-mail or mail your communications to the Help Desk. The fax number is 804 262-0467.

E-mail Address: cdhelp@cadmus.com

Mailing Address: WordKeeper Help Desk
Cadmus Digital Solutions
2905 Brydhill Road
Richmond, VA 23228 U.S.A.

NOTE: If a defective CD-ROM disc or installation software is suspected, the Help Desk will assist in its replacement. You must contact the Help Desk before returning a defective CD-ROM disc.

Directing Non-technical Support Questions

Users may also have questions related to non-technical issues such as publications, comments about the product or non-receipt of discs; in this event, please direct calls, or correspondence, to the Society of Exploration Geophysicists.

Phone: (918) 497-5500 **Facsimile:** (918) 497-5557
Mailing Address: Society of Exploration Geophysicists
P.O. Box 702740
Tulsa, OK 74170-2740

Copyright Information

The WordKeeper™ and CD-Answer® retrieval software is Copyrighted© 1994 by Cadmus Digital Solutions and 1987, 1994 by Dataware Technologies, Inc.

INSTALLATION AND START UP

Hardware and Software Requirements

- Computer:** Minimum—IBM PC/AT or 100% compatible, with 512 KB RAM and at least 500 KB free memory. A hard disk drive with a minimum of 3 MB free. Recommended—IBM AT or 100% compatible, with 640 KB RAM and at least 500 KB free memory, and a color VGA monitor.
- CD-ROM drive:** A CD-ROM drive with maximum average access time of 400 MS and an ISO 9660 compatible device driver.
- Software:** MS-DOS version 3.0 or higher.
- Nonstandard command processors may produce unpredictable results. You must have Microsoft Extensions v2.0 or later to install WordKeeper.

Supported Components

WordKeeper supports the following graphic display devices:

Name	Resolution	Colors
CGA	640 × 200	2
AT&T (Olivetti, Compaq Plasma)	640 × 400	2
EGA	640 × 350	16
VGA	640 × 480	16
Hercules Monochrome	730 × 348	2
MDS Genius Plus Model 420	768 × 1008	2
Cornerstone Monitor	1600 × 1280	2

Notes:

- A page image may not be very clear when first displayed because of the screen resolution limitations of standard personal computer display devices. WordKeeper provides for zoom (up to 1,000%) and pan capabilities so that graphics can be viewed clearly.
- WordKeeper's installation program allows you to specify the graphics printer and display device.

WordKeeper supports the following graphic printers for printing monochrome images:

Name	Memory Requirements
Hewlett-Packard PCL 150 DPI	360 KB free
Hewlett-Packard PCL 300 DPI	990 KB free
Hewlett-Packard PCL with JLASER	2 MB on JLASER
Canon LBP-II/III with JLASER	

Notes:

- Gray scale images cannot be printed or exported.
- The versions of JLASER supported by WordKeeper are JLASER 5 with 2 MB memory and JSX adapter (recommended), JRAM AT-2, JRAM AT-4, and JSX-2.

- c. Because of the size of the monochrome image files (approximately 1 MB), printing an image on a compatible laser printer requires an average of 1 minute depending on your computer processing speed. Printing on a Local Area Network (LAN) could increase the time considerably.
- d. Consult the user's manual for your printer to find out how many KB of RAM is user accessible. For instance, a Hewlett-Packard LaserJet III comes standard with 1 MB of base memory, but only 720 KB is user accessible. A memory upgrade may be necessary to be able to print some full-page images.

Installation Procedure

WordKeeper and the supporting files are shipped with the Current Series disc. If you purchased the Current Series separately, or the Current Series and Historical Series together, or the Historical Series separately later, you will have to access the Current Series disc to install the software and supporting files. Follow the installation instructions provided in the Current Series package.

Starting WordKeeper

During the installation procedure, a batch file with the name XABS.BAT is created in the root directory of the drive where WordKeeper and the supporting files were installed.

This batch program starts the main program. After turning on your computer, follow these steps:

- 1) Change to the root directory of the drive where you installed the software. This step is not necessary if this directory is in your DOS path.
- 2) Type **XABS**
- 3) If you have access to both the Current Series and Historical Series, you will see a menu of database applications available to you. Select or highlight the database you want to use.
- 4) You will see a copyright screen. Press any key to continue.
- 5) The search entry screen for the database you selected will display. You may enter a search at this point.

APPLICATION OVERVIEW

General Description of WordKeeper

As you enter the application to access abstracts, the sequence of screens you will see is as follows:

- Select Disc Screen—To choose the database and to exit the application
- Copyright Screen—A screen notifying you of copyright information
- Search/Browse Screen—A primary screen for entering and executing your search
- Short List Screen—A primary screen for viewing a listing and brief description of the abstracts that meet your search criteria
- Full Display Screen--A primary screen for viewing the summary text and images of an abstract

At the top of the Primary Screens you will note a Command Line. The function keys in the command line will activate various pull-down menus, as well as an on-line, context-dependent Help Screen.

Some of the options from both the command line and the pull-down menus appear in all Primary Screens, and some are limited by the screen function you are accessing. When a particular menu choice is grayed out in the command line, it is not available to the user from that screen. Options may be selected either by moving the cursor and pressing <RET> or by “accelerator keys” which provide quick access to functions without moving through menus.

At the bottom of the Search/Browse and Display Screens is an Action Line which displays a brief guide to navigating within a particular screen.

NOTE: To access a different database, you generally must return to the Select Disc Screen and load the new disc into your CD-ROM drive. Then select the database from the menu and initiate your search.

The Search/Browse Screen

The Search/Browse Screen is the screen through which you access the database. From this primary screen you may enter search information in one or a combination of search fields. Pressing **F3: Display** activates your search and provides access to the abstract display screens.

The screen consists of the following screen components: a Command Line, displayed in the topmost section of the screen; the search fields; and an Action Line at the bottom of the screen noting navigation keys for that screen.

The window design of WordKeeper employs a window numbering system for each primary screen. The number is located on the upper left side of the screen, just below the Command Line. For more detailed information on windowing in WordKeeper, consult the README file.

When the Search/Browse Screen is entered, the cursor will be located at the beginning of the first search field. Enter your word or phrase into one or more of the search fields, thus creating your search strategy. A search strategy refers to the combination of words, phrases, and logical connections used by WordKeeper to search the database and locate the appropriate abstracts. You can move between search fields in this screen by using the arrow keys or **PgUp** and **PgDn**.

An unlimited number of search field entries can be employed. The more defined the search strategy, the smaller the number of "hits".

The Search Fields

Listed below are the search fields for the Annual Meeting Expanded Abstracts contained in the Search/Browse Screen.

- **Year**—For searches on the specific year(s) of the abstract. Use "OR" or the . . expression for searching on multiple years or a range of years, respectively.
- **City**—For searches on a specific city where an abstract was presented. When multiple words are entered without a specified connector, the default connector is **AND**.
- **Subject Area**—For searches on a subject area where the abstract was placed. When multiple words are entered without a specified connector, the default connector is **AND**.
- **Title**—For searches on the abstract title. Abstract title indexes are available by word or entry. The entry index will display the entire abstract title. When multiple words are entered without a specified connector, the default connector for this field is **ADJ1**. For example, an entry of "big black dogs" will find all the abstracts with this phrase in the title.
- **Paper Number**—For searches on a specific abstract number (e.g. BG1.6).
- **Author(s)/Affiliation**—For searches on the abstract author name or affiliation. Indexes are available by word. When an entry is made without a specified connector, the default connector for this field is **AND**. For example, an entry of "John Doe" will find all articles with both words in the author field.
- **Summary Text**—For searches on the text within only the Summary portion of the abstract. Indexes are available by word. When an entry is made without a specified connector, the default connector for this field is **ADJ1**.
- **Combined Text**—For searches on the title, author(s)/affiliation, and summary text of expanded abstracts. The combined text search field is indexed by word. When an entry is made without a specified connector, the default connector for this field is **ADJ1**.
- **Biography/Name**—For searches on names only in the Biography section of the Expanded Abstracts. The references field is indexed by word. When an entry is made without a specified connector, the default connector for this field is **ADJ1**.

You may enter search words, phrases and appropriate operators, and connectors if they are known, or you may use the pull-down Index Windows to browse for a word or entry and select from the index listing.

When you key a word to a search field, the default operator for that field will apply. When you select words or entries from the Index Windows, another default operator will then apply.

The Connection field displays connection criteria (i.e. connections between search fields) in either Simple or Editable mode. The Connection option is set by selecting **F9: Options**, and setting the Connection Type to "Editable." Once the connection field is set, press **F3: Display** to display the articles which meet the connection search criteria. For a detailed description of this operation, see the README file.

When entries are made to multiple search fields, WordKeeper will display a number in the Total field at the bottom of the screen. The Total field displays the total number of "hits" available based on the combined search criteria entered to the Search/Browse Screen.

Executing a Search

To execute a search, enter a valid search expression into a search field and press **<RET>**, or use the index listings (**F2: Index**) to select a word or words. A number to the right of the search field appears, representing the number of "hits" available for that entry. The **<ESC>** key can be used to erase a field entry. When all the search criteria are entered, the final number of found abstracts that meet the criteria will display in the Total field at the bottom of the screen.

When you enter your search criteria in the Search/Browse Screen, you may find the number of article "hits" to be too large to review. In this case, your search criteria are probably too broad. You may wish to alter your search criteria, making it more specific to reduce the number of "hits."

Press **F3: Display** to display all found abstracts. You will move to a Short List screen from which you can select the desired articles to view. Pressing **F2: Full** or **<RET>** moves you to a Full Display screen of the desired abstract. You may return to the Short List by pressing **F2: List** or return to the Search/Browse Screen by pressing **F3: Search**. Note: the F2 key function acts as a toggle between the Short List and Full Display functions in WordKeeper.

To clear the entire search screen of search criteria, press the accelerator key combination **Alt C**.

The Display Screens

WordKeeper offers two display modes for viewing abstracts, the Short List to view the list of all found abstracts and the Full Display to view the ASCII text and page and color images of the selected abstract(s).

The Short List Screen is a primary screen which displays the Command

Line of options at the top of the screen. The Short List displays the list of abstracts in the database that meet the search criteria. The abstract title, author, subject area, year, city, and page range for each available abstract are displayed. You may use the arrow or **PgUp PgDn** keys to navigate through the list.

The Full Display Screen is a primary screen which displays the abstract you select from the Short List Screen. You may select an abstract from the Short List Screen by moving the highlight bar to the abstract and pressing **<RET>**. In the event that only one abstract, meeting your search criteria, is available in the database, then this screen will immediately display. All words entered as search criteria in the Search/Browse Screen will be highlighted throughout the text in the Full Display Screen.

The Full Display Screen provides the text available in the database for that abstract. At the top of the screen is the Command Line. In the upper right corner of this screen window is the notation "Display 1 of X" referencing the total number of abstracts available from the Short List. In the lower right corner of the display window is a numbered reference. This notation acts as a cursor to help you to determine your line location within the text of the abstract and the percentage of that location relative to the whole. For example, as you scroll down through the text, if your location is halfway through the document, then the notation should read "50/100 50%." If the contents of a abstract extend beyond the lower boundary of the screen, a scroll bar will appear on the right edge of the screen.

Word entries made in the Search/Browse Screen will be highlighted when you view the Full Display Screen. You can move to the next highlighted word in a abstract by pressing **Ctrl PgDn**. You can move to the previous highlighted item by pressing **Ctrl PgUp**.

You can access all the page images associated with an abstract, beginning with the first page, by pressing **Alt I** at a display screen. When you are displaying the summary text of an abstract, you can access the specific page image on which the text appears by pressing **Alt X**. You can access a gray image available for an abstract by using the **F5: Links option**.

WordKeeper Command Lines and Windows

The functionality of WordKeeper is accessed through the Command Line function keys. For many of the options on the primary screen Command Lines, you will find pull-down menus. To access a particular option from a pull-down menu, you may arrow to the desired item and press **<RET>** or choose to use the accelerator keys noted adjacent to the item.

Index windows are available through the F2: Index function in the Search/Browse Screen. When you are using indexes, the index window displays the field name followed by the number of indexed words or entries available for that search field. The number on the left of each indexed word informs you of the number of times that word or entry occurs in that field of the abstract database.

SEARCH STRATEGIES

A search is initiated by entering a word or combination of words in one or more of the search fields in the Search/Browse Screen, followed by the **<RET>** key; you may use **F2: Index** to access an index for your word or entry. To precisely define a search, search criteria may be entered into multiple fields.

Operators are symbols that have a special function inside a field. A logical operator (such as **AND**) between two words or phrases results in a logical connection between the terms. A search request may also contain truncation symbols, parentheses, or quotation marks. Each of these search elements is described in the sections below.

Performing Searches—Logical Operators

The use of logical operators enables you to search for abstracts in the database on the basis of more than one word.

For example, if you enter the search expression “dog or cat” you are instructing WordKeeper to search for all abstracts containing the word “dog” or the word “cat” or both words.

You can also search for abstracts that do not contain a certain word. For example, you might want to search for all abstracts except those that contain the word “dog” in the Full Text field. In this case, you would put a NOT operator in front of “dog” in this search field.

You can use the operator, such as **AND**, or the symbol for the operator, **+**. Upper case is not required for operators. The operators are shown below with their corresponding symbols in parentheses:

- | | |
|----------------|---|
| AND (+) | The search words must both occur in an abstract. |
| OR (,) | Either one or the other or both of the search words must occur in the abstract. |
| NOT (#) | NOT can be used alone in a search field; for example, “NOT cat” to locate all abstracts that do not contain the search word, or it can be used as a connector. For example, “Boston AND NOT Brookline” or “Boston OR NOT New York.” |
| WITHOUT | Same as AND NOT . |
| .. | For a search on a range of abstract years. |

You can use double quotes with a search word “word” to disable recognition of a logical operators. For example, “AND” searches for the word “and”.

Some examples of search requests using logical operators are:

- | | |
|---|--|
| Jones OR
Smith
Jones,
“OR” | Both entries to the search field will find all abstracts with the words Jones OR Smith or both. The comma represents OR.

WordKeeper searches for the word OR instead of interpreting the OR as a logical operator because it is surrounded by double quotation marks. |
| TIN OR NOT
STEEL | This entry to the search field will find all abstracts that have the word “tin” or anything else except the word “steel.” |

TIN AND NOT STEEL	<p>This entry will find all abstracts that have the word “tin” and do not have the word “steel.”</p> <p>WordKeeper interprets the logical operators from left to right. To change the default search order, you can use parentheses to force WordKeeper to perform one logical operation before the next. For example:</p>
TIN AND (STEEL OR MAGNESIUM)	<p>Will find all abstracts that have the word “tin” and the word “steel” or the word “tin” and the word “magnesium.” WordKeeper performs the operation in the parentheses first to find all abstracts with the word “steel” or the word “magnesium”, and then uses the AND operator to find only abstracts with the words “tin” and “steel” or the words “tin” and “magnesium.”</p>

Performing Searches —Proximity Operators

Proximity operators enable you to search for abstracts on the basis of the proximity of one word to another.

Proximity operators are:

- ADJ<x>** The search words or phrases must appear within x words of one another in the search field, where x is a number. The order in which the words appear is important. If x is omitted, the default is 1.
- ADJ1** is the default operator in all search fields in the Search/Browse Screen except City, Subject Area, Author(s)/Affiliation.
- NEAR<x>** The search words must appear within x words of one another in the search field. If x is omitted, it defaults to 1. For example, “peace NEAR10 march” will find all abstracts that have the words “peace” and “march” within 10 words of each other in the search field. The order in which the words appear does not matter.

Performing Searches —Truncation Symbols

You can use truncation symbols to search for words based on partial words or entries. For example, you can search for all names beginning with “Harris,” such as “Harrison,” “Harrisburg,” and so on. You can also use truncation at the beginning of a word, so that you can search for all names ending in “son,” such as “Johnson,” “Hanson,” and so on. Truncation searches are also useful when you are searching for abbreviations.

Valid truncation symbols are:

- * (asterisk)** Replaces any number of characters in the search word. It can come at the beginning, middle or end of a search word. No more than two occurrences per word are permitted.
- For example: *able* will find all words that have “able” anywhere in the word, such as “disabled,” “enable,” and so on. The entry of coro* will find all words that have “coro” at the beginning of the word, such as “corona,” “coronary,” etc.
- ? (question mark)** Replaces one character in the search word. It can be repeated and can be placed anywhere in the search word.

WordKeeper COMMAND LINE OPTIONS

The Search/Browse Screen Command Line Options

The following options are available from this primary screen:

F1: Help

Provides context-sensitive on-line help. You can get help anytime you are using WordKeeper by pressing **F1: Help**. For general help about WordKeeper Command Line options and search operators, press **F1**. For specific help about a command, first select the option about which you desire information, then press **F1**.

F2: Index

Examines the index terms (e.g., words) available for a search field. The Index option enables you to look at the list of index terms available for a search field. If a search field has both a word and an entry index, WordKeeper will display a menu with the following choices:

- Words—Individual words from a word index.
- Entries—Complete entries from an entry index (e.g., an abstract title).

You may navigate in an index by using the arrow and **PgUp/PgDn** keys. You will move to the location in the Index that is “alphabetically closest” to the character(s) you enter by typing the characters. By highlighting a word or entry in the index and pressing **<RET>**, you move that selection to the search field. You can also select multiple search terms from an index by pressing **<Ctrl><Spacebar>** to place a check mark by the required words.

Multiple words or entries selected from an index will carry a default connector. To select an operator other than the default, press **Alt F2** after you have selected the items you want from the index window. Alternate selections to place in the search field are: **OR, AND, NOT**.

You can also execute a search directly from the **F2: Index** screen by setting the Connection menu (**Alt F2**) to “no.”

F3: Display

Displays all abstracts meeting the search criteria. If there are multiple abstracts in the found set, WordKeeper will first display the abstracts in the Short List Screen.

F4: Query

This option provides the following operations (note the corresponding accelerator keys):

- Load—(**Alt L**) Loads a previously stored search strategy into the search screen.
- Save—(**Alt S**) Stores the current search strategy under a chosen file name.
- Clear—(**Alt C**) Clears the current search screen of search criteria.

- **Connections—(Alt X)** Use the Connection option to select the connector you want to use between one or more search fields. This is not the same as the connector used between search terms in the same field. The default connector between fields is **AND**. The operators **AND**, **OR**, and **WITHOUT** can be used to connect individual search fields.

You can edit logical connectors using Connection Type in either “Simple” or “Editable” mode. When WordKeeper is set to Editable mode, the Connection Type option will place you in the Connection Line of the Search/Browse Screen to edit your connections. You set the mode with the **F9: Options**. See the README file for more detail.

F9: Options

Enables you to change your window format, search display and image options, screen color, and access to the DOS prompt from WordKeeper.

A more detailed description of each of the **F9: Options** Menu items is available in this manual in the Display Screens Command Line Options section under the subheading **F9: Options** Menu followed by the particular menu item name.

F10: Quit

Exits the primary screens in WordKeeper. You will be prompted by a pop-up window to discard your current query (i.e., “Proceed” and exit the application) or “Cancel” (i.e., keep the current query and remain in WordKeeper).

To Exit the application, press <ESC> at the Select Disc Screen.

For more detailed information concerning options from the Search/Browse Screen Command Line, see the README file.

The Display Screens Command Line Options

For the Short List Screen and the Full Display Screen, the available options are as follows:

F1: Help

Provides context-sensitive on-line help.

F2: Full (List)

Switches from the Short List Screen to the Full Display Screen. Note: When in the Full Display Screen, this option then becomes **F2: List**.

F3: Search

Returns to the search window from which this display window was created without closing the display window.

F4: Actions

Enables you to perform a variety of actions on the current abstracts. The actions are: Jump, Documents, Print, Print One, Export, Load and Save Settings, Cross Reference search, Clipboard, Cut Text, Sort and Unsort, Zoom.

F5: Links

Enables you to access a page image or gray scale figure for the current abstract. This option also enables you to enter and access notes and bookmarks.

F9: Options

Enables you to change your window format, search, display and image options, or screen color and language options, and to access the DOS prompt from WordKeeper. Note that only one search and display format and language option is available.

This option is also available in the Search/Browse Command Line; note that certain pull-down menu options may be grayed-out (unavailable) depending on which screen you are in when you invoke this option.

A more detailed description of each of the **F9: Options** Menu items is available in this manual under the subheading **F9: Options** Menu followed by the particular menu item name.

F10: Quit

Closes the display screen and returns you to the Search/Browse Screen from which the display screen was created. A pop-up window message will ask you to “Proceed” and quit WordKeeper or “Cancel” your search request and remain in the application.

To exit the application, press <ESC> the Select Disc Screen and press <RET>.

A detailed description of selected Display Screen Command Line Options follows:**F2: List or Full Display Option**

Use the **F2: List** or **Full** option to toggle between the Short List Screen and the Full Display Screen for the current set of abstracts.

F3: Search Option

The **F3: Search** option will return you to the Search/Browse Screen with the search criteria intact. This key acts as a toggle. WordKeeper enables you to move back and forth without closing the previous screen window; therefore, you are also able to move from the Search/Browse Screen back to the previous display screen.

F4: Actions Menu Options

The choices on the **F4: Actions** pull-down menu are as follows:

- **Jump—(Alt J)** Use Jump to move to a different abstract in the found set. When you select the Jump Option, a pop-up entry window will appear. Enter a document number and press <RET> to move to the specified abstract.
- **Documents—**Use this option to select a set of abstracts from the Short List. You can then limit full text display, printing and exporting to those selected abstracts. For more detailed information, refer to the README file.
- **Print—(Alt P)** Use this option to print text or images. For more detail on this option, see the more detailed description of F4: Actions that follows.

- **Print One—(Alt Q)** Use this option to print the current abstract text or image page(s).
- **Export—(Alt E)** Use the Export action to export all or part of the found set of abstract text to a selected file. For detailed information regarding the available format types and use of this option, refer to the README file.
- **Load Settings—(Alt L)** Use this option to load the previously saved option output settings.
- **Save Settings—(Alt V)** Use this option to save the current option output settings. Up to 8 characters can be used to name the setting file. WordKeeper automatically assigns an extension of .OTF .
- **Cross-Ref Search—(Alt C)** Use this option to perform a cross-reference search on this database or another database on a disc. For more detail, see the section on Cross-Ref Search that follows.
- **Clipboard—(Alt F7)** Use this option to paste cut text or to type information to a clipboard. For more detail, see the Clipboard section that follows.
- **Cut Text—(Alt F8)** Use this option to cut portions of text from the Full Display Screen to paste on the Clipboard. For more detail, see the Cut Text section that follows.
- **Sort—(Alt S)** This option sorts the found abstracts according to your criteria. For more detail, see the Sort section that follows.
- **Unsort—(Alt S)** Unsorts the last sort.
- **Zoom Image—(Alt Z)** Use this option to zoom in on the image currently on the screen.

A more detailed description of selected F4: Actions menu options follows:

F4: Actions Menu: Print (Alt P)

Use the Print action to print all or part of the found set of abstracts to a printer.

The following options are available via the Print menu:

- **Document Format—**Select one of the following formats for text output:

Full Article
Display
Short List

The Full Article format is suggested for printing an abstract, and the Short List format for printing the Short List.

- **Fields to Include—**Selects the fields in each found abstract you want to be included in the text output.
- **Include Search Text—**This option enables you to put one copy of the search criteria for the found abstracts at the front of your text output. Use the spacebar to toggle between “yes” and “no.”
- **What Range—**Displays a menu for you to select what part of the abstract text set or image set you want to print.

Press the spacebar to get a menu with the following choices:

- All Found Documents—Prints all the abstracts in the current set (found from the most recent search request).
- Current Document—Prints only the current abstract.
- Document Range—Prints the abstracts starting at the number in the Start at abstract # field and ending with the number in the End at abstract # field.
- Selected Document—Prints only the abstract selected in the display screen. This is the default if there are any abstracts selected. Abstracts are selected by using the <Ctrl><Spacebar> key combination to check abstracts.
- Current Image Page—Prints the current image page only. Set Print Graphics Mode option to YES when using this range option.
- Image Page Range—Prints the range of image pages you specify in the Start at Page # and End at Page # fields.
- Start/End at Document #—The number of the abstract at which to start or end printing.
- Start/End at Image Page #—The number of the image page at which to start or end printing images (if you specify that you want to print images). One is the default entry.
- Page Eject—This option specifies when a form feed character should be inserted into the output so that the printer advances the paper to a new page.

Press the spacebar to get a menu with the following choices:

- After every document—Insert a form feed after every abstract.
- End of page—Insert a form feed when there are no lines left on the page.
- If document would be split—Insert a form feed if there are not enough lines on the page to fit the entire current abstract.
- Never—Form feed will be continuous.
- Page Length—Use this option to specify the number of printable lines you want to have per page. Enter the number you want in the field. Yes (Symbols and Text)
- Print Graphics—Use the spacebar to toggle between three choices: Yes (Images Only) to print only the page images associated with the abstract; Yes (Text and Images) to print the text and images of the abstract; No (Text Only) to print only the summary text of the abstract.
- Start Print—Use the spacebar to toggle the entry between “yes” and “no.” The default is “yes.” Press <RET> to initiate printing.

WordKeeper does not support printing gray scale graphics. <Ctrl><Break> can be used to abort the print process.

F4: Actions Menu: Cross-Ref Search (Alt C)

Cross-reference searches enable you to select a word or phrase from a display screen and search for other abstracts that contain that word or phrase. When you select the cross-reference item from the **F4: Actions** menu, WordKeeper displays a cursor for you to select the word or phrase for a cross-ref

erence search. WordKeeper uses different navigation keys (e.g. arrow, shift and control keys) for selecting the text to use for a cross-reference search.

When you have selected your cross-reference search criteria, press<**RET**> to initiate the search. WordKeeper displays a cross-reference pop-up menu. Select the application field and string to search, and press<**RET**> to initiate the cross reference search. WordKeeper will then display either the Full Display Screen or Short List Screen with abstracts that contain the cross-reference search criteria. If the cross-reference search criteria cannot be found, a message will display to alert you to “proceed” or “cancel” the cross-reference search.

Press <**ESC**> to leave the cross-reference window and return to the Search/Browse Screen. The Windows option defined later in this manual can be used to navigate around multiple screens.

F4: Actions Menu: Clipboard (Alt F7)

You can use the Clipboard Option to paste portions of selected abstract text to a clipboard screen for later printing or exporting. You can paste to the Clipboard any portion of the text that you cut with the Cut Text option.

When you select Clipboard the following Command Line options are enabled:

F1: Help

F3: Display

F4: Actions—Use this option to load, save, print or clear contents of a clipboard. You can also type text to the clipboard.

F4: Actions Menu: Cut Text (Alt F8)

Use this option to cut a rectangular portion of text on your screen. This text is then automatically pasted to the clipboard (refer to the Clipboard section).

When you select the Cut Text, you will highlight the portion of text you want to cut. The first line on the screen is highlighted by default. WordKeeper displays different navigation keys for you to use in selecting the text you want to cut.

When you press <**RET**> to select the portion of text you want to cut, WordKeeper automatically places you and the cut text in the Clipboard. The text will be placed at the end of the clipboard. You can then either save the text or clear the Clipboard by using the **F4: Action** option.

F4: Actions Menu: Sort (Alt S)/Unsort

Use the Sort option to sort a found set of abstracts. When you select Sort the following menu options are available:

- Sort by—Press the spacebar to display a selection window of available fields to sort by; these are as follows:

Title	Year
Subject Area	Paper Number
City	

- Sort order—Press the spacebar to toggle between Ascending and Descending sort order.

- **Unindexed Abstracts**—The setting in this entry controls whether to Keep or Omit abstracts from the sort list that do not contain occurrences of the sort field.
- **Duplicate Items**—The setting in this entry area controls the placement in the sort list of abstracts that have duplicate items in the index for the sort field. An abstract can either appear in the sort list one time, at its first occurrence in the index, or be duplicated each time it occurs in the index.

The Unsort action works on the set of abstracts most recently sorted.

F4: Actions Menu: Zoom Image (Alt Z)

Use Zoom Image to zoom in on an image. When you select Zoom Image, a box appears, enabling you to choose the area you want to zoom. Size the zoom box by using the **Del** key to shrink the box and the **Ins** key to enlarge the box. Position the box by using the movement keys described in the README file. Press **<RET>** when you have selected the area.

When Zoom Image is initiated, the screen image will enlarge in increments of 50%. Note: only monochrome page images can be enlarged.

F4: Actions Menu: Documents

Use the Document option to limit your display to only selected records. The Documents pull-down menu offers the following selections:

- **Select Document Menu**—Use this option to select the current abstract. You can also use **<Ctrl>< Spacebar>** to select documents in either the Short List or Full Display screen.
- **Delete non-selected documents**—Use this option to delete all non-selected documents from display screens.
- **Delete selected documents**—Use this option to delete all selected documents from the display screens.
- **Clear selections**—Use this option to clear the current selections.

In addition to using the Select Document menu to select each abstract, you can select your document set using **<Ctrl>< Spacebar>**. Use these keys to select each abstract. In the Short List Screen, check marks will be placed to the left of the selected abstracts. In the Full Display Screen, a check mark will appear in the upper right corner of the screen border.

After you have selected a set of abstracts, you can print or export those selected, as described in the Print and Export sections of this manual. You may limit the display of selected abstracts by deleting all non-selected documents. Note: If you delete non-selected or selected documents, you must perform your search again to obtain the set of found documents. You can not use selection on Short Lists that have been sorted using the **F4: Actions—Sort** option.

F5: Links Option

Use the Links pull-down menu to display images associated with the abstract in the current display screens. The images available are compressed CCITT Group IV facsimile images of the GEOPHYSICS pages and PCX gray images of gray figures. If the displayed abstract has an associated image, the Image Option on the F5: Links menu will be enabled; if an image is not available

for the abstract selected, the Links option will be grayed-out.

When you select **F5: Links**, the following options and their respective accelerator keys are available:

- **Images—(Alt I)** When selected, the text will be replaced by the first page image of the abstract. Once you have an image on the screen, you can enlarge, shrink, or move about the image using key combinations outlined in the README file.
- **Image Page—**Provides a pop-up screen to designate which image page you wish to view.
- **Reference—(Alt X)** Using this option, you can “link” to any gray image referenced in the displayed text.
- **Marks—(Alt M)** Allows you to place a “bookmark” in any location in the abstract text, “jump” from anywhere in the text to a bookmark, place a note at any bookmark, and print the note with the text. The following options are available:



◆ **New Marks—**To insert a new bookmark.

◆ **View Marks—(Alt M)** Displays a list of existing bookmarks for sorting and allows you to attach new text to the bookmark. **Alt M** will bring up the “View Marks” box. Use your up and down arrow keys to highlight the “Name” line and use the right arrow key to scroll through a list of all existing bookmarks. Highlight the Edit line using up and down arrow keys and press the spacebar to edit notes for that specific bookmark. Press Escape to save notes and return to the “View Marks” box. To jump to a specific bookmark, use the **Alt M** key combination to open the View Marks box, use the right arrow key to scroll through a list of all existing bookmarks and press enter when you see the desired bookmark name.

◆ **Clear Mark(s)—**Clears all bookmarks. Choosing this option from either the short list screen or the display screen will remove ALL bookmarks from the current search including marks from the display and short list screens. However, any bookmarks or sets of bookmarks which have been saved with the Save command can be relocated. See the Load Marks option below.

◆ **Load Mark(s)—**Loads bookmarks or a set of marks previously saved with the Save Mark option. You can also delete existing bookmark sets from this screen. (This screen does not affect nor display the individual bookmarks made with the New Mark option.)

◆ **Save Mark(s)—**Saves one or more bookmarks. In the “Bookmark Save” box press home to move to any empty line. Bookmarks which are now present will be saved and can be retrieved under this name. You can save one or more bookmarks to a single reference name in this fashion. You can also delete existing bookmark sets from this screen. (This screen does not affect nor display the individual bookmarks made with the New Mark option.)

When you create a bookmark in either screen a  symbol will be visible from the Short List Screen. If you place a bookmark within an abstract  the symbol will also be visible within the abstract itself.

When you exit out of the application, the bookmarks remain, in most environments. Gray scale figures (if available) for a displayed abstract can be selected from the F5: Links menu.

F9: Options Menu

Use the **F9: Options** pull-down menu to manipulate your windows, set search and display options, set options for default image display and printing, and change screen colors.

When you select Options from the Display Screen Command Line, a pull-down menu with the following options and corresponding accelerator keys will appear:

- **Windows**—Use this option to manipulate your windows and move between windows.
- **Search Options**—(**Alt R**) Use this option to change the defaults on the Search/Browse Screen, toggle between extended and exact search modes, and change the usage of the <**RET**> key.
- **Display Options**—(**Alt D**) Use this option to change the default display formats and change the usage of the spacebar and <**RET**> key.
- **Image Options**—(**Alt G**) Use this option to select current and default scaling for image display and printing.
- **Color Options**—This option allows you to change the screen colors.
- **Language Options**—This option allows you to select between English, French, German, or Spanish languages for screens and Help text.
- **DOS Commands**—(**Alt O**) This option will exit you to DOS while maintaining the current state of WordKeeper. To return to WordKeeper, type EXIT. Note: Software errors may occur if you are not using Microsoft DOS.

A detailed description of select F9: Options menu items follows:

F9: Options Menu: Windows

You can have multiple windows open while you in WordKeeper. The pull-down menu options available to you to use and move about these windows are listed below:

- **Next Window**—(**Alt N**) Moves to the next open window.
- **Previous Window**—(**Alt B**) Moves to the previous open window.
- **Full Screen**—(**Alt F**) Expands the currently active window to fill the entire primary window.
- **Move/Resize Window**—(**Alt F5**) Expands or reduces the active window, or moves the active window to another position on the screen.
- **Close Window**—(**Alt F10**) Closes the active window and returns to the previous window.
- **Tile Windows**—(**Alt T**) Tiles new windows so that no window covers another window's title bar.

- Cascade Windows—Redraws all open windows to their full sizes and stacks them on top of each other.
- Window Navigation—(**Alt F9**) WordKeeper displays a menu with the options “Current Application” and “Current Window.”
- Another Window—(**Alt A**) Creates a new window with the same attributes (same default screens) as the currently active window.

F9: Options Menu: Search (Alt R)

This option displays a menu that enables you to change the following settings:

- Search Format—The Search/Browse Screen is the default for all search requests. No other option is available.
- Search Mode—This option can be set to Exact or Extended by pressing the spacebar to toggle between the choices. Exact search mode searches for the exact search word as entered. Extended search mode conducts extended searches that locate all components of the search word, including acronyms and hyphenated words. Press the spacebar to get a menu of the choices.
- Connection Type—This option can be set to Simple or Editable connection mode. Press the spacebar to toggle between the choices.
- Search Only After—The default action in WordKeeper is to perform a search after you enter a search request and then press <RET> or exit the search field with an arrow key. This option allows you to search only when the <RET> key is pressed.

F9: Options Menu: Display (Alt D)

This option displays a pull-down menu that enables you to change the formats and spacebar and return key functionality in the Short List and Full Display Screens. It will also enable you to show or hide the Bookmark symbols on the display.

F9: Options Menu: Image Options (Alt G)

This option enables you to set the display and print behavior for page images. The menu contains the following fields:

- Display Image Scaling—Press the spacebar to get a menu with three choices that enable you to change the size and scale of the image on the screen.
- Display Initial Scaling—This option enables you to set the default initial display setting for all images.
- Printing Image Scaling—Press the spacebar to access a pull-down menu with three choices that enable you to change the size and scale of the image when it is printed.

F10: Quit

Use this option to exit WordKeeper.

TROUBLESHOOTING

The error messages that signal CD-ROM problems can provide a guide to the cause of the error conditions. Noted below are messages sent by either the operating system or WordKeeper software which may help guide you in troubleshooting and finding a solution to your CD-ROM problems.

If you are installing a CD-ROM drive for the first time, make sure you can access the drive by using the DOS DIR command.

→ **Device driver not found: MSCDXXX . No valid CD-ROM device driver selected.**

The computer is unable to find a device driver that has been given the name of "MSCDXXX". This message will vary depending upon the name you give your device driver. For example, it may report that it cannot find MSCDOO1 or CDR0M1 or some other name.

Action: MS-DOS CD-ROM Extensions and the device driver may not be in memory. Try warm booting the computer and starting your CD-ROM program again. The DEVICE line in the CONFIG.SYS file may be missing or typed incorrectly. Make sure the DEVICE line in the CONFIG.SYS file and the line containing the program name MSCDEX in the AUTOEXEC.BAT file are calling the device driver by the same name. Take into consideration that relatively few products use proprietary device drivers anymore.

→ **Incorrect DOS version**

MS-DOS CD-ROM Extensions will not operate with the DOS version installed on the computer.

Action: WordKeeper requires DOS 3.0 or higher.

→ **Invalid drive specification**

The drive specification you or your program entered is not one recognized by your computer, or you have not installed the CD-ROM drive properly.

Action: Check the AUTOEXEC.BAT file to make sure the MSCDEX.EXE software is running. MS-DOS CD-ROM Extensions may be using a drive specification other than the one you specified for the first CD-ROM drive; be sure you have the correct device driver statement in your CONFIG.SYS file.

→ **CDRXXX: Read failed, or Read Error**

The computer cannot read the CD-ROM drive.

Action: Perform one of the following if previously your CD-ROM programs performed correctly:

- 1) Clean the CD-ROM disc; the disc may be scratched.
- 2) Clean the drives with a laser lens cleaner.
- 3) With MS-DOS CD-ROM Extensions in memory, issue the DOS DIR command on the CD-ROM drives to determine which drive is not

working. Try changing the dip switches if you are daisy-chaining, or check the cables if none of the drives is reading.

4) Check for changes in temperature in the work area.

If the drives are newly installed, check the following:

- 1) Drives are on and floppy disks are installed.
- 2) Cables are firmly connected.
- 3) Cable is connected to the CD-ROM interface card.
- 4) Dip switches on the drives are set correctly.
- 5) Dip switches or jumpers on the CD-ROM interface card are set correctly.

→ **Blurred images displayed on screen**

Action: A 16 bit VGA board is recommended for clear image display. Also check the amount of free RAM available; at least 500 KB is required.

→ **File not found**

When you attempt to run WordKeeper by typing the batch command “GEOROM”, this message may appear.

Action: For non-networked workstations, make sure you are logged onto the hard disk drive where WordKeeper and supporting files were installed.

→ **Unrecoverable error Application XXXXXXXXX not found**

If you select a GEOROM database but have another CD-ROM disc loaded, this message may appear.

Action: Press <RET>, change the disc and select the database again.

→ **Image Window Problem, Out of Memory**

Make sure you have at least 500 kb of free RAM to run WordKeeper.

Check the amount of RAM available by running the DOS command “CHKDSK” at your C drive prompt.

To clear a WordKeeper memory problem, press F10 to exit WordKeeper and restart the application from the Select Disc Screen.

APPENDIX A

SPECIAL CHARACTER MAPPING CONVENTIONS

ASCII Characters		
Map To	Character	Description
!	!	exclamation mark
\$	\$	dollar sign
&	&	ampersand
((left parenthesis
))	right parenthesis
*	*	ast / asterisk
^2ast	*	two asterisks
,	,	comma
-	-	hyphen
-	—	en dash
--	—	em dash
.	.	full stop, period
:	:	colon
;	;	semicolon
AE	Æ	capital AE diphthong (ligature)
ae	æ	small ae diphthong (ligature)
ffi	ffi	small ffi ligature
ff	ff	small ff ligature
ffl	ffl	small ffl ligature
fi	fi	small fi ligature
fj	fj	small fj ligature
fl	fl	small fl ligature
i	i	small i without dot
OE	Œ	capital OE ligature
oe	œ	small oe ligature
ss	ß	small sharp s, German (sz ligature)
\	\	backslash / reverse solidus
		vert / vertical bar
ll		Vert / dbl vertical bar
[[lbrack / left square bracket
]]	rbrack / right square bracket
^cent	¢	cent sign
@	@	commercial at
"	“	double quotation mark, left
'	'	single quotation mark, left
-	-	minus sign
^Oslash	Ø	capital O, slash
^oslash	ø	small o, slash
%	%	percent sign
+	+	plus sign
?	?	question mark
"	”	double quotation mark, right

ASCII Characters (continued)		
Map To	Character	Description
'	'	apostrophe
'	'	single quotation mark, right
{	{	lbrace / left curly bracket
}	}	rbrace / right curly bracket
#	#	number / pound sign
<	<	less than
>	>	greater than
=	=	equals

Superscript and Subscript Characters		
Map To	Character	Description
<sup/1/	1	superscript one
<sup/2/	2	superscript two
g<sup/3<sup/s//	g ^{3s}	nested superscripts
g<sup/3<sup/s<sup/2///	g ^{3s2}	nested superscripts
g<sup/2<inf/x//	g ^{2x}	nested supers/subs
x<inf/5<sup/n//	x _{5n}	nested subs/supers
<inf/1/	1	subscript one
<inf/2/	2	subscript two
x<inf/5<inf/n//	x _{5n}	nested subscripts
x<inf/5<inf/n<inf/7///	x _{5n7}	nested subscripts

Accented Characters:

Any character with any accent(s) (including, but not limited to, those shown below) is to be keyed as the character alone, omitting the accent(s).

Map To	Character	Description
	´	acute accent
	°	angstrom accent / ring
	˘	breve
	ˆ	caron
	¸	cedilla
	¨	dieresis or umlaut mark
	˙	dot above
	ˆ	double acute accent
	four dots above
	`	grave accent
	˘	hacek
	ˆ	hook
	ˉ	macron
	˙	ogonek
	˜	tilde

Character Set for Greek

Map To	Character	Description
^Agr	A	capital Alpha, Greek
^agr	α	small alpha, Greek
^Bgr	B	capital Beta, Greek
^bgr	β	small beta, Greek
^bgrv	β	betavar, alternate beta
^Dgr	Δ	capital Delta, Greek
^dgr	δ	small delta, Greek
^dgrv	∂	deltavar / round dee / differential
^EEgr	H	capital Eta, Greek
^eegr	η	small eta, Greek
^Egr	E	capital Epsilon, Greek
^egr	ϵ	small epsilon, Greek
^epsis	ϵ	straight epsilon
^Ggr	Γ	capital Gamma, Greek
^ggr	γ	small gamma, Greek
^Igr	I	capital Iota, Greek
^igr	ι	small iota, Greek
^Kgr	K	capital Kappa, Greek
^kgr	κ	small kappa, Greek
^kgrv	κ	kappa / varkappa
^KHgr	X	capital Chi, Greek
^khgr	χ	small chi, Greek
^Lgr	Λ	capital Lambda, Greek
^lgr	λ	small lambda, Greek
^Mgr	M	capital Mu, Greek
^mgr	μ	small mu, Greek
^nabla	∇	nabla
^Ngr	N	capital Nu, Greek
^ngr	ν	small nu, Greek
^Ogr	O	capital Omicron, Greek
^ogr	\omicron	small omicron, Greek
^OHgr	Ω	capital Omega, Greek
^ohgr	ω	small omega, Greek
^Pgr	Π	capital Pi, Greek
^pgr	π	small pi, Greek
^pgrv	π	pivar, alternate pi
^PHgr	Φ	capital Phi, Greek
^phgr	ϕ	small phi, Greek
^phgrv	φ	varphi - curly or open phi
^PSgr	Ψ	capital Psi, Greek
^psgr	ψ	small psi, Greek
^Rgr	P	capital Rho, Greek
^rgr	ρ	small rho, Greek
^rgrv	ρ	alternate small rho, Greek
^sfgr	ς	final small sigma, Greek
^Sgr	Σ	capital Sigma, Greek

Character Set for Greek (continued)

Map To	Character	Description
^sgr	σ	small sigma, Greek
^Tgr	T	capital Tau, Greek
^tgr	τ	small tau, Greek
^THgr	Θ	capital Theta, Greek
^thgr	θ	small theta, Greek
^thgrv	ϑ	vartheta - curly or open theta
^Ugr	Y	capital Upsilon, Greek
^ugr	υ	small upsilon, Greek
^Xgr	Ξ	capital Xi, Greek
^xgr	ξ	small xi, Greek
^Zgr	Z	capital Zeta, Greek
^zgr	ζ	small zeta, Greek

Mathematical Symbols: Operators and Relations

Map To	Character	Description
^amalg	\amalg	amalg / amalgamation or coproduct
^and	\wedge	wedge / and / logical and
^ang	\angle	angle - angle
^ang90	\perp	right (90 degree) angle
^angmsd	\sphericalangle	measuredangle - angle-measured
^angsph	\sphericalangle	sphericalangle - angle-spherical
^ap	\approx	approx / approximate
^ape	\approx	approxeq / approximate, equals
^asympt	\asymp	asympt / asymptotically equal to
^barwed	$\bar{\wedge}$	barwedge / logical and, bar above
^Barwed	$\overline{\wedge}$	doublebarwedge / log and, dbl bar
^bcong	\cong	backcong / reverse congruent
^becaus	\because	because / because
^bepsi	\ni	backepsilon / such that
^bowtie	\bowtie	bowtie
^bprime	\backprime	backprime - reverse prime
^brvbar	$\bar{\cdot}$	broken (vertical) bar
^bsim	\sim	backsim / reverse similar
^bsime	\backsimeq	backsimeq / reverse similar, eq
^bump	\bumpeq	Bumpeq / bumpy equals
^bumpe	\bumpeq	bumpeq / bumpy equals, equals
^Cap	\cap	Cap / doublecap / dbl intersection
^cap	\cap	cap / intersection
^caret	\wedge	caret (insertion mark)
^colone	\coloneqq	coloneq / colon, equals
^cong	\equiv	cong / congruent with
^cuepr	\curlyeqprec	curlyeqprec / curly eq, precedes
^cuesc	\curlyeqsucc	curlyeqsucc / curly eq, succeeds
^Cup	\cup	Cup / doublecup / dbl union
^cup	\cup	cup / union or logical sum

Mathematical Symbols: Operators and Relations (continued)

Map To	Character	Description
$\hat{\text{cupre}}$	\preccurlyeq	curlypreceq / curly precedes, eq
$\hat{\text{cuvee}}$	\curlyvee	curlyvee / curly logical or
$\hat{\text{cuwed}}$	\curlywedge	curlywedge / curly logical and
$\hat{\text{dagger}}$	\dagger	dagger / dagger
$\hat{\text{Dagger}}$	\ddagger	ddagger / double dagger
$\hat{\text{dashv}}$	\dashv	dashv / dash, vertical
$\hat{\text{divide}}$	\div	div / divide sign
$\hat{\text{divonx}}$	\ast	divideontimes / division on times
$\hat{\text{ecir}}$	\eqcirc	eqcirc / circle on equals sign
$\hat{\text{eDot}}$	\doteqdot	doteqdot / Doteq / eq, even dots
$\hat{\text{efDot}}$	\fallingdotseq	fallingdotseq / eq, falling dots
$\hat{\text{egs}}$	\eqslantgtr	eqslantgtr / equal-or-gtr, slanted
$\hat{\text{els}}$	\eqslantless	eqslantless / eq-or-less, slanted
$\hat{\text{eqles}}$	\leq	equal-or-less
$\hat{\text{eqgr}}$	\geq	equal-or-greater
$\hat{\text{equiv}}$	\equiv	equiv / identical with
$\hat{\text{erDot}}$	\risingdotseq	risingdotseq / eq, rising dots
$\hat{\text{esdot}}$	\doteq	doteq / equals, single dot above
$\hat{\text{esim}}$	\approx	equals or similar
$\hat{\text{fork}}$	\pitchfork	pitchfork / pitchfork
$\hat{\text{frown}}$	\frown	frown / down curve
$\hat{\text{gap}}$	\gtrapprox	gtrapprox / greater, approximate
$\hat{\text{ge}}$	\geq	geq / ge / greater-than-or-equal
$\hat{\text{gE}}$	\geqeq	geqq / greater, double equals
$\hat{\text{gel}}$	\gtrless	gtreqless / greater, equals, less
$\hat{\text{gEl}}$	\gtrless	gtreqqless / gt, dbl equals, less
$\hat{\text{ges}}$	\gtrsim	geqslant / gt-or-equal, slanted
$\hat{\text{Gg}}$	\ggg	ggg / Gg / gggtr / triple gtr-than
$\hat{\text{gl}}$	\gtrless	gtrless / greater, less
$\hat{\text{gnap}}$	\gtrapprox	gnapprox / greater, not approximate
$\hat{\text{gne}}$	\gneq	gneq / greater, not equals
$\hat{\text{gnE}}$	\gneqq	gneqq / greater, not dbl equals
$\hat{\text{gnsim}}$	\gtrsim	gnsim / greater, not similar
$\hat{\text{gsdot}}$	\gtrdot	gtrdot / greater than, single dot
$\hat{\text{gsim}}$	\gtrsim	gtrsim / greater, similar
$\hat{\text{gt}}$	$>$	greater-than sign
$\hat{\text{Gt}}$	\gg	gg / dbl greater-than sign
$\hat{\text{Gt}}$	\gg	gg / dbl greater-than sign
$\hat{\text{gvnE}}$	\nvertneqq	gvrtneqq / gt, vert, not dbl eq
$\hat{\text{isin}}$	\in	in / set membership
$\hat{\text{lang}}$	\langle	langle / left angle bracket
$\hat{\text{lap}}$	\lessapprox	lessapprox / less, approximate
$\hat{\text{ldot}}$	\lessdot	lessdot / less than, with dot
$\hat{\text{le}}$	\leq	leq / le / less-than-or-equal

Mathematical Symbols: Operators and Relations (continued)

Map To	Character	Description
$\hat{\text{IE}}$	\leqeq	leqq / less, double equals
$\hat{\text{leg}}$	\lesseqgtr	lesseqgtr / less, eq, greater
$\hat{\text{IEg}}$	\lesseqqgtr	lesseqqgtr / less, dbl eq, greater
$\hat{\text{les}}$	\leqslant	leqslant / less-than-or-eq, slant
$\hat{\text{lg}}$	\lessgtr	lessgtr / less, greater
$\hat{\text{Ll}}$	\lll	Ll / lll / lless / triple less-than
$\hat{\text{lnap}}$	\napprox	lnapprox / less, not approximate
$\hat{\text{lne}}$	\lneq	lneq / less, not equals
$\hat{\text{lnE}}$	\lneqq	lneqq / less, not double equals
$\hat{\text{lnsim}}$	\nlsim	lnsim / less, not similar
$\hat{\text{lpargt}}$	$\left(>$	leftparengtr / left parenthesis, gt
$\hat{\text{lsim}}$	\lesssim	lesssim / less, similar
$\hat{\text{lt}}$	$<$	less-than sign
$\hat{\text{Lt}}$	\ll	ll / double less-than sign
$\hat{\text{Lt}}$	\ll	ll / double less-than sign
$\hat{\text{ltimes}}$	\times	ltimes / times sign, left closed
$\hat{\text{lvnE}}$	\nvertneqq	lvrtneqq / less, vert, not dbl eq
$\hat{\text{middot}}$	\cdot	centerdot / middle dot
$\hat{\text{mnplus}}$	\mp	mp / minus-or-plus sign
$\hat{\text{models}}$	\models	models
$\hat{\text{nap}}$	\napprox	napprox / not approximate
$\hat{\text{ncong}}$	\ncong	ncong / not congruent with
$\hat{\text{ndsimdes}}$	\nlessgtr	negated double similar double equals - with slanted not
$\hat{\text{ne}}$	\neq	ne / neq / not equal
$\hat{\text{nequiv}}$	\nequiv	nequiv / not identical with
$\hat{\text{nge}}$	\ngeq	ngeq / not greater-than-or-equal
$\hat{\text{ngE}}$	\ngeqq	ngeqq / not greater, dbl equals
$\hat{\text{nges}}$	\ngeqslant	ngeqslant / not gt-or-eq, slanted
$\hat{\text{ngt}}$	\ngtr	ngtr / not greater-than
$\hat{\text{ni}}$	\ni	ni / owns / contains
$\hat{\text{nIE}}$	\nleqq	nleqq / not less, dbl equals
$\hat{\text{nle}}$	\nleq	nleq / not less-than-or-equal
$\hat{\text{nles}}$	\nleqslant	nleqslant / not less-or-eq, slant
$\hat{\text{nlt}}$	$<$	nless / not less-than
$\hat{\text{nlttri}}$	\triangleleft	ntriangleleft / not left triangle
$\hat{\text{nlttrie}}$	\trianglelefteq	ntrianglelefteq / not l tri, eq
$\hat{\text{notin}}$	\notin	N: negated set membership
$\hat{\text{npar}}$	\parallel	nparallel / not parallel
$\hat{\text{nperp}}$	\perp	not perpendicular
$\hat{\text{npr}}$	\prec	nprec / not precedes
$\hat{\text{npre}}$	\npreceq	npreceq / not precedes, equals
$\hat{\text{nrttri}}$	\triangleright	ntriangleright / not rt triangle
$\hat{\text{nrttrie}}$	\trianglerighteq	ntrianglerighteq / not r tri, eq

Mathematical Symbols: Operators and Relations (continued)

Map To	Character	Description
^nsc	\nrightarrow	nsucc / not succeeds
^nsce	\nsucceq	nsucceq / not succeeds, equals
^nsim	\nrightarrow	nsim / not similar
^nsime	\nsimeq	nsimeq / not similar, equals
^nsub	\nsubseteq	nsubset / not subset
^nsube	\nsubseteq	nsubteq / not subset, equals
^nsubE	\nsubseteq	nsubteqq / not subset, dbl eq
^nsup	\nsupset	nsupset / not superset
^nsupe	\nsupseteq	nsupseteq / not superset, equals
^nsupE	\nsupseteq	nsupseteqq / not superset, dbl eq
^nsupE	\nsupseteq	nsupseteqq / not superset, dbl eq
^nVdash	\nVdash	nVdash / not dbl vertical, dash
^nvDash	\nvDash	nvDash / not vertical, dash
^nvDash	\nvDash	nvDash / not vertical, dbl dash
^nVDash	\nVDash	nVDash / not dbl vert, dbl dash
^par	\parallel	parallel / parallel
^perp	\perp	perp / perpendicular
^plummn	\pm	pm / plus-or-minus sign
^pr	\prec	prec / precedes
^prap	\preapprox	precapprox / precedes, approximate
^pre	\preceq	preceq / precedes, equals
^prnap	\preapprox	precnapprox / precedes, not approx
^prnE	\preceq	precneqq / precedes, not dbl eq
^prnsim	\nrightarrow	precnsim / precedes, not similar
^prop	\propto	propto / is proportional to
^prsim	\rightsquigarrow	precsim / precedes, similar
^rang	\rangle	rangle / right angle bracket
^rtimes	\times	rtimes / times sign, right closed
^sc	\succ	succ / succeeds
^scap	\succapprox	succapprox / succeeds, approximate
^scce	\succcurlyeq	succcurlyeq / succeeds, curly eq
^sce	\succcurlyeq	succceq / succeeds, equals
^scnap	\succapprox	succnapprox / succeeds, not approx
^scnE	\succcurlyeq	succneqq / succeeds, not dbl eq
^scnsim	\rightsquigarrow	succnsim / succeeds, not similar
^scsim	\rightsquigarrow	succsim / succeeds, similar
^sim	\sim	sim / similar
^sime	\simeq	simeq / similar, equals
^simgr	\gtrsim	similar or greater
^simls	\lesssim	similar or less
^smile	\smile	smile / up curve
^snt4par	\nparallel	negated quadruple parallel/horizontals - with slanted not
^sntsub	\nsubseteq	not subset - with slanted not

Mathematical Symbols: Operators and Relations (continued)

Map To	Character	Description
^sntsuc	\nrightarrow	not succeeding equals - with single sloped equals and slanted not
^sntsup	\nrightarrow	not superset - with slanted not
^sqsub	\sqsubset	sqsubset / square subset
^sqsube	\sqsubseteq	sqsubseteq / square subset, equals
^sqsup	\sqsupset	sqsupset / square superset
^sqsupe	\sqsupseteq	sqsupseteq / square superset, eq
^sstarf	\star	star / small star, filled
^Sub	\subseteq	Subset / double subset
^sub	\subset	subset / subset or is implied by
^subE	\subseteq	subteqq / subset, dbl equals
^sube	\subseteq	subteq / subset, equals
^subne	\nsubseteq	subsetneq / subset, not equals
^subnE	\nsubseteq	subsetneqq / subset, not dbl eq
^sup	\supset	supset / superset or implies
^Sup	\supseteq	Supset / dbl superset
^supE	\supseteq	supseteqq / superset, dbl equals
^supe	\supseteq	supseteq / superset, equals
^supne	\nrightarrow	supsetneq / superset, not equals
^supnE	\nrightarrow	supsetneqq / superset, not dbl eq
^tckmark	\checkmark	thin checkmark
^there4	\therefore	therefore / therefore
^thksim	\sim	thicksim / thick similar / cycle sine
^times	\times	times / multiply sign
^tribar	\triangle	triangle, single bar
^trie	\triangle	triangleq / triangle, equals
^twixt	\bowtie	between / between
^uplus	\uplus	uplus / plus sign in union
^Vdash	\Vdash	Vdash / dbl vertical, dash
^vDash	\vdash	vDash / vertical, dbl dash
^vdash	\vdash	vdash / vertical, dash
^veebar	\vee	veebar / logical or, bar below
^vlne	\nless	not less than or equal to - vertical not / single equals
^vn4par	\nparallel	negated quadruple parallel/horizontals - with vertical not
^vncont	\nrightarrow	not containing - with single bar and vertical not
^vndbeg	\nrightarrow	not equal to or greater than - with double equals and vertical not
^vndbel	\nrightarrow	not equal to or less than - with double equals and vertical not
^vnimsb	\nsubseteq	not improper subset equals - with vertical not

Mathematical Symbols: Operators and Relations (continued)

Map To	Character	Description
\wedge nimsp	\nexists	not improper superset equals - with vertical not
\wedge nmem	\notin	not a member of - with vertical not
\wedge vnpr	\nprec	not preceding - with vertical not
\wedge vnpre	\nlessgtr	not preceding equals - with single sloped equals and vertical not
\wedge vnsce	\nsucceq	not succeeding equals - with single sloped equals and vertical not
\wedge vnsim	\nsim	not equal similar to - with single equals and vertical not
\wedge vnsngg	\ngtr	not equal to or greater than - with single sloped equals and vertical not
\wedge vnsngl	\nlessgtr	not equal to or less than - with single sloped equals and vertical not
\wedge wedgeq	\triangle	R: corresponds to (wedge, equals)

Symbols: Arrows

Map To	Character	Description
\wedge cularr	\curvearrowleft	curvearrowleft / left curved arrow
\wedge cularrp	\curvearrowleftplus	curvearrowleftplus / left curved arrow with plus
\wedge cularru	\curvearrowup	arrow curve up left
\wedge curarr	\curvearrowright	curvearrowright / rt curved arrow
\wedge curarrm	\curvearrowrightminus	curvearrowrightminus / rt curved arrow with minus
\wedge curarru	\curvearrowup	arrow curve up right
\wedge darr	\downarrow	downarrow / downward arrow
\wedge dArr	\Downarrow	Downarrow / down dbl arrow
\wedge darr2	\downdownarrows	downdownarrows / two down arrows
\wedge dharl	\harpoonleft	downleftharpoon / dn harpoon-left
\wedge dharr	\harpoonright	downrightharpoon / down harpoon-rt
\wedge dlarr	\swarrow	swarrow / downward l arrow
\wedge drarr	\searrow	searrow / downward rt arrow
\wedge harr	\leftrightarrow	leftrightharpoon / l&r arrow
\wedge hArr	\Leftrightarrow	Leftrightharpoon / l&r dbl arrow
\wedge harrw	\longleftrightarrow	leftrightsquigarrow / l&r arr-wavy
\wedge iff	\Leftrightarrow	iff / if and only if
\wedge lAarr	\Lleftarrow	Lleftarrow / left triple arrow
\wedge Larr	\twoheadleftarrow	twoheadleftarrow
\wedge larr	\leftarrow	leftarrow / gets / leftward arrow
\wedge lArr	\Leftarrow	Leftarrow / is implied by
\wedge larr2	\leftleftarrows	leftleftarrows / two left arrows

Symbols: Arrows (continued)

Map To	Character	Description
\wedge larrhk	\hookleftarrow	hookleftarrow / left arrow-hooked
\wedge larrlp	\looparrowleft	looparrowleft / left arrow-looped
\wedge larrtl	\leftarrowtail	leftarrowtail / left arrow-tailed
\wedge lhard	\lharpoonleft	leftharpoondown / l harpoon-down
\wedge lharu	\lharpoonup	leftharpoonup / left harpoon-up
\wedge larr2	\leftrightarrows	leftrightarrows / l arr over r arr
\wedge lhar2	\leftrightharpoons	leftrightharpoons / l harp over r
\wedge lsh	\leftharpoonup	Lsh
\wedge map	\mapsto	mapsto
\wedge mumap	\multimap	multimap
\wedge nearr	\nearrow	nearrow / NE pointing arrow
\wedge nharr	\nrightarrow	nletrightarrow / not l&r arrow
\wedge nhArr	\nLeftrightarrow	nLeftrightarrow / not l&r dbl arr
\wedge nlArr	\nLeftarrow	nLeftarrow / not implied by
\wedge nlarr	\nleftarrow	nleftarrow / not left arrow
\wedge nrArr	\nRightarrow	nRightarrow / not implies
\wedge nrarr	\nrightarrow	nrightarrow / not right arrow
\wedge nwarr	\nwarrow	nwarrow / NW pointing arrow
\wedge olarr	\circlearrowleft	circlearrowleft / l arr in circle
\wedge orarr	\circlearrowright	circlearrowright / r arr in circle
\wedge rAarr	\Rightarrow	Rightarrow / right triple arrow
\wedge rarr	\rightarrow	rightarrow / to / rightward arrow
\wedge rArr	\Rightarrow	Rightarrow / implies
\wedge Rarr	\twoheadrightarrow	twoheadrightarrow
\wedge rarr2	\rightrightarrows	rightrightarrows / two rt arrows
\wedge rarrhk	\hookrightarrow	hookrightarrow / rt arrow-hooked
\wedge rarrlp	\looparrowright	looparrowright / rt arrow-looped
\wedge rarrtl	\rightarrowtail	rightarrowtail / rt arrow-tailed
\wedge rarrw	\rightsquigarrow	squigarrowright / rt arrow-wavy
\wedge rhard	\rharpoonleft	rightharpoondown / rt harpoon-down
\wedge rharu	\rharpoonup	rightharpoonup / rt harpoon-up
\wedge rlarr2	\rightleftarrows	rightleftarrows / r arr over l arr
\wedge rlhar2	\rightleftharpoons	rightleftharpoons / r harp over l
\wedge rsh	\rightharpoonup	Rsh
\wedge uarr	\uparrow	uparrow / upward arrow
\wedge uArr	\Uparrow	Uparrow / up dbl arrow
\wedge uarr2	\upuparrows	upuparrows / two up arrows
\wedge uharl	\upharpoonleft	upleftharpoon / up harpoon-left
\wedge uharr	\upharpoonright	uprightharpoon / up harp-r
\wedge varr	\updownarrow	updownarrow / up&down arrow
\wedge vArr	\Updownarrow	Updownarrow / up&down dbl arrow
\wedge xharr	\longleftrightarrow	longrightarrow / l&r arrow
\wedge xhArr	\Longleftrightarrow	Longleftrightarrow / long l&r dbl arr
\wedge xlArr	\Longleftarrow	Longleftarrow / long l dbl arrow
\wedge xrArr	\Longrightarrow	Longrightarrow / long rt dbl arr

Additional Symbols, Boxes, Bullets

Map To	Character	Description
^ballot	☒	ballot cross
^bottom	⊥	bot / perpendicular
^bsun	☀	black sun
^bull	•	bullet / round bullet, filled
^check	✓	checkmark / tick, check mark
^cir	○	circ / circle, open
^cir1	①	open circle with appropriate character
^cire	⊖	circeq / circle, equals
^cirf	●	circle, filled
^cirf2	⦿	filled circle with appropriate character
^clubs	♣	clubsuit / club suit symbol
^comp	∕	complement - complement sign
^compfn	∘	B: composite function (small circle)
^conint	∫	oint / contour integral operator
^copy	©	copyright sign
^curren	¤	general currency sign
^daleth	ד	daleth - daleth, Hebrew
^deg	°	degree sign
^diam	◇	diamond / open diamond
^diams	◆	diamondsuit / diamond suit symbol
^dtri	▽	triangledown / down triangle, open
^dtrif	▼	blacktriangledown / dn tri, filled
^ETH	Ð	capital Eth, Icelandic
^eth	ð	small eth, Icelandic
^exist	∃	exists / at least one exists
^female	♀	female symbol
^flat	♭	flat / musical flat
^fnof	ƒ	function of (italic small f)
^forall	∀	forall / for all
^hamilt	ℋ	Hamiltonian (script capital H)
^hearts	♥	heartsuit / heart suit symbol
^hE	⏞	horizontal E
^hellip	...	ellipsis (horizontal)
^hex	⬡	hex
^horbar	—	horizontal bar
^hybull	■	rectangle, filled (hyphen bullet)
^iexcl	¡	inverted exclamation mark
^incare	%	in-care-of symbol
^infin	∞	infty / infinity
^int	∫	int / integral operator
^intcal	⊢	intercal / intercal
^iohm	Ω	inverted ohm sign
^iquest	¿	inverted question mark
^lagran	ℒ	Lagrangian (script capital L)
^laquo	<	angle quotation mark, left

Additional Symbols, Boxes, Bullets (continued)

Map To	Character	Description
^lceil	⌈	left ceiling
^lfloor	⌋	left floor
^lowbar	—	low line
^loz	◇	lozenge - lozenge or total mark
^lozd	◊	lozenge with dot
^lozf	◆	blacklozenge - lozenge, filled
^lpargt	(>	leftparengtr / left parenthesis, gt
^lthree	×	leftthreetimes
^ltri	◁	triangleleft / l triangle, open
^ltrie	◁	triangleleftsq / left triangle, eq
^ltrif	◄	blacktriangleleft / l tri, filled
^male	♂	male symbol
^malt	⌘	maltese / maltese cross
^minusb	⊖	boxminus / minus sign in box
^mldr	...	em leader
^natur	♮	natural - music natural
^nexist	∄	nexists - negated exists
^nldr	..	double baseline dot (en leader)
^nmid	⌵	nmid
^oast	⊛	circledast / asterisk in circle
^ocir	⊙	circledcirc / open dot in circle
^odash	⊖	circleddash / hyphen in circle
^odot	⊙	odot / middle dot in circle
^ohm	Ω	ohm sign
^ominus	⊖	ominus / minus sign in circle
^oplus	⊕	oplus / plus sign in circle
^or	∨	vee /lor / logical or
^ordf	♀	ordinal indicator, feminine
^ordm	♂	ordinal indicator, masculine
^oS	Ⓢ	circledS - capital S in circle
^osol	Ⓣ	oslash / solidus in circle
^otimes	⊗	otimes / multiply sign in circle
^para	¶	pilcrow / paragraph sign
^phmmat	ℳ	physics M-matrix (script capital M)
^phone	☎	telephone symbol
^planck	ℏ	hbar / hslash - Planck's over 2pi
^plusb	⊕	boxplus / plus sign in box
^plusdo	⋈	dotplus / plus sign, dot above
^pmil	‰	per thousand
^pound	£	pound sign
^Prime	″	double prime or second
^prime	′	prime / prime or minute
^prod	∏	prod / product operator
^qprime	″″	quadruple prime
^radic	√	surd / radical

Additional Symbols, Boxes, Bullets (continued)

Map To	Character	Description
^raquo	>	angle quotation mark, right
^rceil	⌈	rceil / right ceiling
^rect	□	rectangle, open
^reg	®	circledR / registered sign
^rfloor	⌋	rfloor / right floor
^rpargt)>	rightparengr / right paren, gt
^rthree	×	rightthreetimes
^rtri	▷	triangleright / r triangle, open
^rtrie	⊳	trianglerighteq / right tri, eq
^rtrif	▶	blacktriangleright / r tri, filled
^rx	℞	pharmaceutical prescription (Rx)
^sdotb	◻	dotsquare /boxdot / small dot in box
^sect	§	section sign
^sext	*	sextile (6-pointed star)
^sharp	#	sharp / musical sharp
^spades	♠	spadesuit / spades suit symbol
^sqcap	⊔	sqcap / square intersection
^sqcup	⊔	sqcup / square union
^squ	□	square, open
^sqf	■	square, filled
^sqf	▪	blacksquare / sq bullet, filled
^star	☆	star, open
^starf	★	bigstar - star, filled
^step	⌋	step
^sum	Σ	sum / summation operator
^target	®	register mark or target
^THORN	Þ	capital THORN, Icelandic
^thorn	þ	small thorn, Icelandic
^timesb	⊠	boxtimes / multiply sign in box
^top	⊥	top / inverted perpendicular
^tprime	'''	triple prime
^trade	™	trade mark sign
^trade	®	trade mark sign
^trid	△	triangle up with dot

Additional Symbols, Boxes, Bullets (continued)

Map To	Character	Description
^utri	△	triangle / up triangle, open
^utrif	▲	blacktriangle / up tri, filled
^vellip	⋮	vertical ellipsis
^vprime	′	varprime - prime, variant
^weierp	wp	wp - Weierstrass p
^xcirc	◯	bigcirc / large circle
^xdtri	▽	bigtriangledown / big dn tri, open
^yen	¥	yen / yen sign

Radicals and Complex Fractions

Map To	Description
<rad>a+b<rdx>3</rad>	$\sqrt[3]{a+b}$
<rad>a+b</rad>	$\sqrt{a+b}$
<fr>2x</>3xy</fr>	$\frac{2x}{3xy}$

Simple Fractions:

To be keyed as, for example, 1/2, 3/4. . .

Characters in Alternate Typefaces

Map To	Character	Description
^scrR	℞	Script (appropriate character)
^scrg	g	Script (appropriate character)
^scl	ℓ	Script (appropriate character)
^opnH	ℋ	Open (appropriate character)
^opnR	℞	Open (appropriate character)
^gerR	ℝ –	German Fraktur (appropriate character)
^rusA	А	Russian (appropriate character)