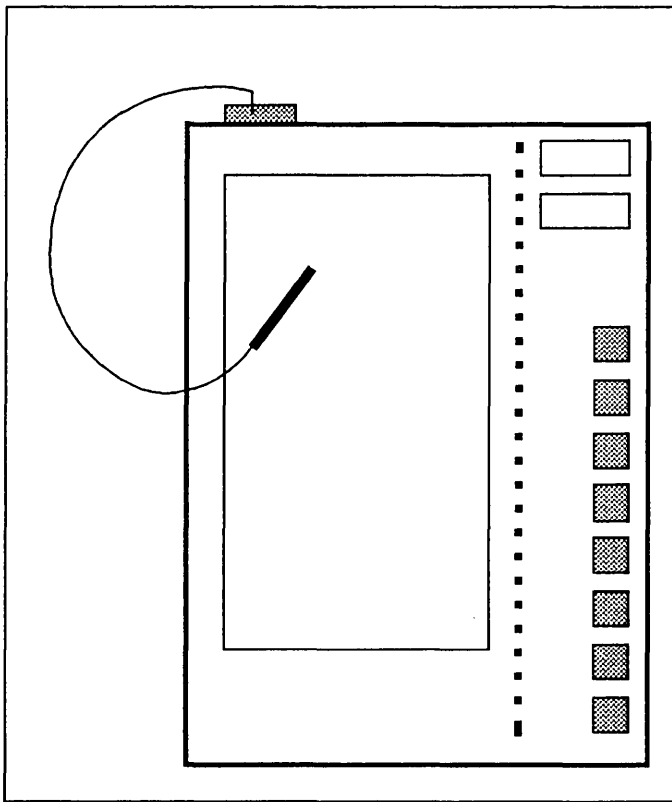


Kurzweil 4000

Intelligent Scanning System



Tablet 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.

Ordering Number: 00-03659

Copyright © 1984 by Kurzweil Computer Products, Incorporated

Kurzweil Computer Products, Incorporated makes no warranty of any kind regarding this material and assumes no responsibility for any errors that may appear in this manual.

No part of this document may be copied or reproduced in any form or by any means without prior written consent of Kurzweil Computer Products, Incorporated.

PREFACE

This is the Tablet Operator's Guide for the Kurzweil 4000 Intelligent Scanning System. It describes the theory and operation of the optional Electronic Tablet provided by Kurzweil to process documents that exist in complex formats.

Users are invited to make suggestions for improving the Guide by returning the *Readers' Comments Card* on page 14.

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

1	INTRODUCTION TO THE KURZWEIL 4000 ELECTRONIC TABLET	1
1.1	Overview	1
1.2	Theory of Operation	3
1.3	Start-Up Procedures	3
2	FORMAT CONTROL FILE CREATION	6
2.1	Overview	6
2.2	Automatic Document Feeder and Tablet	13

Chapter 1

INTRODUCTION TO THE KURZWEIL 4000 ELECTRONIC TABLET

1.1 Overview

The Electronic Tablet provides operators of the Kurzweil 4000 Intelligent Scanning system with the ability to process documents (or pages) that exist in complex formats. Traditionally, OCR scanners have been unable to process documents that included columns, graphics, photographs or charts. The Kurzweil 4000 Tablet allows the user to control the action of the scanner so that only text areas are processed; non-text items (graphics, for example) are ignored. Tablets are available in two sizes: 8 1/2"x11" and 11"x14". The indicated size refers to the page area that can be processed; the surface area of the device is larger.

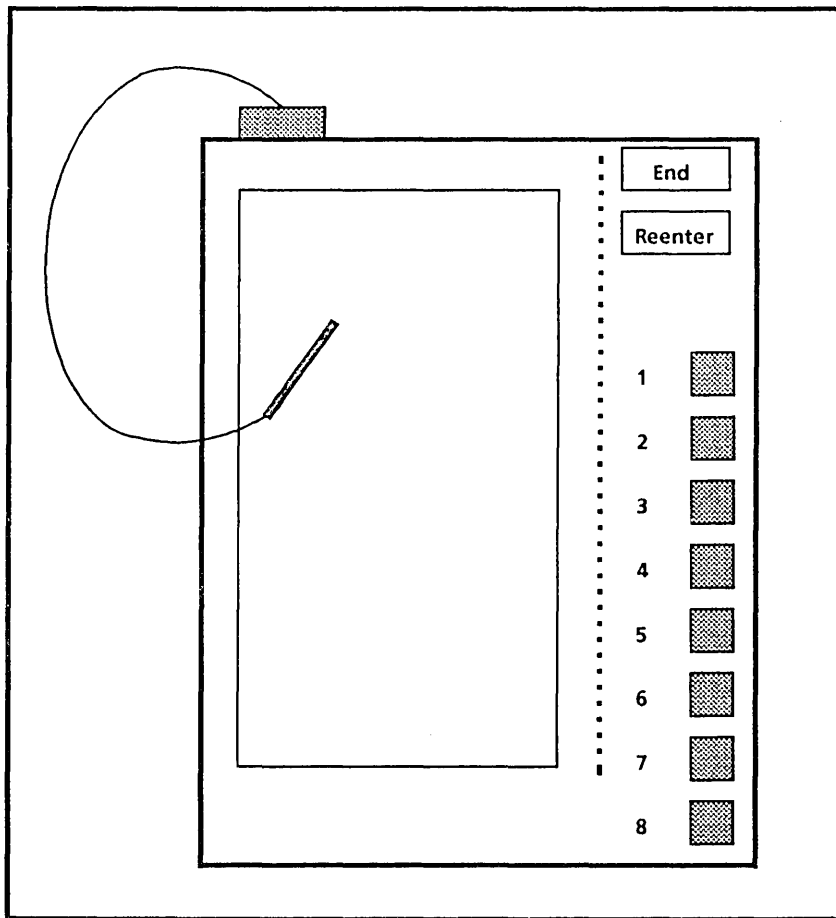


Figure 1.1 - Tablet Surface

The Tablet may be used to scan material in the following formats:

- *text in columns* (with or without graphics)

Operators are no longer required to cut columns from magazines and books for individual scanning. The text page is "marked up" and the scanner movement is controlled by a *Format Control File* that has been created by the operator.

- *pages with large areas of "white space"*

Occasionally, the amount of text on a series of pages is small, compared to the overall page dimensions. Without a Tablet, valuable time is wasted while the scanner searches for the start-of-text and and/or while it determines that the end-of-page has, in fact, been reached. The Tablet alleviates this problem by moving the scanner to the start-of-text quickly.

- *repetitive forms*

The Tablet/scanner combination is also capable of repeating a series of scanner actions to process text that includes predefined *fields* of information (questionnaires, insurance forms, etc.). The operator can indicate to the Kurzweil system where information exists on a page and the order in which to scan the fields. Once this information has been entered, the Tablet will no longer need to be used, as long as the location of information on the page is consistent with the marked up sample.

In addition to the basic page markup functions described above, the Tablet can be used in conjunction with predefined *tablet boxes* on the right side of the Tablet surface (refer to Figure 1.1) to simplify the use of the entire system. Tablet boxes permit the operator to process complicated pages that include a number of type fonts and graphics. Additionally, operator-supplied text can be entered automatically from the tablet boxes.

1.2 Theory of Operation

Initially, the operator calibrates the Tablet and marks up the areas of the page(s) to be processed. Then, this information is used by the Kurzweil system to move the scanner to specific locations on a page or series of pages and to scan the text that resides there.

A user file is created (which is saved on disk) that contains all the information about a specific application, called a *Format Control File*. The operator sets parameters for a job and saves this information for use at a later date. As long as the pages are scanned in their proper sequence, this is a perfectly acceptable method of Tablet operation. In general, though, pages are marked up and scanned immediately afterwards.

In addition to the Tablet/scanner interface described here, Kurzweil provides users with a series of user-definable *tablet boxes* on the right side of the Tablet surface (see Figure 1.1). These boxes allow operators to enter special information into the format control file. These commands can include directions to "Load a Training Set", or to "Repeat" a series of instructions. Tablet boxes are described completely in Chapter 2.

Operators must keep material that is to be scanned by the Tablet in order after it has been marked up. A common (and confusing) mistake of new operators is to scan pages processed by the Tablet *out of order*. Thus, the scanner is instructed to process areas on a page where no information exists.

1.3 Start-Up Procedures

To enable the Tablet and begin text processing, first verify that it is properly connected. The Tablet connection ports are located on the rear of the housing (refer to Figure 1.2 for details). One connector enables power to the unit, a second connector links the Tablet and the workstation, and a third connector attaches the stylus to the Tablet. Before text processing can commence, all connections must be secure.

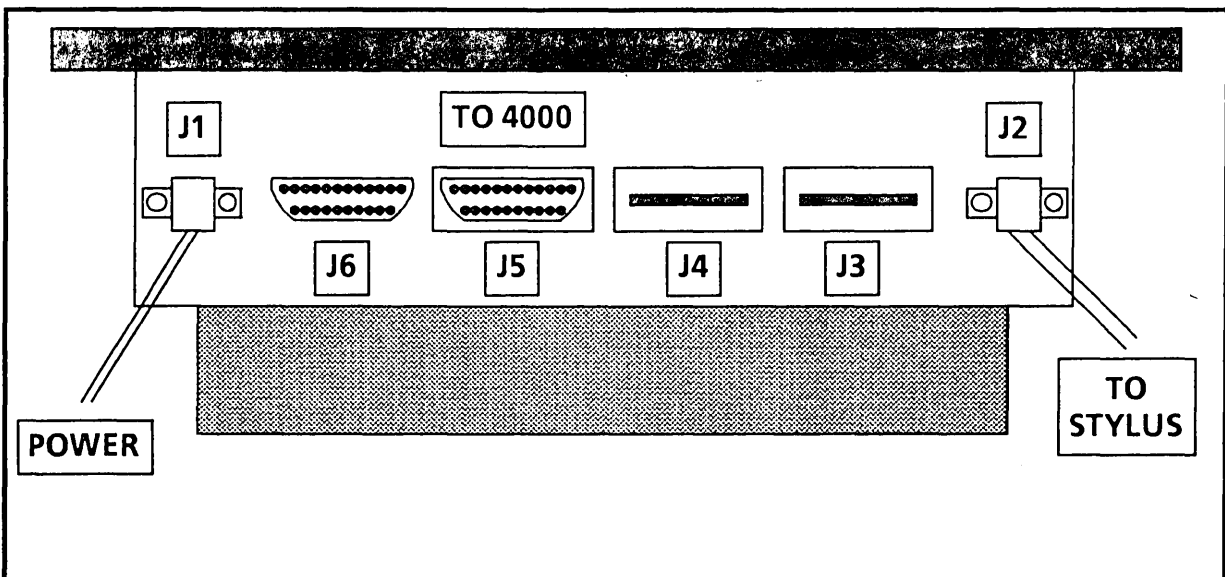


Figure 1.2 - Tablet Connections

Connect the Tablet cable from connector J5 to Port 1 on the back of the Kurzweil 4000 workstation. The Communications Port Panel contains connection plugs for communications with other computer systems and other custom connections. Refer to Figure 1.3 for a detailed illustration of the Port Panel.

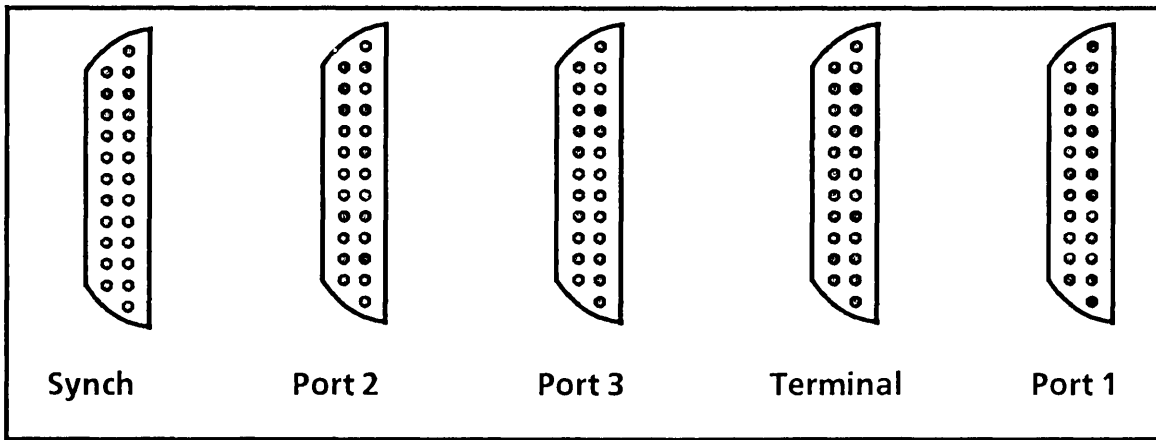


Figure 1.3 - Communication Port Panel - Kurzweil 4000

After confirming that the Tablet is connected properly, select option 1 (*Scanning*) from the TOP Level Dispatch Menu, presented below.

NOTE

For information regarding basic text processing procedures, refer to the *Kurzweil 4000 Operator's Guide* provided with the system.

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.

The operator must step through the initial series of Scanning submenus as described in the *Kurzweil 4000 Operator's Guide*. After ACCEPTing parameters in the Text Ambiguity Menu, press the GET MENU key. The Scanning Subsystem General Menu will be displayed.

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.

Chapter 2

FORMAT CONTROL FILE CREATION

2.1 Overview

When the operator selects the Tablet/Format Control option (#4) of the General Menu, the system will present the Format Control Menu from which all Tablet functions may be accessed. Each option of the Format Control Menu is described below, followed by details of Tablet operation.

Scanning Subsystem - Format Control

- 1 Select Format Control File
- 2 Create Format Control File
- 3 Define Tablet Boxes
- 4 Calibrate Tablet
- 5 End Creation of Format Control File

Enter Call Up number to make a selection.

SELECT FORMAT CONTROL FILE

Select Format Control File enables a user to place the scanner under the direction of a predefined Format Control File. Selection of this option will present the **Format Control File Selection Menu** which allows the operator to turn a specific Format Control File on or off, with an indication of where to start (i.e., which page number) Normally, the operator will indicate page 1, however, if a work session is interrupted, it is possible to resume scanning at the "break" point.

CREATE FORMAT CONTROL FILE

The *Create Format Control File* option enables a user to create a new Format Control File and indicates to the system where to store the format information. The information contained in this file will control scanner movement, as well as providing any unique commands that may be embedded in tablet boxes. Format Control Files are created with the Tablet, only. These files, like others in the Kurzweil system, may be listed, deleted, copied to a Library disk or "backed up."

Selecting *Create Format Control File* will display the Format File Creation Menu, described below.

<i>Scanning Subsystem - Format File Creation</i>		
1	New or Old	Old
2	Format Control File Name	None

Enter Call-up number to make a selection.

Certain restrictions exist that will prevent the operator from selecting inappropriate file parameters. Restrictions and error messages will be displayed if an attempt is made to provide "illegal" information. For instance, selecting *New* requires the user to provide a new filename. Similarly, if *Old* is selected, the Format Control File Name entered must exist on disk. Once this menu is ACCEPTed, a message will be displayed which informs the operator that:

The page number that will be used is: 1

and

Type a number to change or ACCEPT to use default:

If *New* has been selected, the page number presented will always be 1. If *Old* is selected, the system assumes that the operator would like to append this information to the old file and the page number displayed will be based on the last numbered page of the Old document, plus one.

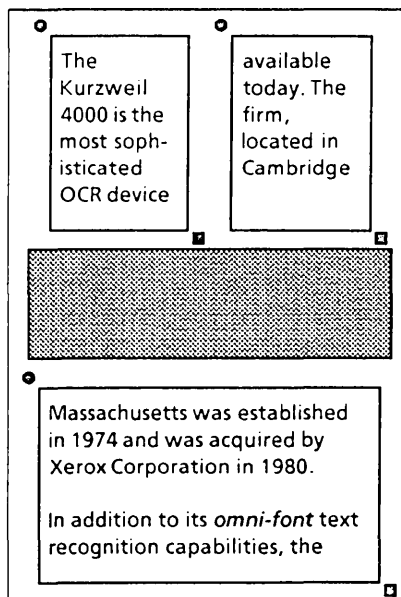


Figure 1.4 - Page Markup

Format Control Files contain one or more pages. Pages are separated in the file by special "end-of-page" characters and consist of special commands (e.g., "Load a Training Set"), boundary areas (the area to be scanned, indicated by two stylus "hits") and the *End of Page* marker.

The figure to the left illustrates a typical 8 1/2" x 11" page that can be marked up using a Tablet. The first stylus "hit" for each boundary area is indicated by a dark point. The second (and final) hit is designated by a square. Each Format Control File has, at a minimum, three pieces of information in it: a pair of boundary markers and an *End of Page* indicator.

The operator cannot open a Format Control File to inspect the contents. Similarly, Format Control Files cannot be edited. To mark up a piece of text using the Electronic Tablet, follow the procedures listed below.

FORMAT CONTROL FILE CREATION

Procedure:

1. Press **ACCEPT** to install the Format File Creation menu information. A prompt line at the top of the screen will display: **TP - 1** (Tablet page number). The document may now be marked up. Refer to Figure 1.4 for an example of typical tablet "hit" points.
2. Place the text page on the tablet surface, flush with the page guide boundaries in the upper left corner.
3. Place the stylus tip in the upper left corner of the text block to be scanned first. Ensure that the stylus tip is perpendicular to the Tablet surface and that the tip is to the left of and above all text characters in that block.
4. Press the stylus down, lightly. The Tablet will issue a high pitched "beep." This tone may be difficult to discern in a noisy environment.
5. Move the stylus to the lower right corner of the text area (indicated by a square marker in Figure 1.4) and press the stylus down again. Be certain that this second point is to the right of and below all text in the block. This is especially important for non-justified (i.e, ragged) text. A second, longer beep will indicate that the area has been successfully marked.
6. Continue to mark the page in this manner, with pairs of coordinate points. When all areas have been marked, press the stylus down on the *End of Page* menu box on the right side of the Tablet surface (refer to Figure 1.1). The Tablet page number will increase by one after the stylus is pressed on the *End of Page* box.
7. Once the text pages to be scanned have been marked up, select option **5** from the **Format Control Dispatch Menu** (End Creation of Format Control File). The Tablet Page number at the top of the screen should no longer be visible. The operator may now scan the marked up text, or save the Format Control File information for use at another time.
8. To scan the marked up page(s), select option **1** from the **Format Control Dispatch Menu** (*Select Format Control File*). The **Format Control File Selection Menu** is displayed next. Format Control is always *Off* when the **Format Control File Selection Menu** is presented.

Scanning Subsystem - Format Control File Selection

1	Format Control On/Off	Off
2	Page Number	1
3	Format Control File Name	None

Enter Call-up number to make a selection.

Option 1 is toggled and must be changed to *On* to enable a Format Control File. Supply the Format Control File name in option 3 and press CANCEL twice to step back through the menus to the Kurzweil editor. A message prompt instructs the user to

Put page on scanner, press Scan Page.

Occasionally, it may be necessary to remark a page. This must be done before the *End of Page* box is selected. To remark a page, press the stylus tip on the *Reenter Page* box and begin again.

If *End of Page* was accidentally selected, indicate that the the Format Control File is *Old* (in the *Format File Creation Menu*). The system will assume that the most recently marked page was acceptable (which, of course, it was not) and will display that page number (plus one), when the *Format File Creation Menu* is ACCEPTed. Change the page number to coincide with the unacceptable page and resume text markup activities. A warning message will inform the operator that pages will be overwritten when the remark feature is invoked.

Page boundary markers are always indicated in pairs. Once the first coordinate has been selected, touching the stylus tip to anything other than a second coordinate point (a tablet box, for instance) will produce a lower-pitched error tone.

While scanning text, the operator will also be creating a Training Set. If multiple fonts exist in the document it will be necessary to create a Training Set for each font. These sets may be saved, though, and once created, will result in a dramatic reduction in time spent at the keyboard.

NOTES

The Format Control File name and Page Number may be entered in the **Document Entry Menu** (under Scanning) but this will not turn the Format Control File on. The operator is required to turn the file *On* from the **Format File Creation Menu**.

Many operators find it useful to hand-number the pages (on the back side) prior to markup and scanning. This way, if the pages become shuffled, they can be reassembled easily.

DEFINE TABLET BOXES

On the right side of the Tablet surface are ten boxes. Two of these have been described earlier (*End of Page* and *Re-Enter Page*). The other boxes are below these two and are numbered, 1 to 8. Refer to Figure 1.1 for an illustration of the Tablet surface.

The numbered Tablet boxes may be "programmed" so that commands are embedded in each box. Text strings may also be entered in a tablet box (40 character maximum). Every time the box is selected with the stylus, the particular commands that reside there will be entered into the Format Control File. It is not necessary to use the boxes for every application; experimentation will yield the most acceptable operating method. A command to perform repetitive scanning motions for identical forms can be embedded in a tablet box, also.

If an operator is scanning a page that incorporates two (or more) different type fonts, it is possible to have the Tablet perform much of the processing "leg work." Training sets for both type fonts must exist on disk prior to setting Tablet parameters. Refer to the *Kurzweil 4000 Operator's Guide* for information about creating and using Training Sets.

To define the menu boxes, the operator must first select the *Define Tablet Boxes* option from the **Format Control Menu**. A prompt will ask:

Which box do you wish to define (1-8)?

Select box number 1. The **Define Tablet Box Menu** will be displayed.

Scanning Subsystem - Define Tablet Box		
1	Command	None (<i>Repeat, Load Training Set, Add Text Line</i>)
2	Training Set Name	None
3	Text	No options available.
Enter Call Up number to make a selection.		

To define the Tablet box, select option 1. Toggle through the options until *Load Training Set* is displayed. Then, select option 2. Provide the name of the training set. The set *must* exist on disk; otherwise, an error message will inform the operator that this function cannot be performed.

ACCEPT the responses and select option 1 from the **Format Control Menu** again. Define tablet box 2 with the second training set. Repeat the process for tablet box 3. Toggle option 1 to *Add Text Line* and then select option 3 (Text). Any string of up to 40 characters that is typed here will be assigned to tablet box 3. Often, it is valuable to identify the source of the scanned material (e.g., *Computerworld*, 5-5-83) with a text string.

Once these steps have been completed (and ACCEPTed), the operator must place the page on the tablet surface and perform the procedures listed below.

Procedures:

1. Press the stylus on Tablet Box 1. The command "Load Training Set 1" will be entered into the Format Control File.
2. Mark the paragraph that contains text in tpestyle #1. The coordinates of these two points will be entered into the Format Control File.
3. Press the stylus on Tablet Box #2. The command "Load Training Set 2" will be entered into the Format Control File.
4. Mark the paragraph that includes tpestyle #2. The coordinates of these two points will be entered into the Format Control File.
5. Press the stylus on Tablet Box #3. The text string "Computerworld, 5-5-83" will be entered into the Format Control File.
6. Press the stylus on the *End of Page* box.
7. Select option 5 (End Creation of Format Control File). The "TP - " message will no longer be displayed.
8. Select option 1 (Select Format Control File). The **Format File Selection Menu** will be displayed next. Turn Format Control *On*, and provide the Format Control File name (option 3). ACCEPT the responses and press CANCEL twice to step back through the menus to the Kurzweil editor. A prompt will instruct the operator to

Put page on scanner and press Scan Page.

The first item in the Format Control File instructs the system to Load a Training Set (#1) and scan paragraph one. Then, the system will load Training Set #2 and scan the second tpestyle. Finally, the text string "*Computerworld, 5-5-83*" will be entered between the last line of text and the start of the next page or column. If the document involves many pages, it is most efficient to control the scanner in this manner.

REPETITIVE FORMS

Forms that consist of a series of "fields" may be scanned by the Kurzweil system using the Electronic Tablet. The text in each field must be surrounded by at least 1/8" of white space. Since the forms have predefined areas of information (e.g., Name, Address, Occupation, etc.), it is possible to enter commands into the Format Control File that will repeatedly move the scanner across the same areas on successive pages.

To enable the repeat feature, select the *Define Tablet Boxes* option from the **Format Control Menu**. A message prompt will ask

Which box do you wish to define (1-8)?

Procedure:

1. Type the box number followed by ACCEPT. The **Define Tablet Box Menu** will be displayed next.
2. Toggle option 1 until the *Repeat* option is displayed. Notice that no other options are available (or necessary for the operator to input).
3. Press ACCEPT.
4. Place the sample format form on the Tablet surface and mark up the areas to be scanned (remember to create a Format Control File!).
5. Press the stylus on the tablet box that has been programmed with the Repeat command.
6. Press the stylus on the *End of Page* box.

To activate repetitive scanning, indicate to the system which Format Control File to use (from the **Format Control Menu**). Place the first form on the scanner surface and ACCEPT the **Format Control Menu**. The system will scan identical forms indefinitely, as long as the operator presses SHIFT-SCAN PAGE as each new form is placed on the scanner surface. When scanning has been completed, remember to turn the Format Control File *Off*.

NOTE

It is essential that the fields on forms occur in the same position.
Photocopies of forms are generally unacceptable for this application.

CALIBRATE TABLET

When a new system is delivered or when a new software release is installed it will be necessary to calibrate the Tablet. This is a simple procedure and is also a good method of verifying Tablet operation. To calibrate the Tablet:

1. Select option 4 from the **Format Control Dispatch Menu** (*Calibrate Tablet*).
2. The following message will be displayed:

Mark corner of paper guide with stylus.

Be sure to hold it straight up and down.

Old calibration: X__ Y__

3. Press the stylus in the corner of the paper guide, as indicated. The new calibration will be displayed, with instructions to CANCEL to the **Format Control Menu**. If the Tablet does not respond to calibration attempts, contact Customer Service.

NOTE

Before calling Customer Service, disconnect and reconnect the power cord and attempt to calibrate the Tablet again.

END CREATION OF FORMAT CONTROL FILE

To inform the system that the Format Control File has been completed, it is necessary to select this option (#5) from the Format Control menu. Press ACCEPT. An audible tone will sound and the **Format Control Menu** will be redisplayed. Additionally, the page number message (TP - #) will no longer be displayed.

NOTE

An active Format Control File will be interrupted (i.e., scanner movement will stop) if:

- the *HALT* key is pressed
- a request is made to enable the ADF when the hopper is empty (or jammed)
- the page corners cannot be located.

To reactivate scanning, press *Contin* or *Scan Page*.

2.2 ADF AND TABLET

To be supplied.

READER'S COMMENTS

Did you find omissions or inaccuracies in this manual? If so, indicate by page number.

Did you find the manual understandable, usable and well organized? Please make suggestions for improvement.

Please indicate the type of user/reader that you most nearly represent

_____ Department Manager

_____ User with little prior OCR/computer experience.

_____ Experienced computer operator

_____ Other

Please indicate the way(s) you used this manual.

_____ Instructional tool

_____ Reference tool

_____ For comparative study

_____ Other

Name _____ Title _____

Company _____ Division _____

Street _____

City _____ State _____ Zip _____

Telephone _____ Date _____

If you require a written reply, please check here _____

(fold on dotted lines, tape/staple and return to:)



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS • PERMIT NO. 48496 • CAMBRIDGE, MA.

POSTAGE WILL BE PAID BY ADDRESSEE

Kurzweil Computer Products, Inc.
185 Albany Street
Cambridge, MA 02139

Attn: Publications Department





Kurzweil Computer Products
185 Albany Street
Cambridge, Massachusetts 02139
Telephone (617) 864-4700 Telex # 951246 KURZWEIL CAM