# Kurzweil 4000

## Intelligent
## Scanning System

| scan page contin | halt | | end job | get menu | | list files | help | | begin font | end font | begin under |

set-up

| esc | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |

| → show | Q | W | E | R | T | Y | U | I | O |

| ctrl | shift lock | A | S | D | F | G | H | J | K | L |

| | shift | Z | X | C | V | B | N | M | , | |

## Operator's
## Guide

**WARNING**

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested for compliance with the limits for Class A computing devices pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

## PREFACE

This is the Operator's Guide for the Kurzweil 4000 Intelligent Scanning System. It describes system start-up, training procedures and simple file storage requirements.

|  |  |
|---|---|
| - Chapter One | System Description |
| - Chapter Two | Menu Parameters |
| - Chapter Three | Training and Production |
| - Chapter Four | Advanced Operations |

Use of the *Kurzweil 4000 Operator's Guide* will enable both the novice and the experienced computer operator to begin processing documents quickly and efficiently. Users are invited to make suggestions for improving the Operator's Guide by returning the *Readers' Comments Card* on page 48.

Additional documents provided with the 4000 system include the *Communications Guide*, the *System Administration Guide*, and (if the Tablet is purchased) the *Tablet Operator's Guide*. Refer to these guides for information about transmitting and receiving files, use of the floppy disk drive and procedures to follow in the event of problems encountered while using the Kurzweil system.

Technical questions and problems should be directed to the Kurzweil Customer Support staff at the Cambridge, Massachusetts headquarters. The address is listed below.

**Kurzweil Computer Products**
**185 Albany Street**
**Cambridge, Massachusetts 02139**

**(800) 343-0311**

# TABLE OF CONTENTS

# Chapter 1

## SYSTEM DESCRIPTION

The Kurzweil 4000 Intelligent Scanning System consists of six hardware components, including:

- a scanner,

- a floppy disk drive,

- a Winchester hard disk drive,

- communication ports,

- the central processing unit (CPU) and

- the display terminal.

A *Tape Drive,* an *Automatic Document Feeder,* a *Tablet,* and additional communication ports are optional components supplied by Kurzweil.
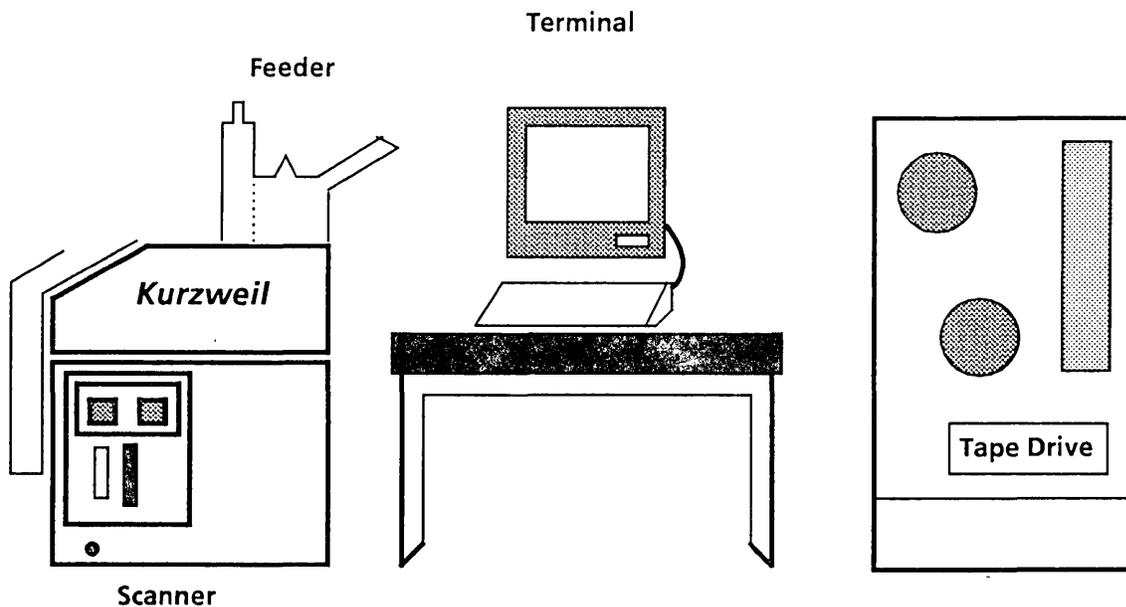
*Figure 1.1 Kurzweil 4000 Operational Environment*

## 1.1 System Start-Up

Follow the instructions below to enable power to the system (refer to *Figure 1.1* for details).

1.  Press the **ON/OFF** switch located on the left hand corner of the workstation unit to enable power to the CPU, scanner, and display terminal.

2.  The letter "**O**" will be displayed, followed by a blinking exclamation point (!). This indicates that the system *self-test* is in progress. *Self-test* takes approximately 30 - 45 seconds to complete.

3.  When *self-test* is complete, the **Status Prompt (OK!)** is displayed .

4.  The operator may now either:

    - Log-in to the processing system, or

    - Install a new or existing software release.

    These procedures are documented in section 1.3.

### NOTES

If the **Status Prompt** is not displayed after one minute, press **RESET.**

**RESET** must be used with caution. If depressed while the scanner is in motion, data files can be adversely affected. Press **RESET** only after a *Logout* operation, or when the scanner has been halted.
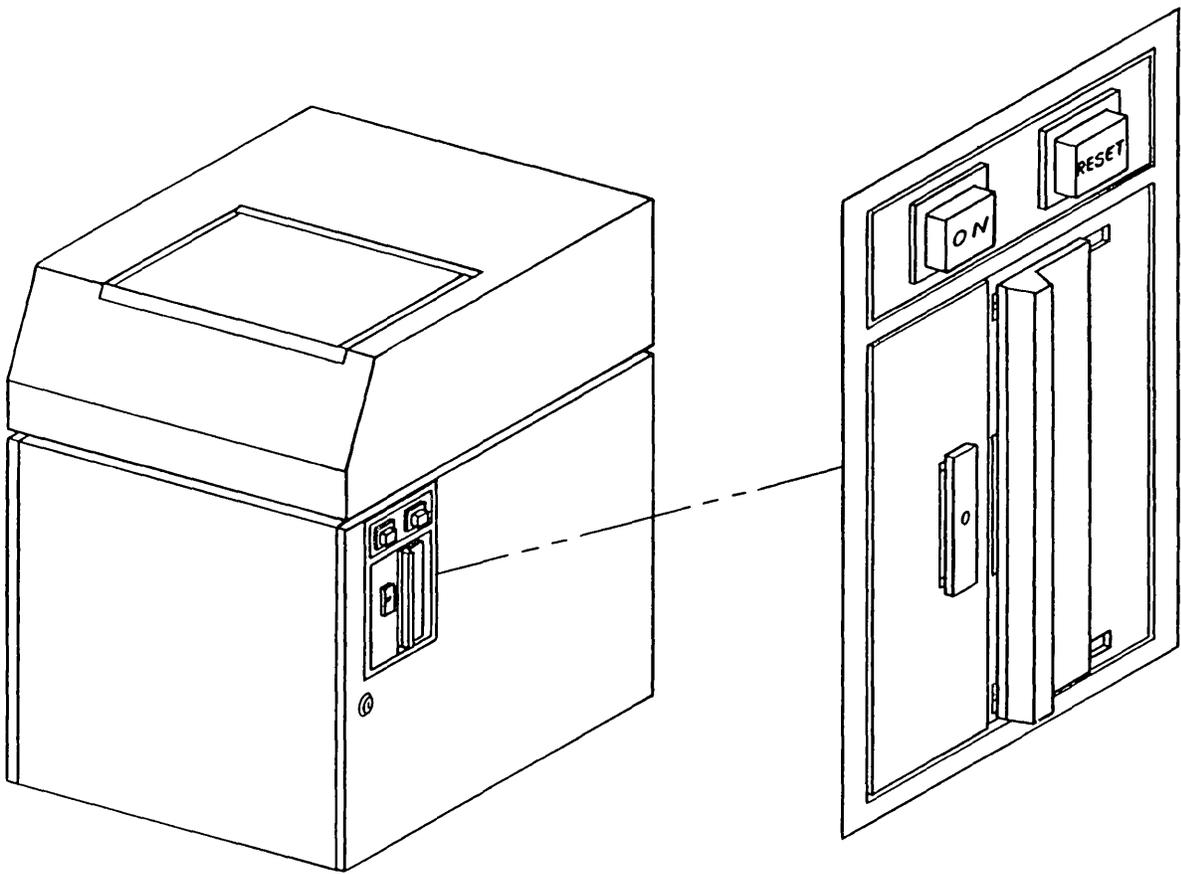
*Figure 1.2 - Kurzweil 4000 workstation*
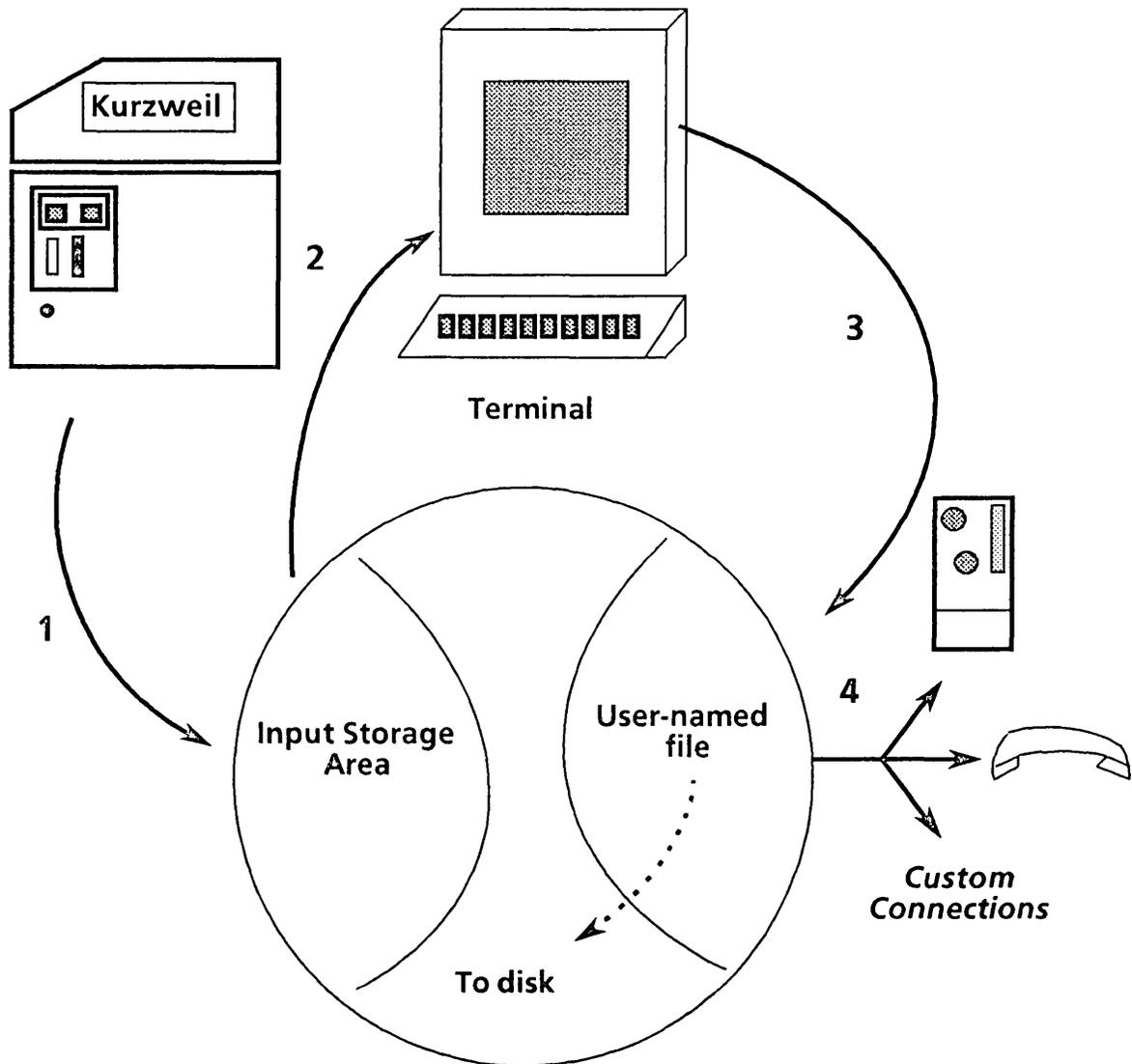
Text that is processed on the workstation is retained on the hard disk in the Input Storage area. Information that is held in the storage area must be displayed on the terminal screen for operator assessment and verification, or deleted.

Displayed text scrolls off the terminal screen and moves to an area on disk that has been named by the user. User-named files may be output to floppy disks, tape drives, communication lines or the other devices via Kurzweil-supplied custom connections.

## TRAINING MODE

When the Kurzweil system is instructed to scan a page in AUTOMATIC MODE, it may scan ahead of the operator or rescan text before displaying it.The system attempts to reach an acceptable level of recognition before presenting text to the operator for editing. In AUTOMATIC MODE, the system may process one line at a time if the intervention rate is high, or scan up to four lines at a time if the rate is low.

When AUTOMATIC is selected as the training mode, the scanner will make two attempts to recognize text. If the text is deteriorated or the copy is dirty, the system will shift control to CONFIRM mode. CONFIRM mode requires operator verification of interventioned images (questionable characters that are highlighted by the system). Once the "confidence level" of the system has increased (via this operator assistance) the system will revert to AUTOMATIC mode.

AUTOMATIC MODE is most effective when used on copy that contains one type face, where the copy is clean and the print quality is high. Operators who desire greater control over production and training use MANUAL MODE.

MANUAL MODE allows the operator to step through text character-by-character or line-by-line and accept or reject displayed images for training. Information in each accepted line is applied to the following lines, resulting in less operator involvement and increased system confidence.

OFF is selected when a training set already exists for the text that will be scanned by the Kurzweil system. Training does not take place, except on those images that are "flagged" by the operator with the **Train Image** key. OFF is typically selected when a previous session has been interrupted, or when the text in question includes fonts that are "known" by the system.

## TRAINING METHOD

In addition to the training mode described above, *character* or *line* may be selected as the training method. In MANUAL and CONFIRM modes, images are added to training when ACCEPT is pressed. All images in the line are added to the training set. Training occurs on the bottom line of text in the edit window.

In AUTOMATIC and OFF modes, training occurs as the top line of text is scrolled off the screen. Training occurs on a character-by-character basis. Interventioned characters must be viewed (thereby removing the intervention) in order for training to take place. If OFF is the selected training mode, only images that are trained on (by use of the **Train Image** key) will be added to the training set as the lines scroll off the screen.

The scanning subsystem will display the training mode and the editor training method at all times, above the edit window. Training and production procedures associated with training modes are described in Chapter 3.

## 1.3 Login Procedures

To **LOGIN** to the Kurzweil 4000 Intelligent Scanning System, type the letter "D" in response to the *Status Prompt* (**OK!**) described in section 1.1. The **LOGIN MENU** will be displayed.

Kurzweil software functions under the control of a series of *menus* that require operator-supplied information. Menus are described in Chapter 2. Initially, the operator must supply basic record-keeping information to the system as described in the *Login Menu* below.

The date is entered as *MM/DD/YY* and is required. Any non-alphanumeric character may be used to separate the fields in the time and date entries. The *Comment* line is optional and may hold up to 40 characters. Information entered in this line will be placed into **KDEMLOG**, a special record-keeping file that lists jobs and operators. Press ACCEPT to enter the *Login Menu* information.

**LOGIN MENU**

| | | |
|---|---|---|
| 1 | DATE | NONE |
| 2 | TIME (24 hour) | NONE |
| 3 | NAME OR COMMENT | NONE |

*NOTE*

If the Login Menu is not displayed, follow the *Software Installation Procedures,* described in section 1.3.1.

Once the *Login* parameters have been ACCEPTed, the **TOP Level Dispatch Menu** (below) is presented. Whenever another program is completed (for instance, exiting from *Communications* operations), the TOP Level Menu is displayed. To begin scanning operations, select option **1** and press ACCEPT.

| | |
|---|---|
| 1 | Scanning |
| 2 | Communications |
| 3 | Filing |
| 4 | Utilities |
| 5 | Help |
| 6 | Log Out |
| *Enter Call-up number to perform function.* | |

### 1.3.1 SOFTWARE INSTALLATION PROCEDURES

Software releases are installed on the Kurzweil 4000 from a set of floppy disks that are delivered with the system. Subsequent software updates are installed in the same manner. To load software on the 4000:

1.  When the *Status Prompt* (**OK!**) is displayed, insert Volume **1** of the Software Release set in the disk drive (refer to *Figure 1.3*). Software releases may reside on one or more floppy disks. Ensure that the the floppy disk is inserted properly (label to the right) and close the door securely.
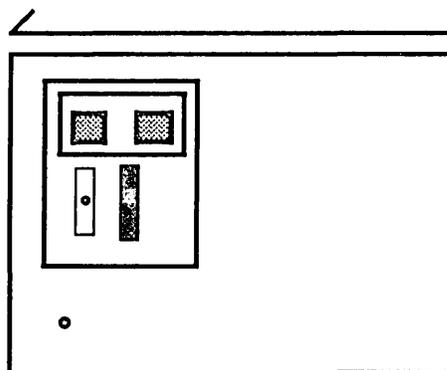


*Figure 1.3 - Kurzweil 4000 Disk Drive*

2.  Type "**F.**" After a short wait (approximately 30 seconds), the operator is required to enter the date and time. Once the software has been installed,this information is processed internally, allowing the operator to bypass the Login Menu and proceed directly to the **TOP Level Dispatch Menu.**

7

3.    The operator is presented with two options next. Type either:

"I" to *install* a release, or

"R" to *rebuild* a software base on the system.

*WARNING*

All files on the disk will be destroyed in a *rebuild* operation.

Selecting "I" will ensure that the information on the hard disk is updated to the most current level. No customer files are affected, nor is pertinent information deleted.

If option "R" is selected, the system requests verification (type either **Y** or **N)** that the operator does, in fact, want to rebuild the software base (the operation will overwrite all files on the hard disk). If the software release involves more than one floppy disk, the operator is instructed to remove the current floppy disk and to insert the next disk in the series.

Either process takes a few minutes. After the installation or rebuilding process, the **TOP Level Dispatch Menu** is displayed to the operator.

## 1.4 Keyboard

This section describes the Kurzweil 4000 keyboard. The keyboard consists of an alphanumeric keyboard, function keys located at the top of the keyboard, and an editing keypad on the right. Dual function keys are operated by holding the **SHIFT** key down while pressing the selected key.

## ALPHANUMERIC KEYBOARD
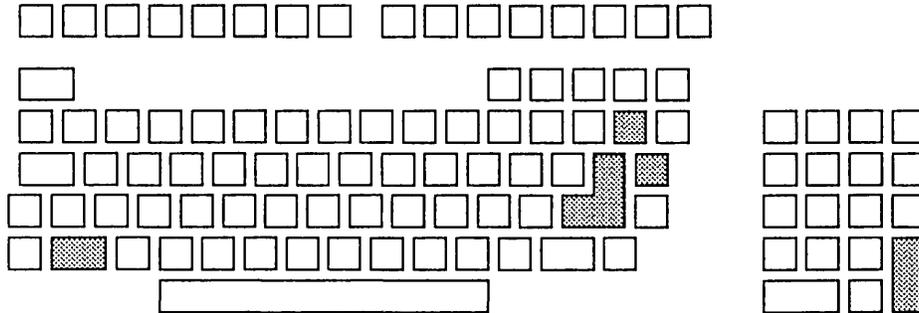
| | |
|---|---|
| *UNDO* | The **UNDO** key cancels the last editing operation. Up to 50 **UNDO** operations may be performed consecutively. The character that was typed most recently will be erased by pressing **UNDO**. |
| *SHIFT* | **SHIFT** allows other keys to have dual functions. For example, pressing the **SHIFT** and **SCAN PAGE** keys simultaneously signals the system to locate the top of a page and scan the entire piece of text. **SHIFT** affects all special function keys, except those associated with Text Type (e.g., *font, sub/superscripts* and *underline* keys). |
| *ACCEPT* | **ACCEPT** functions in the same manner as *RETURN* does on most computer keyboards. When performing *Menu* operations, **ACCEPT** will initiate the action(s) described and exit to the next menu. When performing *Scanning* operations, **ACCEPT** will scan one line (in *Manual Training Mode* - refer to Chapter 3). **ACCEPT** implies that the operator is sure of the choices selected or actions described and also scrolls another line to the screen. |
| *SHOW (arrow)* | The **SHOW** key moves the cursor forward to the next highlighted character. The image of the character is displayed. These characters are referred to as *interventions* and are discussed in Chapter 3. |
| *INSERT LINE NEXT* | Press **INSERT LINE NEXT** to insert a blank line after the current line. |

## MENU KEYS

The Kurzweil 4000 is controlled by menus that allow an operator to customize scanning, editing and output operations. Menus are described in Chapter 2. Certain keys (listed below) have menu-like functions. They either present a menu to the operator when pressed or shift control from one menu to another.
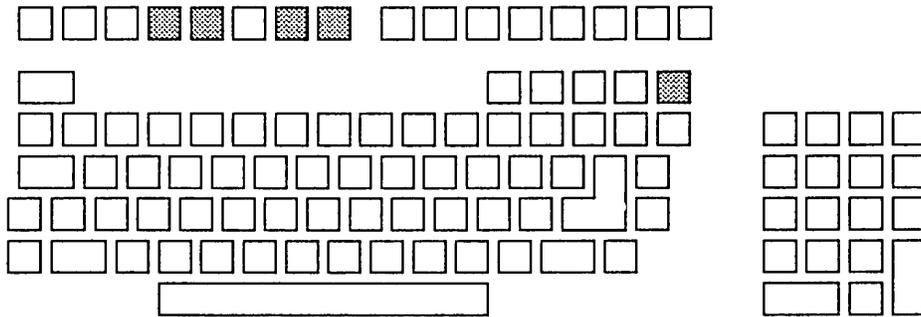
*LIST FILES*
**LIST FILES** presents a menu from which the operator may display the various types of files on the Kurzweil system. **LIST FILES** also allows the user to select a filename from a displayed list (by selecting a number), rather than typing the filename.

*GET MENU*
**GET MENU** displays the list of auxiliary parameter menus. Refer to Chapter 4 for further information.

*END JOB*
**END JOB** displays the **End Job Menu.** The scanner must be stopped (either at the *End of Page* or by pressing **HALT)** before selecting **END JOB.** Refer to Section 3.4 for more information about the **END JOB KEY.**

*CANCEL*
**CANCEL** returns the system to the previous menu without making indicated changes .

*HELP*
The **HELP** key is an important feature of Kurzweil software. Operators may request additional information about the editor, any menu and most displayed questions by pressing **HELP.**

## SCANNING KEYS

Scanning keys control scanner operation. Keys that are active while editing is in progress are described below.
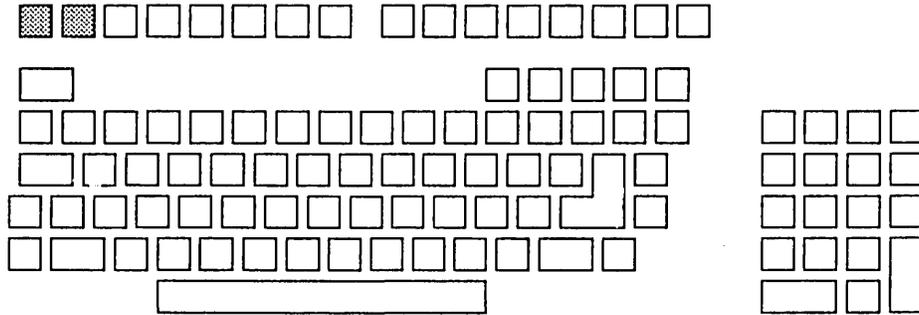


| | |
|---|---|
| *SCAN PAGE* | **SCAN PAGE** starts the scanner at the top of the page. Depressing this key will also feed a page from the Automatic Document Feeder (a Kurzweil option), if paper is loaded in the hopper. Hold **SHIFT** down while pressing **SCAN PAGE**. |
| *HALT* | **HALT** stops the scanner at the end of the next line. |
| *CONTIN* | **CONTIN** restarts the scanner after a HALT command. |

## EDIT KEYS

The edit keys control the major functions of the system's text editor. Each of these functions is described below.
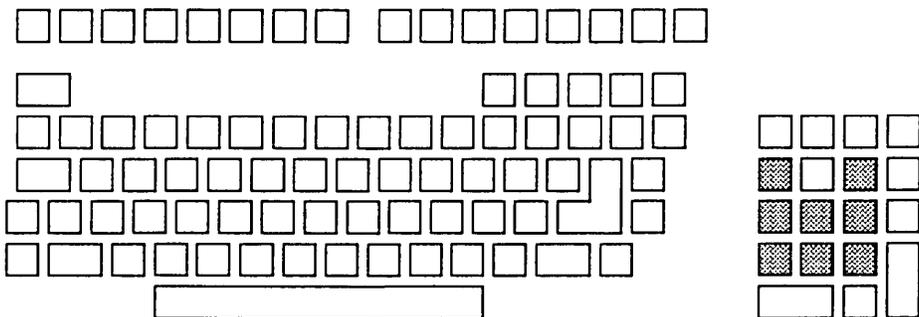


| | |
|---|---|
| *INSERT LINE* | **INSERT LINE** inserts a blank line above the current line. Pressing this key repeatedly inserts unlimited blank lines. |

| | |
|---|---|
| *INSERT/REPLACE* | **INSERT** enables the operator to type additional characters in front of the cursor.<br><br>**REPLACE** allows the operator to strike over characters in the edit field. The Insert/Replace message is displayed above the edit area on the screen. The Insert/Replace key "toggles" back and forth between the two states each time it is pressed. |
| *DELETE LINE* | **DELETE LINE** removes the line that the cursor is positioned on, regardless of the cursor position. |
| *DELETE CHARACTER* | Press **DELETE CHARACTER** to remove the character directly above the cursor. |

Movement of the cursor is also controlled by the Training Keys. **UP arrow** and **DOWN arrow** move the cursor in the indicated direction, one line at a time.

When *Delete* is pressed, the Insert/Replace state automatically toggles to *Insert*. The Insert/Replace state will revert to *Replace* when *Join Image, Undo, Show* (arrow) or any of the *arrow* keys are pressed.

**TEXT TYPE KEYS**

The Text Type Keys allow the operator to identify (flag) changes in text style. Font changes, underlines and super- and sub-scripts are easily identified by the *Text Type* keys.
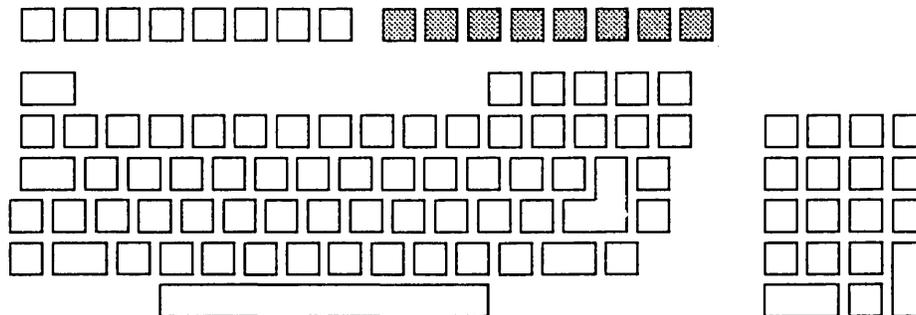
| | |
|---|---|
| *BEGIN/END FONT* | **BEGIN FONT** signals a change in text type. When selected, the operator is required to provide a number indicating the font in question. Press **END FONT** when the text reverts to the primary font. |
| *BEGIN/END SUPERSCRIPT* | **BEGIN SUPERSCRIPT** identifies a true superscript. Press **END SUPERSCRIPT** after the flagged character. |
| *BEGIN/END UNDERLINE* | **BEGIN UNDERLINE** flags text that is underlined. Press **END UNDERLINE** after the final underlined character. |
| *BEGIN/END SUBSCRIPT* | **BEGIN SUBSCRIPT** identifies a true subscript. Press **END SUBSCRIPT** after the flagged character. |

12

## TRAINING KEYS

The *Training Keys* permit the operator to control scrolling of text, accept or reject displayed images and view highlighted text *(interventions)* for verification.

The Kurzweil system uses three methods of Training, described in Chapter 3. The Training Method can be *Off, Manual or Automatic.* Please refer to section 3.1 for a detailed explanation of Training Methods.
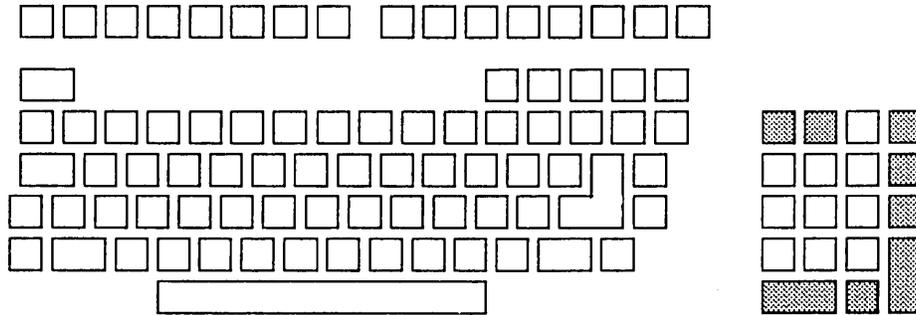


| | |
|---|---|
| *JOIN IMAGE* | When broken or touching characters are encountered (displayed as two or more separate images), they can be joined and redisplayed as a single image with the **JOIN IMAGE** key. |
| *TRAIN IMAGE* | Use of the **TRAIN IMAGE** key can significantly reduce the number of *interventions* and improve character recognition. |
| | The **TRAIN IMAGE** key functions in the *Off* Training Mode, only. **TRAIN IMAGE** is used when the operator wants to add an image to the Training set. |
| *BAD IMAGE* | **BAD IMAGE** eliminates the character descriptor that was used as a model for the image in question. It does not remove *all* image models for the character, however. **BAD IMAGE** will work in *Manual* or *Automatic* mode only. |
| *SHOW* | Use the arrow keys to position the cursor under a character and then press **SHOW** to view the image. |
| *SHOW (Arrow) KEYS* | The **SHOW** *(arrow)* keys move the cursor in the indicated direction to the next occurrence of a highlighted character *(intervention)* or to the beginning of a line that includes an intervention, if scrolling occurs. |

*SCROLL UNLIM*          The **SCROLL UNLIM** key controls the speed of editing window movement (except in *Manual* Mode). If selected, the scanner will process text in an *unattended* state. Text *must* be displayed on the terminal screen, if it is to be saved in any form.

*SCROLL GOOD*          **SCROLL GOOD** will scroll text until a "bad" piece of text (e.g.,"dirty" photocopies or many broken characters) is encountered, or until manually interrupted. The scanner will make two attempts to rescan the text. After the second attempt, text is displayed to the operator for line-by-line verification.

When confidence has increased, the scrolling rate will accelerate. Naturally, if *OFF* is selected (refer to Chapter 3), **SCROLL GOOD** will process text indefinitely, like **SCROLL UNLIM.** *TRAINING MODE OFF* is the default selection when a training set has been requested by the operator.

## 1.5   Magnetic Tape Drive Operation

Kurzweil Computer Products will supply an industry-standard 800/1600 bpi magnetic tape drive as an optional peripheral device. The tape drive is used primarily for communications with other systems. However, it can also serve as an additional storage and back-up device.

The operator must insert a *write-enable ring* when a write-to-tape operation is performed. The write-enable ring is plastic and fits into a groove on the back of the tape reel. The ring pushes in a pin located near the lower tape mount and allows data to be written onto the tape. It is a safety feature designed to prevent operators from erasing material.

*Tape Drive Procedures:*

1.  Press the **POWER** switch at the top of the tape drive operating panel (refer to *Figure 1.4* below). The light indicates that the system is on.

2.  Mount a tape with a write-enable ring installed, following the arrows that show the correct tape path. When the tape drive is *write-enabled*, the light on the **WRT EN** button is on.

3.  When the tape has been threaded, press **LOAD** and the mechanical arms will swing into place.

4.  Press **LOAD** again and the drive will search forward for the *beginning of tape* marker.

5.  Select the proper tape density, either 800 or 1600 bpi. If the **HI DEN** button is illuminated, the drive is configured for 1600 bpi. Otherwise, 800 bpi is standard.

6.  When the light on the **LOAD** button goes on, press **ON LINE** to enable the communications link between the tape drive and the Kurzweil 4000.
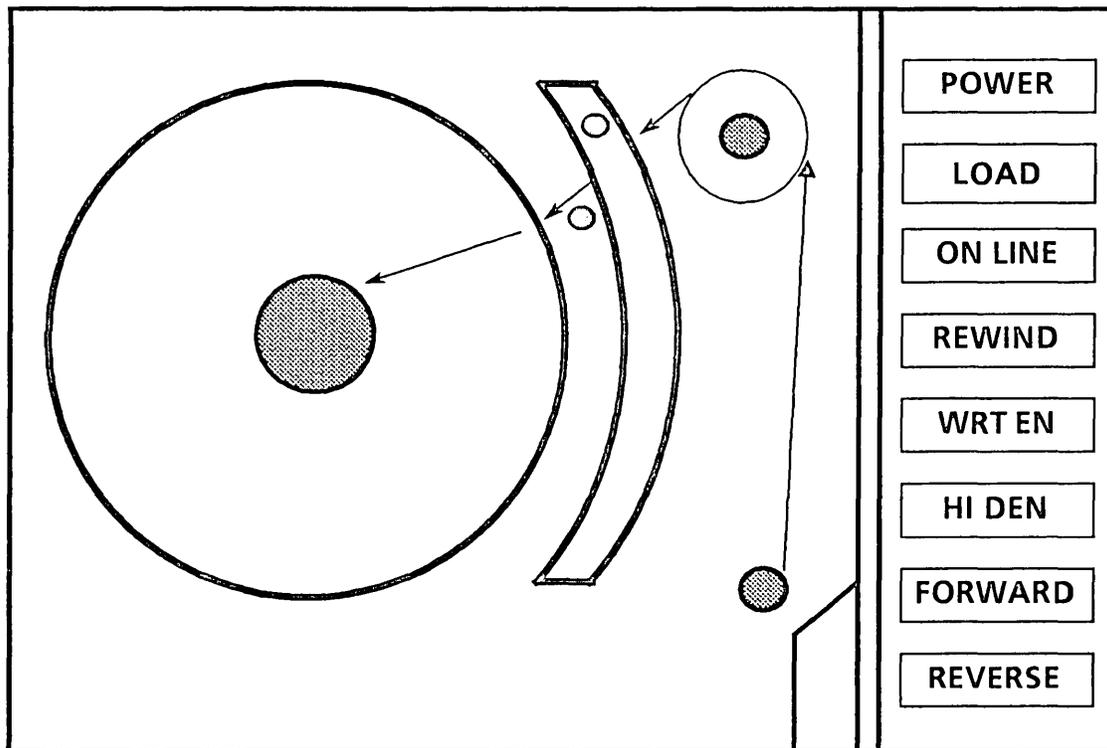


*Figure 1.4 - Tape Drive Operating Panel*

After copying to (or from) tape:

1.  Press **ON LINE** -- the light will go out.

2.  Press **REWIND** -- the tape will rewind to the *load* position.

3.  Press **REWIND** again -- the tape will rewind off the top reel.

16

**1.6     Automatic Document Feeder (*ADF*) Operation**

The optional Automatic Document Feeder is mounted on top of the 4000 workstation and includes a hopper for stacking pages to be read and a paper reservoir on the front of the unit to accept processed pages. Operation of the ADF is simple. The unit is enabled by placing the cover in a horizontal position. To disable the ADF, raise the cover. Follow the procedures below to use the ADF.

*Procedures:*

1.     Place the platen cover *down*, so that it rests on the glass scanner surface. The ADF is now enabled.
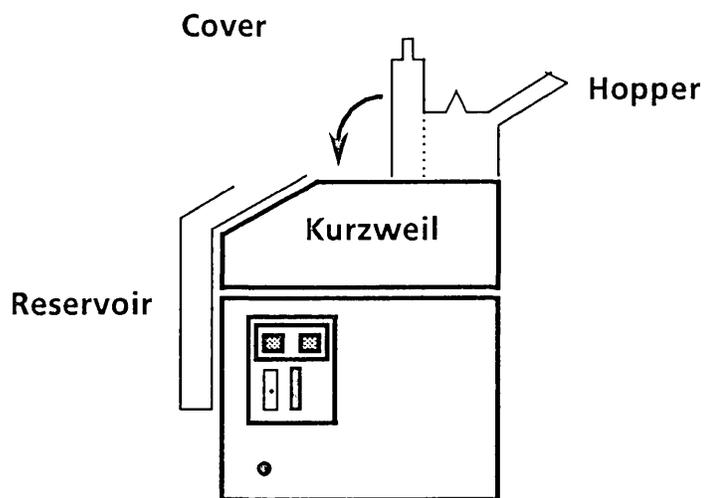


2.     Up to 25 pages may be placed in the *paper hopper* at the back of the unit. Jog the pages so that the edges align and place them in the hopper **face down**, with the tops of the pages toward the switch panel. Adjust the *guide rails* as required.

3.     When **SCAN PAGE** is pressed, pages will be fed to the scanner surface automatically. Processed pages are deposited in the *paper reservoir.*

To disable the ADF and perform scanning operations manually, raise the platen cover to its upright position.

**1.7    Power Down Sequence**

To power down the Kurzweil system:

1.      Release the system by selecting the **LOG OUT** option on the **TOP Level Dispatch Menu.**

2.      The following message will be displayed:

        *"You may now shut down the system, or enter any character to Login again.*

        *Enter cancel to go back, or enter any other key to continue."*

3.      If a system shutdown is desired, simply push the **ON/OFF** button to the **OFF** position.


Chapter 2 provides information about training and production procedures, as well as a description of *menus* and their operation.

# Chapter 2

## MENU PARAMETERS

### 2.1    MENU DESCRIPTIONS

Menus are the main method for directing the Kurzweil system and are displayed in different formats. The operator may accept the presented variables, alter one or more of them or reject the menu and return to previous operations. The operator can also access HELP information at any time (by pressing the **HELP** key).

Menus have been structured so that an operator can step through a series of parameters quickly (via the **ACCEPT** key) and begin processing text immediately.

One type of menu (called a "variable menu"), presents a set of variables, each of which may have more than one option available to the operator. Another type of menu (a "Dispatch Menu") presents a set of operations, of which the operator may choose to perform one (only), with each display of the menu. The third type of menu is the simplest: a single question that requires an answer.

### VARIABLE MENUS

In a variable menu, the operator is presented with a number of options. Options may be:

- Accepted (press **ACCEPT**),

- Rejected (press **CANCEL**) or

- Modified (press the **CALL-UP** number of the option to be modified).

A variable menu contains two types of options: *prompted* and *toggled*. When a *prompted* item is selected for modification, the cursor appears beneath the current option. The operator may type in a different selection and accept it by pressing the **ACCEPT** key. The operator may also cancel the selected option (**CANCEL** key) to reinstate an old option. If the option is a file name, **LIST FILES** may be pressed to select an answer from existing files. **HELP** may be selected at any time.

A "toggled" variable causes the immediate selection of another option. The list of options for each variable is circular; depression of the call-up key at the end of the list causes the first item of the list to be displayed again.

Options may have certain "dependencies": changing an option may invalidate or validate (and thereby change) one or more options in other variables.

## DISPATCH MENUS

Dispatch menus contain an option number in the left column, followed by a description of the operation that will be performed, if selected. Operators advance to the next menu by pressing **ACCEPT**, or retreat to the previous menu by pressing **CANCEL**. Unlike the variable menus, the option number is displayed as entered. Press **HELP** if specific options or menus are unclear. Refer to the **Top Level Menu** figure in this chapter for an example of a Dispatch Menu.

## SINGLE QUESTION MENUS

A single question menu works like a prompted variable menu. A question is presented for operator response. **ACCEPT, CANCEL** or **HELP** may be selected. Answers are validated as they are entered. If an error condition exists, the cursor will be positioned so that the operator can change the selection, using the backspace key. The **Entry Question Menu** is an example of a single question menu.

## HELP FUNCTION

Menus are as explicit as possible when indicating the choices available to an operator. The **HELP** key, when selected, provides the user with general information about the menu that is presently displayed or specific information about one of the option selections.

If general *help* is requested, the operator is presented with an overview explanation about the current menu. The operator may also request specific information about a particular menu item by pressing the corresponding option number after requesting *help*. The user is allowed to continue or cancel *help* at the end of each screen.

## 2.2    OPERATOR CONTROLS

As mentioned, Scanning Subsystem menus are controlled by function keys. **CANCEL, ACCEPT** and **HELP** provide the operator with powerful tools to begin processing documents quickly and accurately. The **LIST FILES** key is important, also. It allows the user to list any type of file at any time. If the operator is in a menu at a position where a filename is required, the **LIST FILES** function permits the selection of a filename (by number) from a displayed list .

The operator indicates to the system the nature of the job to be scanned and ultimately, its output destination. *Default* settings represent the parameters that are selected most of the time. They are presented for convenience, so that a typical set of standards can be quickly **ACCEPT**ed.

During scanning and editing, the user has access to several menus for detailed control of the data entry process. These menus are accessed by pressing the **GET MENU** function key. Refer to Chapter 4 for more information on *Advanced Operations*.

## 2.3 SCANNING PARAMETERS

This section assumes some basic familiarity with the Kurzweil 4000 start-up procedures and basic applications. If hardware operation procedures are unclear, review Chapter 1.

Kurzweil software can be divided into four distinct parts: Scanning, Communications, Filing, and Utilities. Each of these is listed as an option in the **TOP Level Menu** (the procedure for accessing the **TOP Level Menu** is listed in Chapter 1). The **TOP Level Menu** appears below.

**Kurzweil Intelligent Scanning System V. 1.0 - TOP LEVEL DISPATCH MENU**

```
1      Scanning

2      Communications

3      Filing

4      Utilities

5      Help

6      Log Out

Enter Call-up number to perform function.
```

This manual, the *Kurzweil 4000 Operator's Guide,* describes Training and Production procedures associated with scanning text (option **1** in the TOP Level Menu). For information regarding Communications and System Administration, refer to the appropriate Kurzweil guides included with the system.

To access the Scanning System (which includes Training and Production), type the number one **(1)** followed by **ACCEPT** in response to the *Enter Call-up Number:* prompt in the **TOP LEVEL** Menu.

## ENTRY QUESTION MENU

When *Scanning* is selected, one of two menus will be presented, depending upon the status of the most recently completed job. If a document has been scanned, but not displayed on the terminal screen, the operator will be presented with the **ENTRY QUESTION MENU**. Otherwise, the **New Job Menu** is displayed. The **Entry Question Menu** allows the operator to save or delete the unedited text before starting another scanning operation. If text is saved, it will be the first data to scroll onto the screen when scrolling is requested.

```
There is unedited scanned text in the KDEM input buffer.

Do you want to delete it ? (Y, N):
```

*Procedure:*

1.    The operator must determine whether the previously scanned but unedited text in the input buffer is to be saved or deleted.

2.    If the text is to be deleted, type "**Y.**" The text will be deleted automatically and the **New Job Menu** will be displayed.

3.    If the text in the input buffer is to be saved, type "**N.**" Additional scanning will be appended to the text resident on disk. The **New Job Menu** will be displayed.

**NEW JOB MENU**

The **NEW JOB MENU** is displayed upon dispatch from the Scanning Subsystem **Entry Question Menu,** or if the input buffer is empty. This menu allows the user to start a new output file or to append to a file that already exists on the system. Naturally, if the job type is *NEW,* a document name that already exists may not be supplied.

---

<div style="border:1px solid black; padding:1em;">

<p align="center"><i><b>Scanning Subsystem - New Job Menu</b></i></p>

<br>

|   |   |   | *Type* |
|---|---|---|--------|
| 1 | Document Name | *Name* | (prompted) |
| 2 | Job Type | **NEW** | (toggled) |

*Enter Call-up number to alter any line.*

</div>

---

*Procedure:*

1.
Select option **1**. Supply a Document Name. If the name of an existing file is entered, the file will be appended to.

2.
Select option **2.** This is a toggled variable and either *NEW* or *OLD* must be selected. If *OLD* is selected, text will be appended to an existing file.

3.
Press the **ACCEPT** key. If no errors are discovered (e.g., selecting *OLD* when the filename does not exist) the operator is presented with the **Document Entry Menu** (described below).

4.
Pressing the **CANCEL** key will redisplay the **TOP Level Dispatch Menu.**

## DOCUMENT ENTRY MENU

The **DOCUMENT ENTRY MENU** is presented after the **New Job Menu** parameters have been accepted. Through this menu, the operator sets the framework for scanning operations. This menu is supplied with the answers listed below (if the **Job Type** is *NEW*), or answers from the specified document file (if the **Job Type** is *OLD*).

---

### *Scanning Subsystem - Document Entry Menu*

|   |   |   | *Type* |
|---|---|---|---|
| 1 | Load Training Set Name | **None** | (prompted) |
| 2 | Training Mode | **Automatic** | (toggled) |
| 3 | Page Number | **1** | (prompted) |
| 4 | Lexicon | **English** | (prompted) |
| 5 | Flag Underlines | **No** | (toggled) |
| 6 | Flag Super/Subscripts | **No** | (toggled) |

*Enter Call-up number to alter any line.*

---

## SYSTEM TRAINING

Training is the process by which the Kurzweil system learns to recognize a set of characters. Character recognition is performed by the system software, with particular attention given to shape, loops, concavities, line segments, size and position.

The analysis of a character becomes a tentative standard to which similar characters in the typestyle are compared. This analysis is retained in the computer memory as part of a table of information containing the many properties of individual characters, called a MULTIPLE PROPERTY DESCRIPTOR (MPD). Establishing MPDs for the complete set of characters (A,B,C, etc.) is the essence of Training.

24

Training is controlled by information supplied from options **1** and **2** in the **Document Entry Menu** (*Load Training Set Name* and *Training Mode*). Examine the responses listed in the **Document Entry Menu**. These are the *default* entries. Most operators will supply these answers to the required parameter settings. Therefore, for the majority of scanning jobs, an operator can simply press **ACCEPT** when the **Document Entry Menu** is presented. Specifics of the menu are described below.

*LOAD TRAINING SET NAME*

**Training Set Name** refers to the name of an exisiting training set. Training sets include MPDs for all characters, special symbols, fonts and touching characters in a document. Training sets are created automatically or manually with operator assistance. Sets may be saved on disk. A Training set name can also be supplied by pressing **LIST FILES** and selecting the appropriate number.

*TRAINING MODE*

**Training Mode** may be *Off, Manual* or *Automatic.* The default mode is *Automatic*, unless a training set is loaded.

**AUTOMATIC MODE** will allow an operator to make one pass through a document and output it.

**MANUAL MODE** requires more operator involvement than *Automatic mode.* When instructed to scan a page, the Kurzweil system will present one line at a time to the user for editing, each time **ACCEPT** is pressed. After the current line is **ACCEPT**ed, the next line is presented to the operator.

**TRAINING MODE OFF** is automatically selected when a training set is loaded. The operator supplies the name of the training set in option **2.** *OFF* is selected in situations where work was interrupted or a new job involves font(s) that are familiar to the system.

*PAGE NUMBER*

The **User Page Number** is supplied by the operator and used to number pages in the editor. Pages may be numbered sequentially according to user preference from that point. Pages are *not* sorted by page number when output.

*LEXICON*

The **lexicon** is an internal dictionary that is used as an aid in the identification of characters from context. The lexicon is installed when the system is configured. If additional dictionaries have been installed, the operator may enter the names of others by using option **5.**

*FLAG UNDERLINES and FLAG SUPER/SUBSCRIPTS*

These options will cause underlines and super/subscripts to be marked for output to a word processor or typesetter. A search and replace function can be performed at the time of output or at the destination device to replace these code marks with the proper fonts.

After setting the document parameters, press **ACCEPT**. If an old training set has been requested, the operator is immediately presented with the editing system and scanning may commence. Otherwise, the **TEXT AMBIGUITY MENU** is presented.

**TEXT AMBIGUITY MENU**

This menu requires the operator to identify ambiguous text properties to enable more effective text processing.

After selecting **Text Ambiguity** properties and pressing **ACCEPT**, the Scanning menu sequence is completed and text can be scanned.

---

### *Scanning Subsystem - Text Ambiguity Menu*

|   |                                     |        | *Type*  | *Options*  |
|---|-------------------------------------|--------|---------|------------|
| 1 | Ones and small L's look alike       | **Yes**| toggled | (*Yes, No*)|
| 2 | Cap. "I"s and small L's look alike  | **No** | toggled | (*Yes, No*)|
| 3 | Zeros and Cap. O's look alike       | **Yes**| toggled | (*Yes, No*)|

*Enter Call-up number to alter any line.*

---

Chapter 3 describes Training and Production procedures.

# Chapter 3

# TRAINING AND PRODUCTION

## 3.1    TRAINING AND PRODUCTION PROCEDURES

After exiting from the **Text Ambiguity Menu** or the **Document Entry Menu**, the Kurzweil 4000 editor will be displayed. A message prompt instructs the user to

*Place page on scanner and press SCAN PAGE and ACCEPT to start job.*

The paper must be positioned approximately one inch from the top of the glass on the right-hand side and one inch from the edge of the scanner (illustrated below). If an Automatic Document Feeder has not been purchased, cover the page with the rubber platen mat.
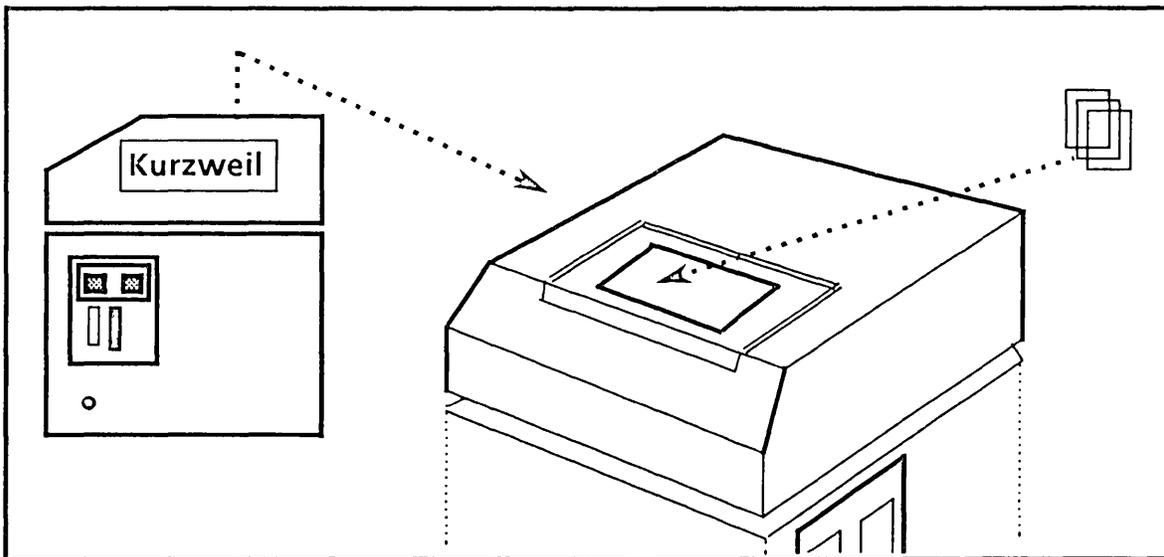


The operator's role in Training is to review the characters in each line of text, verify that the images displayed on the screen are clear and well-formed, and make any necessary adjustments to the character recognition.

Instruct the 4000 to scan the first page by pressing **(SHIFT) SCAN PAGE.** The scanner will search for the first line of text. When the scanner starts to move, the "READY" message at the top of the display screen will change to "SEARCHING PAGE 1." The message displayed changes to "SCANNING PAGE 1" when the first line of text is encountered. After the scanner has finished scanning the first page, the message will read, "READY PAGE 2."

*NOTE*

Please refer to Chapter 1 for keyboard layout figures and descriptions.

27

Type **ACCEPT** and a page boundary marker will appear on the screen ( = = = = = = = = = = = = = ). These boundaries appear after a **SCAN PAGE** command. They are useful for distinguishing the start of one page from the end of another.

-------------------------(*Document Name*)------------------------------------------------------------------------------------
Ready Page 1


k **k**

Replace
O = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = (pg. #)
--------------------------------------------------------------------------------------------------------

Type **ACCEPT** again and the first line of text will be displayed.The recognition image presented comes from the pre-programmed general recognition logic of the Kurzweil system. Characters displayed in inverse video are called **INTERVENTIONS**. They are characters that do not meet the confidence level of the system. The system has made a "best guess", but it is not certain that the recognition of the character is accurate. It is the operator's responsibility to check all the interventions during training to verify that the "guesses" are correct.

Press the **SHOW** (*right arrow*) key to display the first interventioned character. A large image of the first character will be displayed on the screen; to the left of it a smaller character is represented. The large "picture" is an image of what the camera saw on the page. It is the actual character magnified for the operator to examine. The smaller character to the left of this image is the system's "best guess" (a recognition estimate).

The operator must use the **SHOW** (*right arrow*) key to review each of the images. If the recognition estimate does not match the displayed image, change (edit) the guess by typing the correct character.

Continue to move through the line using the **SHOW** (*right arrow*) key. Correct all wrong guesses, touching images and broken characters (complete correction procedures are listed in section 3.2). When the end of the line is reached, press ACCEPT.

### SCROLL CONTROLS

The operator must determine which *scroll mode* is most comfortable. The choice of scroll mode depends upon the accuracy required from the document scanning process. The choice will also vary depending upon the number of interventions that occur in the document. Commands that control scroll modes are listed below along with a brief description.

| | |
|---|---|
| *ACCEPT* | **ACCEPT** scrolls one line at a time to the bottom line of the "edit window". Consequently, one line is scrolled off the top of the screen. The top line images are thereby approved for training (in Automatic mode). In Manual mode, the bottom line images are applied to subsequent lines. |
| *SHOW (right arrow)* | SHOW (*right arrow*) moves to the next instance of an interventioned character and displays the magnified image, along with a recognition estimate for operator verification. If there are no interventions following the cursor, lines scroll onto the screen until an intervention appears, at which point scrolling stops with the cursor positioned at the beginning of the line. |

SCROLL GOOD          Scrolling of text will proceed uninterrupted, as long as the intervention rate is low. If the rate of interventions increases, operator verification will be required.

SCROLL UNLIM        Scrolling of text in the editor continues without interruption; the rate of interventions has no effect on scroll performance.

*NOTE*

Scrolling can be halted at any time by pressing any key. **SHOW** is recommended, since some keys will enter the character they represent into the text stream.

## TRAINING MODES

**Automatic** mode is the default training method. Characters are analyzed and displayed to the operator once a base level of recognition has been achieved. In **Manual** mode, the operator views text character-by-character or line-by-line and accepts or rejects displayed images for training. Information in the current line is applied to subsequent lines. **Manual** mode procedures are described next.

*Procedures:*

1.  Press **SHOW** *(right arrow)* to move the cursor to each intervention and review the line, as outlined earlier in this section.

2.  If the image is clear and well formed and the system's "best guess" is incorrect, correct the guess by typing the letter that matches the image.

<div align="center">

*Example*   B **8**

</div>

"complete problem **2B** before proceeding to the next section."

3.  Position the cursor under the letter B by using the **SHOW** *(right arrow)* key. A block around the letter indicates that it is an interventioned character. Press the number "8" to correct the guess and use **SHOW** *(right arrow)* to move to the next intervention.

4.  If the image is clear and well formed and the guess is correct, press **SHOW** to move to the next intervention and repeat the first two steps.

Characters displayed in inverse video should be:

-   Corrected, when the guess is incorrect.

-   Accepted, when the recognition is correct.

-   Deleted, if the image is *not* clear (**Manual** and **Off** modes only).

At the end of the first line of text, after all the characters displayed in inverse video have been reviewed

-   press **ACCEPT** to approve the line for training. The line will move up on the screen.

The information in the **ACCEPT**ed line will be applied to subsequent lines. Thus, fewer interventions will be displayed in the next line. Review each line for broken or touching characters and incorrect guesses and follow the procedures below to incorporate them into training. This process is the essence of **Manual** Training mode.

## 3.2 SPECIAL FEATURES

*CORRECTING NON-INTERVENTION CHARACTERS (BAD IMAGE Key)*

Occasionally, non-interventioned characters may be displayed incorrectly. Proofreading each line carefully will help prevent errors.

When non-interventioned errors are discovered, follow the procedures listed below.

*Procedures:*

1.        Position the cursor underneath the incorrect character.

2.        Press **BAD IMAGE**. The Multiple Property Descriptor (MPD) that was most closely associated with the incorrect image will be deleted. A message prompt informs the user that the

*MPD will be deleted.*

3.        Change the incorrect character.

4.        Continue to train by pressing **SHOW** (*arrow*).

The **BAD IMAGE** key is effective in **Manual** Training Mode only. It is most effective when used in the first few paragraphs of a document.

*NOTE*

If the image of a character cannot be displayed, it is necessary to delete the MPD for that character. This situation occurs when a character is not trainable (indicated by a message prompt and/or an error "beep"). If MPDs for individual characters are to be deleted, press the **GET MENU** key, which will provide access to the **Training Sets Menu**, from which the MPD for the character can be deleted. Refer to Chapter 4 for further details.

*TOUCHING CHARACTERS*

Characters may be joined in certain typefaces or, due to dark print contrast, may appear to be touching. In typefaces where all the characters are the same width, the Kurzweil 4000 is able to use the measuring information gained in training to split the touching letters correctly.

In proportionally spaced fonts, the 4000 uses additional information from the MPD table to split touching characters correctly. When the system encounters an image it cannot split, it will display a tilde ( ~ ) or some other guess in the Edit Window, in inverse video. For example, if "ry" in the following line were joined,

"every time the symbol occurs"

the line would appear in the Edit window with the interventioned tilde substituted for the two joined characters as follows:

"eve ~   time the symbol occurs."

Check the image of the intervention, using the **SHOW** key. If the display shows joined characters typical of the font, put the intervention between braces as described below.

*PROCEDURE*

-           Press **JOIN IMAGE**. A pair of braces will enclose the character that the cursor is below.

-           Type in the correct characters.

For example:

eve  ~     time the symbol occurs
eve  {~}    time the symbol occurs
eve { ry }    time the symbol occurs

The characters typed will replace the recognition estimate and be added to training. Whenever the scanner "sees" that picture in Training mode, the system will substitute the replacement characters and display them in the Edit Window. The system can effectively train on up to three touching characters at one time.

The touching characters feature can also be used for another purpose. It can provide the system with the ability to substitute characters for *special symbols* not found on the terminal keyboard. If a graphic character is encountered in the text and there is no keyboard equivalent, the brackets allow the operator to substitute a different character string.

The system will display the character string, which can be changed upon output (e.g., by performing a search/replace operation) to indicate the correct symbol. Each string can contain a maximium of 3 characters.

*WARNING*

The **JOIN IMAGE** key must be used to enter braces for the applications associated with touching characters, broken characters and special symbols. Do not enter braces from the keyboard.

*BROKEN CHARACTERS*

Kurzweil software attempts to recognize characters on the basis of reasonable X-Y coordinates . In some typefaces (notably, italics) certain characters may not be displayed properly because of their incompatability with the coordinate information. The letter "i" for example, might be displayed as two separate images (i.e., the dot and the vertical stroke are displayed individually).

If broken characters are encountered, the operator can enclose the parts in braces and then display them as one complete image.

*Procedure*:

-        Position the cursor at the first part of the broken image and press **JOIN IMAGE**.

-        The entire image will automatically be enclosed, ready for redisplay as a complete image. It may be necessary to press **JOIN IMAGE** more than once to surround the broken characters.


*TRAIN IMAGE*

**TRAIN IMAGE** is an important special feature of the Kurzweil system. Proper use of the **TRAIN IMAGE** key will result in a dramatic reduction in the number of interventions and improved character recognition. The **TRAIN IMAGE** key adds a new MPD to a Training Set while in the **Off** Training mode.

**TRAIN IMAGE** should be used whenever an interventioned image is of good quality and Training Mode is **Off**. Follow the steps below:

*Procedure:*

1.        Press **SHOW** in Training mode **Off**. If the image is of good quality but the interventioned guess is incorrect, change the interventioned character to the correct one.

2.        Press **TRAIN IMAGE** .

3.        The message "TRAINING TURNED ON" will appear.

4.        At the end of a production session, before any other operation can be performed, the system will display the message, "WARNING, TRAINING HAS NOT BEEN SAVED!"

5.        In the **End Job Menu** (section 3.4), be sure to Save the training set. Choose *Yes* for option **2**.

*NOTE*

Training is not applied until the text is scrolled off the screen.

*FONT IDENTIFICATION*

In many documents, more than one typestyle is used. The Kurzweil system can be configured to preserve or flag these changes in typestyle.

In **Manual** Training mode, train on a line that includes a font change. For example:

The man wore a *tightly* curled beard.

To flag and train on the new typestyle:

1.          Position the cursor under the first character where the font change occurs.

2.          Press **BEGIN FONT**. A prompt will instruct the operator to

*Please enter a font number (1 - 9)*

"< *n*" will appear before the first character, where *"n"* is the font number entered by the operator.

3.          Train on all the characters in the new font that are interventioned. Non-interventioned characters will be trained on when **ACCEPT** is pressed.

4.          At the end of the font change, position the cursor after the last character, press **END FONT** and provide the same font number. "> *n*" will appear after the last character.

Each time the Kurzweil 4000 "sees" this second typestyle, it will place a highlighted "<*n*" at the beginning of the font change and ">*n*" at the end. If the document has additional font changes, repeat this procedure and assign the new fonts a different identification number. If there are additional interventioned characters in the line, train on them; then accept the line for training.

If the system places the angle brackets in the wrong place during training, delete them and insert the brackets in the correct position using the above procedure. During scanning, the angle brackets followed by the assigned number will appear whenever the font changes.

Begin and End Font markers can be changed to other codes using the character string replacement option in the Output Processor, if desired.

The Kurzweil system assumes that each new line begins with font #0. Therefore, when alternate typestyles occupy more than one line, a **BEGIN FONT** marker must be entered for each line. Similarly, the system assumes that a font occupies an entire line. If a "new" font ends midway through a line, press **END FONT** after the last character in the new typestyle.

The time it takes to train the Kurzweil system depends primarily upon the print quality and the number of fonts that occur in the document. As training progresses, the number of interventions will decrease until an intervention occurs only every few lines (this number will vary depending on the print quality).

*UNDERLINE and SUPER/SUBSCRIPT IDENTIFICATION*

Operators may choose to have underlines and super/subscripts "flagged" by options provided in the **Document Entry Menu.** These options may be toggled to indicate that text is, in fact, underlined or that a true script character has been encountered. Underlines and scripts may also be ignored, if desired.

Occasionally, the system will not recognize underlined or scripted text. Descenders that touch the underline or scripts that are not consistent with X-Y coordinate parameters may cause the system to flag these characters incorrectly. Follow the procedures below to train the system on underlines or script characters that have not been flagged properly.

*Procedure:*

1.          Position the cursor under the first character where the text change occurs.

2.          Press **BEGIN UNDERLINE** (or **BEGIN SUB/SUPERSCRIPT**).


            "$< u$" will appear before the first character ("$s$" for a superscript character, "$i$" for a subscript).

3.          At the end of the text change, position the cursor after the last character and press **END UNDERLINE** (or **END SUB/SUPERSCRIPT**).

Each time the Kurzweil 4000 "sees" a group of underlined characters (or a sub/super script), it will place a highlighted "$<u$" at the beginning of the character change and "$>u$" at the end ("$s$" for a script character, "$i$" for a subscript).

If the system places the angle brackets in the wrong place during training, delete them and insert the brackets in the correct position using the above procedure. During scanning, the angle brackets will appear whenever an underline or a scripted character occurs.

Underline and Script markers can be changed to other codes using the character string replacement option in the Output Processor, if desired.

*NOTE*

The Super/Subscript facility is most effective on typeset documents.

*SPACING ANALYSIS*

Spacing analysis is not complete until the text has passed through the Output Processor. Thus, it is impossible to display the actual spacing and format codes to the operator while the document is scanned. The Kurzweil system will display approximate spacing to aid in proofreading text.

The operator should not spend time editing in the proper number of spaces at a particular spot, except on inserted (i.e., lines typed in on the keyboard) lines. Also, when deleting extraneous or "garbage" characters in the left or right margin do not remove the space between the character and the real start-of-text.

Horizontal and vertical spacing can be preserved in the Output Processor. Refer to the description of the **IMAGE Format Menu** in the *Communications Guide,* for details.

## 3.3 DOCUMENT HANDLING

The Kurzweil 4000 Intelligent Scanning system is a sophisticated OCR device that scans printed pages. It is limited in its ability to automatically scan text that includes graphics and ruling lines. Therefore, the manner in which pages containing these elements are handled is important. It is essential to remove any pictures, charts and vertical or horizontal rules. Allowing the scanner to view these non-textual graphics will produce unacceptable results.

Greater scanning flexibility is made possible by using the optional Tablet, available from Kurzweil Computer Products. Its operation is described in the *Tablet Operator's Guide*. Pages that include graphics, charts or photographs can be quickly "marked-up" with the tablet and placed on the scanner surface.

Printed or typewritten sheets without graphics scan well, provided the type is of reasonable quality. Procedures listed below are suggestions for dealing with books and columnar material.

## BOOK PROCEDURES

Books may be scanned in bound form, if desired. By entering the **Scanner Parameters Menu** (accessed by pressing the **GET MENU** key), an operator can select either "Right Side Up" or "Left Side Up" as the Page Orientation option. This option will allow the scanner to function from either end of the workstation, alternately. For more information, refer to the **Scanner Parameters Menu** description in Chapter 4.

Books may also be disassembled for scanning. Procedures are listed below.

1.      On a flat cutting surface, open the book to the first page.

2.      Align a ruler about 1/4" in from the inner margin.

3.      Press firmly on the ruler while moving a razor or X-Acto knife blade from top to bottom, repeatedly, until all of the pages are cut free.

## COLUMN PROCEDURES:

The tablet is recommended for scanning pages in complex formats. If a tablet is not present as part of the system, text in columns must be cut and numbered, as outlined below.

Columns can be cut from magazines, newspapers, etc., using the steps outlined above for cutting out book pages. It is much easier to cut the pages, rather than to tape or fold them. Pictures can also be cut from the text. A minimum margin of 1/4" is required on all sides of the material to be scanned.

Keep the columns or any other documents in order after they are cut, numbered at the bottom with a red felt tip pen.

*NOTE*

In some applications it is necessary to have more than one copy of the
same document available, because as one column is cut from a page,
the text on the reverse side is destroyed.

## 3.4     END JOB PROCEDURE

Material that is scanned by the Kurzweil system must be output through a peripheral device to another system (i.e., word processor, typesetter or another computer system). Each system has specific parameters for data format that enable the software to read the information provided by the Kurzweil 4000.

Text that is scrolled off the screen resides in the disk file named in the **New Job Menu.** Essentially, the operator must inform the system that scanning operations have been completed and that output is desired. These actions are performed simply, by two final menus.

*Procedure:*

1.     When scanning activities are complete, press the **END JOB** key. The **EXIT QUESTION MENU** (below) will be displayed if there is scanned text in the input buffer that has not been scrolled off the screen by the operator.

2.     The operator may:

-     *Delete* the scanned text (select **Y** and press **EXECUTE**). The **New Job Menu** will be displayed.
-     *Return* to the editor and scan additional text (press **CANCEL**).
-     *Save* the scanned text or training (press **N** and **EXECUTE**). The **END JOB MENU** will be displayed.

---

There is unedited scanned text in the KDEM input buffer.

Do you want to delete it ?(**Y/N**) :

---

The operator is presented with the **End Job Menu** when the **END JOB** key is pressed and text has been edited or training has been performed. The information in the *header* line is derived from the original input provided in the **New Job Menu**. Thus, *Document Name* will be supplied automatically.

---

### *Scanning Subsystem - End Job Menu - Document Name is Text*

| | | | Type | Options |
|---|---|---|---|---|
| 1 | Document Disposition | **Save** | toggled | (*Save, Delete, Auto-Output*) |
| 2 | Save Training? | **No** | toggled | (*Yes, No*) |
| 3 | Training Set Name | **No options available** | prompted | |

*Enter Call-up number to alter any line.*

---

Determine whether text is to be *deleted, saved,* or *auto-output.* If text is *deleted,* control will revert to the **New Job Menu** when this menu is **ACCEPT**ed. Documents that are *saved* reside on the hard (Winchester) disk and may be output at a later date, or appended to.

Text that is *auto-output* will move directly to the Output Processor, bypassing the **TOP Level Menu** *Communications* option. Refer to the *Communications Guide* for more specific information. Auto - output documents are saved on disk.

If additional training was performed (with the **TRAIN IMAGE** key) the images may be saved and added to existing training. Select *Yes* to incorporate additional training.

The *Training Set Name* is required (and operator-supplied) if *Save Training* is specified. **ACCEPT** returns control to the **New Job Menu**. To exit from the Scanning Subsystem at that point, press **CANCEL.**

Chapter 4 describes advanced operation features that are accessed by the **GET MENU** key. The menus presented allow the operator to "fine-tune" scanner operation and editor display for individual documents.

# Chapter 4

# ADVANCED OPERATIONS

## 4.1 ADVANCED MENUS

Kurzweil software is designed so that the majority of users can step through a series of basic "parameter setting" menus quickly and begin scanning documents immediately. These menus are described fully in previous chapters of this manual. Some documents require more precise parameter settings or greater operator involvement (or both). These advanced operations are accessed by the **GET MENU** key and are described below.

### *GENERAL MENU*

When more complete control over scanner operation, training sets, editing capabilities or the Electronic Tablet is required, press the **GET MENU** key. The **General Menu** will be displayed, from which detailed applications are accessed. The **General Menu** is a dispatch menu. When the operator selects an option number and presses **ACCEPT,** control will shift to the selected sub-menu (described below).

---

*Scanning Subsystem - General Menu*

 

1     Scanner Parameters

2     Editor Parameters

3     Training Sets

4     Tablet/Format Control

5     Delete File

 

*Enter Call-up number to make a selection.*

---

*SCANNER PARAMETERS*

The **Scanner Parameters Menu** allows the user to fine-tune the operation of the scanner for maximum processing efficiency. Through this menu, the contrast settings and page numbering order can be changed to reflect user requirements.


*EDITOR PARAMETERS*

The **Editor Parameters Menu** affects the display of text on the screen and the interaction between editing and training.


*TRAINING SETS*

Detailed adjustment and examination of training sets is performed from this menu. Users load, save, examine or delete training set characters from the **Training Sets Menu**.


*TABLET FORMAT CONTROL*

The **Tablet Format Control Menu** provides access to Tablet operating parameters. These parameters are discussed fully in the optional *Tablet Operator's Guide*.


*DELETE FILE*

The **Delete File Name Menu** permits the Kurzweil operator to delete any document, training set, character translation set, Tablet control file or Output Tailor (refer to the *Communications Guide* for a description of *Tailors*).

These menus are discussed fully in the sections that follow. Refer to the appropriate menu description for specific information.

## SCANNER PARAMETERS MENU

The Kurzweil 4000 Intelligent Scanning system is designed to scan a variety of complex page formats that incorporate different type sizes and fonts. The system will perform best when the copy that is scanned is original and "clean." Third or fourth generation photocopies test the limits of any OCR system, but with proper adjustment of the *Scanner Parameters,* the Kurzweil system will perform well. Options **1** and **2** affect camera operation. Options **3 - 7** affect the way pages are handled by the system.

---

### Scanning Subsystem - Scanner Parameters

| | | | Type | Options |
|---|---|---|---|---|
| 1 | Black - White Threshold | 7 | prompted | *(1-15)* |
| 2 | Width Filter Setting | 3 | prompted | *(1- 15)* |
| 3 | White passes for End of Page | 3 | prompted | *(1-15)* |
| 4 | Page Orientation | **Right Side Up** | toggled | *(right / left side up)* |
| 5 | Automatic Page Flip | **Off** | toggled | *(off, on)* |
| 6 | Page Number | 1 | prompted | *(1-50,000)* |
| 7 | Page Number Increment | 1 | toggled | *(1,2, -2)* |

*Enter Call-up number to alter any line.*

---

### Black - White Threshold

*Black - White Threshold* is used primarily to improve character recognition. It affects the way the characters will appear in the graphics area of the display screen. The threshold is set after the operator has viewed one or more lines of text. If the operator sees that the images are too dark (causing characters to blend together), he or she can lighten the contrast by setting the value at a lower number.

If the images appear broken or fragmented, increase the threshold setting. An experienced operator can look at a small sample of characters and immediately make a determination about the Black-White setting.

### WARNING

If the Black-White threshold setting is changed, training sets that
were previously prepared may perform adversely.

*Width Filter Setting*

This variable determines the number of vertical "scan lines" an image must span before the system recognizes it as a character. For example, if the *width filter setting* is **3**, and a "l" is being scanned, the character must be at least four or more scan lines wide to be considered a true character. If fewer than three contiguous lines are viewed, the image will be considered "dirt" and discarded. If the typestyle being scanned is thin, decrease the width filter setting.

*White Passes for EOP* (End of Page)

A *white pass* is defined as a single sweep of the scanner across the page. The width of a camera pass is approximately 3/4." Set this adjustment higher to account for any large gaps between lines in the text. Values range from 1- 10.

*Page Orientation*

*Page Orientation* is a toggled variable. The Kurzweil scanner can function from either end of the workstation unit. Selecting *Right Side Up* instructs the scanner to begin searching (and scanning) from the right side of the unit. Similarly, *Left Side Up* causes text to be processed from the left side. This is a valuable option for books that cannnot be disassembled or that have narrow "gutters" (interpage space).

*Automatic Page Flip*

If *Automatic Page Flip* **Off** is selected, then the *page orientation* selected will remain constant. However, if **On** is selected, then the scanner motion will reverse each time **SCAN PAGE** is depressed. This option is especially valuable when books that are too valuable to disassemble are being processed.

*Page Number*

The *Page Number* is used to label pages in the Output Processor and is operator-supplied. Any number from 1 to 50,000 is legal.

*Page Number Increment*

The *Page Number Increment* provides the operator with three possible choices: 1, 2 or -2. The numbers 2 and -2 allow the operator to stack double-sided pages in the document feeder. Odd-numbered pages are scanned first in ascending order (1, 3, 5,...). Even pages are scanned in descending order (154, 152, 150,...).

*NOTE*

The Kurzweil system will not sort pages into correct order after scanning.

*EDITOR PARAMETERS MENU*

The *Editor Parameters* affect the display of text on the screen and the interaction between editing and training.

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**Scanning Subsystem - Editor Parameters**

|  |  |  | Type | Options |
|---|---|---|---|---|
| 1 | Scrolling Delay | **0** | prompted | *(0-10)* |
| 2 | Training Mode | **Automatic** | toggled | *(Manual, Off)* |
| 3 | Training Edit Method | **Character** | toggled | *(character, line)* |

*Enter Call-up number to alter any line.*

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*Scrolling Delay*

The *Scrolling Delay* represents the number of seconds that the system will wait before presenting a new line of text to the operator (0- 10 seconds are acceptable values).

*Training Mode*

The *Training Mode* option allows the operator to "toggle" between the three possibilities *(Automatic, Manual, Off)* without **CANCEL**ing to the **Document Entry Menu**. Training modes are discussed in section 2.3.

*Training Edit Method*

The *Training Edit Method* parameter determines what the user must do in the editor for operator verified training to occur. If set to *character*, the operator must display or modify each character to be trained on by using the **SHOW** key and verify that the displayed image matches the system's guess. If set to *line*, **ACCEPT**ing or **SCROLL**ing a line will cause training to occur on the entire line of text.

If the *Training Edit Method* is set to *character*, interventions will not be trained on by scrolling text off the display screen. The operator must view each intervention by using the **SHOW** (*right arrow*) key and thereby remove the inverse highlighting of the character. This is the theory behind *Automatic* Training mode. The default *Training Edit Method* in Automatic mode is set to *character*. Thus, interventioned images that are scrolled off the screen are not accepted for training, preventing the incorporation of "bad" images in the Training Set.

If the *Training Edit Method* is set to *line*, all images are trained on.

44

*TRAINING SETS MENU*

The **Training Sets Menu** allows the operator to invoke special training-related parameters or to load and adjust training sets. Specific functions are described below.

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**Scanning Subsystem - Training Sets**


1       Load Training Set

2       Save Training Set

3       Examine Training Set Contents

4       Delete Trained Character


*Enter Call-up number to alter any line.*

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*Load Training Set*

Selecting option **1** will activate a different training set than the one currently in use. If the current training set has not been saved, a message is displayed informing the operator that

*Training has not been saved. Type Y to allow the above command.*

The operator may **CANCEL** and save the current training set, or **ACCEPT** the command to install a new training set. Option **1** is useful if a document consists of sections of text in various fonts that have been saved in different training sets.

*Save Training Set*

If additional characters are added to training  (via the **TRAIN IMAGE** key), then these new characters must be added to the existing training set.  *Save Training Set* allows the operator to retain these additional images. This option allows the operator to save additional images before a job is completed and is valuable protection against power surges and scanning interruptions.

*Examine Training Set Contents*

Select option **3** in the **Training Sets Menu**  to list all the MPD's (Multiple Property Descriptors) for the training set currently in use. The operator must indicate, by number, which typestyle is to be displayed. The system will display the entire alphabet (upper- and lower-case) and numbers, flagging characters that have not been trained on. The list will include punctuation and combinations of touching characters.

*Delete Trained Character*

The *Delete Trained Character* option will delete *all* MPD's for a particular character (unlike the **BAD IMAGE** key which deletes the most closely associated MPD).

When option **4** is selected, the *Delete an MPD Menu* (shown below) is displayed. This is a variable menu, and the user must supply the appropriate information.

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### Delete an MPD menu


1       Font Number          0 (1, 2, 3, etc.)

2       MPD Name          *prompted*


*Enter Call-up number to alter any line.*

---

The MPD name is a single character for most images. It may be up to three characters in length for Joined Images.

## TABLET FORMAT CONTROL MENUS

The **Tablet Format Control Menus** are used to control and adjust the operation of the Electronic Tablet, provided as an option by Kurzweil. A complete description of Tablet operation, as well as detailed menu instructions appears in the *Tablet Operator's Guide.*

## DELETE FILE MENU

Documents, Training Sets, Output Tailors and Tablet files may be deleted from the Kurzweil system by using the *Delete File* option of the **General Menu.**

| | | | *Type* | *Options* |
|---|---|---|---|---|
| | | **Scanning Subsystem - Delete File** | | |
| 1 | File Type | **Document** | toggled | *(Document, Training Set, Format Control File, Output Tailor, Character Translation Set)* |
| 2 | File Name | **None** | prompted | *(Any existing filename)* |

*Enter Call-up number to alter any line.*

*File Type*

This is a toggled variable. The operator selects the desired function by stepping through the options. Options are listed above.

*File Name*

The operator must supply the filename of the option that will be deleted. As long as the filename exists, the action will be performed. Entering a filename that does not exist will cause an error message to be displayed.

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IIIII

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