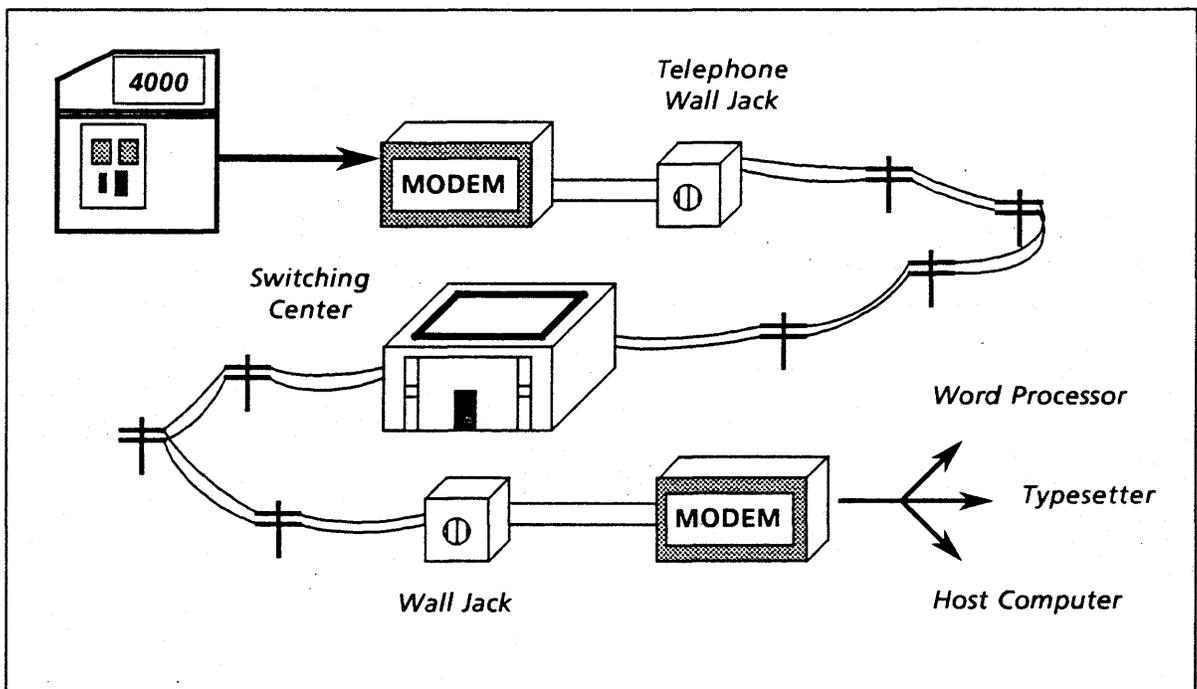# Kurzweil 4000

Intelligent
Scanning System

Communications
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 Communications Guide for the Kurzweil Scanning and Processing System. It describes the communication interface (Output Processor) and file transfer procedures.

The Kurzweil System Output Processor provides users with a variety of high-level communications options that include:

- customized connections to popular Word Processors

- character translation tables (EBCDIC ,TTS and user-generated)

- character string replacements

- flagging of paragraph boundaries

- choice of variable or fixed length records

- transmission of single files or "batch mode."

Use of the Communications Guide will enable both the novice and the experienced computer operator to begin transmitting documents to other systems or devices, quickly and efficiently. Users are invited to make suggestions for improving this Guide by returning the *Readers' Comments Card* on page 30.

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

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Chapter 1

COMMUNICATIONS

Introduction to Communications

The Communications Guide provides information about the Kurzweil system communications link. A general description of each function of the Communications interface (called the "Output Processor") has been provided. Specific information is provided in the HELP files that exist in the system software for use by the operator at the display terminal. To access HELP, press the HELP key.

Material that is scanned by the Kurzweil system must be output to another system (i.e., word processor, typesetter or another computer system). Each system has specific parameters for data format that enable the host system to "read" the information provided by the Kurzweil 4000. This is the mechanism used to format the data. The instructions needed are saved in special files called *Tailors.*
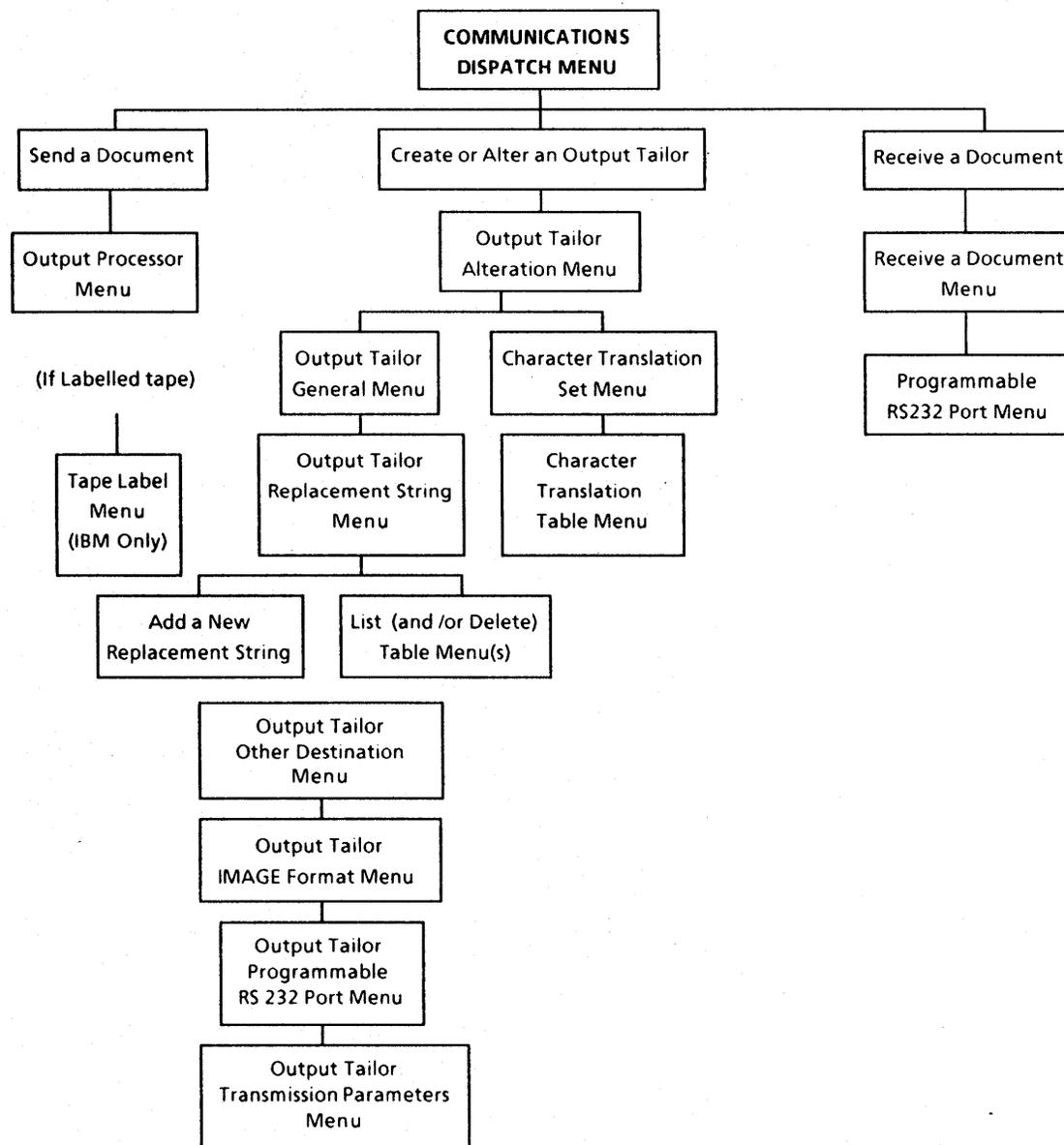
The Output Tailor Alteration menus allow the operator to select from among the various functions that the Output Processor can perform. These functions are listed below.

- Output to a known destination. If communicating to one of the word or document processors that are "known" by the Output Processor (and if the optional software required is present), documents will be transmitted with formatting codes (i.e., centering, tabs, left /right margins, etc.).

- Questionable characters can be preceded by a markup of the operator's choice.

- Line boundaries can be deleted or indicated with a markup of choice.

- Paragraph or page boundaries can be ignored, or marked-up.

- Horizontal spacing can be deleted (retaining only one space between words), or preserved.

- Vertical spacing can be deleted (retaining only one end of line mark between lines), preserved (retaining enough end of line marks to indicate the correct number of blank lines between each line of text), or vertical breaks only can be preserved (retaining multiple end of line marks, if needed, between paragraphs).

- An unscanned document (e.g., a standard IBM prefix file) can be selected that will always be output immediately before any additional output.

- An unscanned document (e.g., a standard suffix file) can be selected that will always be output immediately after any other output.

- A sophisticated string replacement package (similar to a global search and replace function) can be applied to the text before it is formatted and output.

- Although the characters are usually in the ASCII character set, they can be output in TTS, EBCDIC, or a user-specified coding scheme.

- Characters can be output in fixed or variable length records. The fixed length must be specified, if that option is used.

-    Documents can be output to magnetic tape, to the CRT screen or through a synchronous or asynchronous port.

-    For programmable asynchronous ports, the baud rate, parity, number of stop bits and number of data bits can be selected.

-    For the synchronous port, transparent or non-transparent 2780 protocol can be selected (point-to-point).

-    For asynchronous ports, standard asynchronous or echoplex protocol can be selected.

-    For magnetic tape, unlabelled or IBM OS/MVS labelled tapes can be written.

-    For the synchronous port or magnetic tape, a block size can be specified.

-    Prefix or suffix markups may precede (and follow) any output.

Creation of Output Tailors must be carefully considered. Any number of tailors can be created and saved for future use.

The Kurzweil system Output Processor is controlled by the information contained in *menus* that incorporate operator-supplied parameter settings. Consult the *Operator's Guide* (Chapter 2) for a complete description of menu operations and functions. Figure 1.1 is an illustration of the Output Processor menu hierarchy and may be consulted as questions arise. Not all menus are invoked in each scanning operation. In fact, for relatively straightforward applications, only a few will be used.

```
                          ┌─────────────────────┐
                          │  COMMUNICATIONS     │
                          │  DISPATCH MENU      │
                          └─────────────────────┘
```

COMMUNICATIONS DISPATCH MENU

- Send a Document
  - Output Processor Menu
    - (If Labelled tape)
      - Tape Label Menu (IBM Only)
- Create or Alter an Output Tailor
  - Output Tailor Alteration Menu
    - Output Tailor General Menu
      - Output Tailor Replacement String Menu
        - Add a New Replacement String
          - Output Tailor Other Destination Menu
            - Output Tailor IMAGE Format Menu
              - Output Tailor Programmable RS 232 Port Menu
                - Output Tailor Transmission Parameters Menu
        - List (and /or Delete) Table Menu(s)
    - Character Translation Set Menu
      - Character Translation Table Menu
- Receive a Document
  - Receive a Document Menu
    - Programmable RS232 Port Menu

Figure 1.1 - ROAD MAP TO THE OUTPUT PROCESSOR MENUS

1.1 DOCUMENT COMMUNICATION

Typically, an operator will finish scanning operations (after the *END JOB MENU*) by selecting the Auto Output option in the *Document Disposition Menu*. The **Output Processor Menu** will be displayed next.

OUTPUT PROCESSOR MENU

1	Output Tailor Name	DEFAULT
2	Document(s) to be Output	None
Enter Call-up number to perform function		

The Kurzweil operator can supply up to ten file names at once to be output. These files may be transmitted individually by separating the file names with commas, or merged into one file by using " + " characters between files. For example:

FILE1,FILE2,FILE3
or
FILE1 + FILE2 + FILE3

If file names are unusually long, fewer than ten files may be entered. To circumvent this problem, use shorter file names.

Communication with other computer systems is also initiated by selecting option **2** from the TOP Level Dispatch Menu and pressing ACCEPT.

TOP LEVEL DISPATCH MENU

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

From the TOP Level Menu, files may be output, saved or reedited. The **Communications Dispatch Menu** is displayed next.

COMMUNICATIONS DISPATCH MENU

```
1       Send a Document

2       Create or Alter an Output Tailor

3       Receive a Document


Enter Call-up number to perform function
```

The Communications Dispatch Menu provides special facilities to transmit documents between the Kurzweil 4000 and another system or device. Menu items are described below.

SEND A DOCUMENT

Documents may be transmitted over Asynchronous or Synchronous lines, transmitted to Magnetic Tape or displayed on the terminal screen. Selecting option **1** from the Communications Dispatch Menu presents the Output Processor Menu (see previous page). The operator provides an Output Tailor name and the name of the document(s) to be output.

CREATE OR ALTER AN OUTPUT TAILOR

There are two types of files that "drive" the Output Processor. Output Tailors contain the instructions that are necessary to properly output a document. Character Translations Sets are used to translate documents from one type of character coding to another. Both of these "instructional" devices can be altered and/or customized by selecting this option. Refer to section **1.2** for a description of Output Tailor creation.

RECEIVE A DOCUMENT

Documents can be received through any programmable RS-232 port or from a 9-track magnetic tape device. The documents can be formatted in any code; Character Translation Sets may be applied to convert to ASCII code. Some protocols are required, however:

-    If an RS-232 port is used, each line of transmitted data must end with a carriage return (ACCEPT).

-    If a magnetic tape device is outputting the file(s), variable or fixed length record files must be specified.

- When receiving a document, there is no maximum acceptable page length or line length limitation. Similarly, it is safe to output a document with long lines or pages. However, attempts to reedit a document with more than 132 characters per line can produce unpredictable and often unacceptable results.*

- Character Translation Sets can be applied against received documents (refer to section 1.4 for a complete description of Character Translation Sets). Specified characters are translated into ASCII code. All characters are stripped to a 7 bit code. If the resulting character is a *null* or *line feed*, it will be ignored. *Carriage returns* and *form feeds* will be accepted normally. All other control characters are considered to be illegal and are changed to an asterisk(*). An illegal character count is provided after the document is received.*

* This option is provided as a convenience to Kurzweil customers. Kurzweil Computer Products is not responsible for the successful input (or output) of documents from other systems.

Receive a Document Menu

1	From Device	RS232 port #2 (programmable)
2	To Document Name	prompted
3	Character Translation Set	NONE
4	Record Format	No options available
5	Record Size	No options available
6	File Number	No options available
Enter Call-up number to perform function		

FROM DEVICE

Documents may be received from Asynchronous programmable ports and Magnetic Tape machines. Selecting a programmable RS-232 port will present another menu, allowing the operator to configure communications parameters for that port.

TO DOCUMENT NAME

This is an operator-named file. If an existing file is named, it will be appended to. Otherwise, a new file will be created. A document may be displayed on the terminal screen by selecting *RS-232* without specifying a *To Document Name*.

CHARACTER TRANSLATION SET

Incoming data will be converted to ASCII code. If NONE is selected, the incoming data must already be in ASCII format. Refer to section **1.4** regarding Character Translation Sets for further information.

RECORD FORMAT

This option is selected only when the receiving device is *Tape*. Fixed or variable length records are available. A variable length record must end with ACCEPT. Fixed records are always the same length (indicated in option **5**).

RECORD SIZE

If *fixed* is selected, this line indicates the number of characters that must be in each record. The minimum is 20 characters and the maximum is 160. Record lengths found in documents on the tape must be specified, otherwise the document will not be received in its proper format.

FILE NUMBER

This option may be used with magnetic tapes. It allows a file to be selected from tape when multiple files exist on the tape. An IBM or ANSI label is considered a file. The label is the first file on such tapes and the Kurzweil 4000 cannot interpret this information. Therefore, specify a number greater than 1 that will indicate the position of the desired file on the tape.

1.2 CREATING OR EDITING AN OUTPUT TAILOR

The **Output Tailor Alteration Menu** is accessed by selecting option **2** of the **Communications Dispatch Menu**.

When files are output, it is necessary to create or alter an output tailor for a particular document. Tailors control the output of a file through a peripheral device to a destination system. Any number of tailors may be constructed and saved for future use.

This menu allows an operator to choose from among a number of different options, all of which concern output tailors. To select an option, enter the call-up number (from the left margin), and press the ACCEPT key. To return to the Communications Dispatch Menu, press the CANCEL key.

OUTPUT TAILOR ALTERATION DISPATCH MENU

```
 1      Create a new Output Tailor

 2      Review, Change or Work from an Old Output Tailor

 3      Review or Change the "Default" Output Tailor

 4      Create a new Character Translation Set

 5      Review, Change or Work from an old Character Translation Set

 6      Delete Files

Enter Call-up number to perform function
```

CREATE A NEW OUTPUT TAILOR

This option allows the operator to create a new tailor. It will cause the first of a set of related menus to be displayed on the screen, allowing the operator to review and alter the various options available in the Output Processor. The options initially selected come from a tailor whose name is DEFAULT. This tailor is supplied as part of the system configuration, and can be modified like any other tailor.

REVIEW, CHANGE OR WORK FROM AN OLD OUTPUT TAILOR

This option allows a user to display or alter the contents of any existing tailor. It is also used to create new tailors that are similar in some manner to a tailor that has already been created.

The name of the old tailor must be supplied before the various tailoring menus will be displayed.

REVIEW OR CHANGE THE "DEFAULT" OUTPUT TAILOR

The name of the tailor which has been selected as the default tailor can be altered or displayed with this option. When the Output Processor is invoked, the tailor that was most recently created as the default tailor will be listed . This tailor will be used unless another tailor name is provided.

CREATE A NEW CHARACTER TRANSLATION SET

Using this option initializes all the answers to standard ASCII code, and then displays the first of the character translation menus. Character Translation Sets are displayed in hexadecimal. Two such code sets are supplied with the system: EBCDIC and TTS. If the destination device requires a code other than ASCII, EBCDIC, or TTS, a new Character Translation Set must be created.

REVIEW, CHANGE OR WORK FROM AN OLD CHARACTER TRANSLATION SET

This option allows the operator to alter or create a Character Translation Set beginning with an existing set. If the set that is to be created is similar to TTS (or EBCDIC), it would be easier to create a new set using the standard TTS Character Translation Set as a template.

The installed Translation Sets are protected from deletion and must be renamed. Therefore, enter the *template* name here in option 5. When Accept is pressed, the Character Translation Set will be presented. Change the name in option 1 from EBCDIC (or TTS) to another name. The renamed set will be displayed when Accept is pressed.

DELETE FILES

This option permits any of the existing files on the Kurzweil system to be deleted, including Character Translation Sets and Output Tailors.

1.3   OUTPUT TAILOR - GENERAL MENU

This is the first menu used to review, alter or create an output tailor. A maximum of seven menus are involved in this process; depending upon the options selected in the first menu, they may not all be invoked.

To change a menu option, enter the call-up number for the line that is to be altered. The menu option may change immediately, or a prompt line will be displayed near the bottom of the screen, with the cursor positioned next to the option that is to be changed. If the latter occurs, enter a new option, then press the ACCEPT key. To reject the option change, press CANCEL.

When the options are correct for each line in the menu, press ACCEPT to implement them. To exit from the menu without incorporating any changes, press CANCEL. Output Tailor "General Menu" items are described below.

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OUTPUT TAILOR - General Menu

1 Output Tailor Name	NONE (or existing tailor name)
2 Document Destination	Other
3 Questionable Character Markup	NONE
4 String Replacements	Yes
5 Hyphens at End of Line	Preserve
6 Output Device	Screen
7 Recognize Page Headers/Footers	No
Enter Call-up number to alter any line.	

1) Output Tailor Name

The tailor's name identifies the tailor to the system. If a tailor by that name does not exist, one will be created when the tailor menu options are installed. If the tailor already exists, it will be altered accordingly.

2) Document Destination

The Output Processor contains device-specific translation and transmission routines. If the operator wishes to preserve the document format and to send it in a form that is most easily accepted by the receiving device, the supported device name is selected here (e.g., Xerox-860). If a customized connection has been purchased, the document will be transmitted complete with the majority of special-purpose format codes unique to that system. If a customized connection has not been purchased, the *Other* option must be used.

3) Questionable Character Markup

Characters that were interventioned in the scanning process may be flagged using this menu item. The ability to markup "Questionable characters" enables the operator to search quickly through a document for potential errors and fix them. The string may be from zero to twenty characters in length and the operator may specify bytes in hexadecimal (type CNTL-H followed by 2 hex digits, 0-9, A-F).

4) String Replacements

String Replacements is an Output Processor function that allows any series of characters to be converted to another series of characters, except in a prefix or suffix file. It is a very powerful way to alter the contents of a document (i.e., it is a global search and replace function). Select *Yes* if string replacements are desired.

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5) Hyphens at Ends of Lines

When hyphens are in the middle of a line, they are meaningful characters that indicate compound words. At the end of a line, they generally imply that a word was too long to fit in the current line. If documents are being transmitted to a system that will rejustify the lines, these end-of-line hyphens will frequently cause format problems. End-of-line hyphens can be deleted using this option.

Hyphens found at the ends of paragraphs will not be deleted, only those at the ends of lines within paragraphs. To use this option and preserve specific end-of-line hyphens, edit them as two hyphens in succession when scanning or reediting.

6) Output Device

Certain document destination options force a particular option to be selected in response to this question. For example, selecting "XEROX-860" requires use of the Synchronous Port. Options here are RS-232 ports 1, 2 or 3; TAPE, SCREEN, and the Synchronous port (depending upon options purchased). Asynchronous port 2 is the standard port for asynchronous (TTY) communications. Refer to section 1.6 for a complete description of the Output Processor Tape Label Menu.

7) Recognize Page Headers/Footers

If output is to a Kurzweil-supported word processor that will identify headers/footers, the operator may choose to have the Output Processor recognize headers /footers.

If the Output Processor recognizes that a block of text is a header/footer, it will not send the block along with the scanned text. Instead, the Output Processor will send it to the document destination once only at the beginning of the document, or whenever the header/footer changes. The text will be flagged as belonging to a header/footer, as will the page number. Many government specifications incorporate lengthy headers/footers, for example. These headers are not always required in a word processing environment.

If all text on a page is to be transmitted, including headers/footers, specify *NO* for this option.

1.3.1 String Translation Menus

This menu allows you to List, Delete, or Add replacement strings. It is one of the menus displayed during the creation or alteration of an output tailor.

To select one of the options displayed, enter the call-up number, followed by ACCEPT. To return to the previous menu in the Tailoring process, press CANCEL.

Output Tailor - Replacement Strings Dispatch Menu

```
1       Add a New Replacement String

2       List  (and/or delete) Replacement Strings




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

ADD A NEW REPLACEMENT STRING

This option allows a new replacement string to be added. It can only be selected if there is enough room remaining in the replacement string buffer for another string. There is enough room if fewer than 150 strings and fewer than 1400 characters have been entered.

LIST (and /or delete) REPLACEMENT STRINGS

This option allows existing strings to be displayed. Six strings will be listed on the screen at a time; therefore, it may take a large number of screens to view all of them.

ADD A NEW REPLACEMENT STRING

As mentioned, replacement strings function like global search and replace operations on word processing systems. The replacement string facility in the Output Processor is quite powerful and flexible. This menu will be displayed if the *Add a Replacement String* option is selected from the Replacement Strings Dispatch Menu.

Replacement Strings Dispatch Menu

1 From Text String	NONE
2 To Text String	NONE
3 Applicable Text Type ●	All text
4 Case Distinction	Preserved
Enter Call-up number to alter any line.	

FROM TEXT STRING

The *From Text* string is matched against the text in the document that is being manipulated. Whenever a match is encountered, the matched text is deleted and the contents of the *To Text* string are put in its place. These strings can include: font, sub/superscript and underline codes. Refer to the following section on *Text String Characters* for an explanation of these special symbols. Text that has been altered by a string replacement cannot be altered again by another string replacement.

TO TEXT STRING

A *To Text* string will be placed into a document where the *From string* was matched and removed. Again, special symbols may be used, including: font, sub/superscript and underline codes. Refer to the following section on *Text String Characters* for an explanation of these special symbols.

APPLICABLE TEXT TYPE

By specifying an Applicable Text type other than *All Text*, the operator can limit the "matcher" to the eligible text type only (by font or underline, for example). The text type must have been "flagged" during scanning operations.

Many systems represent underlines with a sequence of characters. The character itself is output, followed by a back space, followed by an underscore. The Kurzweil system can be configured as described below to effectively handle this situation. **Control** characters are entered by depressing **CTRL** while simultaneously pressing another key. In the examples that follow, control characters are indicated by **boldface** type.

> From String: **CTRL-X**
> To String: **CTRL-X CTRL-H08 CTRL-H5F**
> Applicable Text Type: Underlined Text only

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The Case Distinction option allows the difference between a lower-case letter and an upper-case letter to be honored or ignored.

> From String: U.S.A.
> To String: United States of America
> Case Distinction: Ignored

This will match not only U.S.A. but also u.s.a. or U.s.a. If the Case Distinction were honored, it would only match the first of those examples (U.S.A.).

TEXT STRING SPECIAL CHARACTERS

The *From Text* and *To Text* string fields may contain both standard text characters (printable characters) and special characters that may be used as commands.

1. The space character is treated differently than other text characters. In the *From Text* string field, it may be used to match one *or any number* of contiguous spaces between words on a single line. In order for the string replacement to operate effectively, there cannot be any spaces preceding or following text on any line.

    A space in the *To Text* string will insert the same number of spaces that were represented in the *From Text* string. Therefore, if a space in the *From* string represents ten spaces in the text, ten spaces will be inserted by a space in the *To* string. A space in the *To* string that has no corresponding space in the *From* string will insert a single space. In the following examples, an asterisk represents a space character.

    > From string: .*
    > To string: .**

    The above string translation will change any occurrence of a period followed by one or more spaces to a period followed by one or more spaces (*plus* one).

    > From string: .**
    > To string: This *is*a*mistake!!!

    The string above will not match anything. A space in the *From* string matches any number of consecutive spaces, therefore, the second space will have nothing to match.

2. CTRL-A, CTRL-N and CTRL-X are all "wildcard" commands. Used in the *From Text* string, a wildcard command will match any one text character of a particular class. Used in the *To Text* string, the same wildcard command will cause the insertion of the character which was designated in the *From Text* string.

CTRL-A will match any alphabetic character (A-Z or a-z), CTRL-N will match any numeric character (0-9) and CTRL-X will match any printable character (A-Z, a-z, 0-9 and all punctuation marks). CTRL-X will not match a space, an end of line mark or an end of page mark.

> From string: (NN,NN)
> To string: (Reference *NN*Page*NN)

The above replacement string could be used to match a standardized source reference. If the document contained (43,12) it would be altered to (Reference 43 Page 12). It will not match (2,12) , (43,2) or (327,12), for example.

3.   CTRL-C is a compression command. In the *From Text* string, it should always be preceded by a text character. Used in the *From* string, it will match another occurrence of the character that preceded it. It will match all subsequent occurrences until some other character appears in the document. Used in the *To Text* string, a two-digit decimal number will be inserted, which represents the number of occurrences of the character used to match the compression character in the *From Text* string.

> From string: .C
> To string: Leader (C)

The string translation above will suppress leader dots (and ellipses), replacing them with a flag indicating that leader dots were found and a count of the number of dots found. If the document contained ....., it would be altered to: Leader (05). Note that single periods, such as an end of sentence period, would not match the *From* string. A period/space leader (. . . . .) would not be matched either.

4.   CTRL-L will match any end of line mark or a sequence of consecutive end of line marks. End of line marks cannot be inserted using replacement strings. The same number of CTRL-L commands must be in the *To* string as in the *From* string.

> From string: -L
> To string: L

This will eliminate hyphens that occur at the end of a line. It will also delete hyphens at the ends of paragraphs and pages.

> From string: <end font> 3L <begin font> 3
> To string: L

The system enters a begin and end font code on every line of a document containing multiple line sequences in an alternate font. Using the above string translation, these redundant begin and end commands can be eliminated.

> From string: LL
> To string: Oops!LL

As with space characters, the *From text* string will not match anything if it contains more than one consecutive CTRL-L. Each CTRL-L matches any number of end of line marks. In the above example, the second CTRL-L will have nothing to match.

5. **CTRL**-H may be used only in the *To* string. It indicates that the character to be inserted must be decoded from the two hexadecimal digits that follow it. Any eight-bit character may be represented as two hexadecimal digits. The first digit represents the high-order four bits of the character, while the last digit represents the low-order four bits.

From string: **N*N**
To string: **NH09N**

For example, if the document scanned consists of columns of numbers that are to be transmitted to a system that uses horizontal tabs and is not supported by a customized connection, the above replacement string will take any two numbers that are separated by one or more spaces and will replace the spaces with an ASCII Horizontal Tab character. The above string will not affect spaces between words (nor will it work with numbers that begin or end with punctuation marks such as periods, dollar signs, parentheses or dashes.

From string: **X**
To string: **XH08H5F**
Applicable Text Type: Underlined only

The replacement string above, applied only to underlined text, will cause each underlined character to be followed by an ASCII Back Space character and an underscore character.

1.3.2 OUTPUT TAILOR - OTHER DESTINATION MENU

The Other Destination menu is displayed when the operator presses ACCEPT (to exit from the General menu), if the Document Destination option selected is *OTHER* and *No* string replacements were selected.

Output Tailor - Other Destination Menu

```
1 Output Document Type                               IMAGE
                                                     General Purpose
                                                     External Format

2 Character Translation Set Name                     NONE

3 Prefix Name                                        NONE

4 Suffix Name                                        NONE

5 Prefix Markup                                      (HEX)02

6 Suffix Markup                                      (HEX)03

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

OUTPUT DOCUMENT TYPE

In IMAGE format, the Output Processor may ignore vertical and horizontal gaps on the page, or may simulate them with end of line and space characters. The user may choose a custom coding for the end of a paragraph, line or page.

CHARACTER TRANSLATION NAME

This is a prompted menu item. If the selection is left at NONE, no character translations will be applied. If a Character Translation Set name is specified, the Output Processor will convert from ASCII to some other character set immediately before transmission. Any seven-bit character may be translated into any other seven- or eight-bit character. Character Translation Sets are supplied with the system for EBCDIC and TTS. Others may be created by the operator, using the various Character Translation Set menus.

PREFIX NAME

Prefix Name is also a prompted menu item. If the default is selected (*NONE*), no prefix file will be processed. If a prefix filename is entered, it will precede each file sent to the output device. No analysis will be done of the contents of the file, but character translations may be applied to it. Prefix files are created in the Kurzweil editor and are saved on disk for future use.

It is very important that documents which have been entered by hand in the editor or transmitted via the *receive a document* menu be specified, only. Scanned documents will not work correctly as prefix or suffix files.

SUFFIX NAME

Suffix Name is another prompted menu item. It is exactly like a Prefix File name, except that its contents are sent *after* any transmitted file. The same restrictions apply to suffix files.

PREFIX MARKUP

If specified, a prefix markup will precede any document (or prefix file, if desired). A prefix markup may contain up to 20 hexadecimal characters. Character translations will be applied to the markup characters before the transmission of text. String replacements will *not* be applied.

SUFFIX MARKUP

If specified, a suffix markup will follow any document (or suffix file, if desired). A suffix markup may contain up to 20 hexadecimal characters. Character translations will be applied to the markup characters before the transmission of text. String replacements will *not* be applied.

Prefix and suffix markups are useful for standard TTY communications where STX and ETX characters are required.

IMAGE FORMAT MENU

The **IMAGE** Format Menu appears after the Output Tailor - Other Destination Menu is ACCEPTed.

Output Tailor - IMAGE Format Menu

1 Record Format	Variable Length
2 Record Size	No options available
3 Treatment of Horizontal Space	Preserve
4 Treatment of Vertical Space	Preserve Vertical Breaks
5 End of Line Markup	(HEX)0D
6 End of Page Markup	(HEX)0C
7 End of Paragraph Markup	NONE

Enter Call-up number to alter any line.

RECORD FORMAT

Two different record formats are available. Variable length records (known on some computer systems as STREAM format) can contain any number of characters per record. A variable record will end with an End of Line markup, which the operator selects. The device on the other end may use the End of Line markup as an End of Record code, if required. Fixed length records are all of a particular length (again, operator-selected). In fixed length records, no End of Line markup is transmitted. If the length selected is too small for some of the lines in your document, they will be sent in multiple records. Fixed length records are padded to their record size with blanks.

RECORD SIZE

No options are available for this menu item if the option selected for Record Format was variable length. Otherwise, the number of characters that should exist in each record is entered. The record size selected may be determined by the specifications of your destination device. For example, some implementations of 2780 protocol require 80-character records.

TREATMENT OF HORIZONTAL SPACE

Horizontal space may be preserved or removed. If preserved, the Output Processor will make an estimate, based on the document's average character width, as to how many space characters should be issued between words on a line. If removed, a word may be delineated from another word by an end of line mark, by an end of record mark, or by a single space character.

The accuracy of the estimate is influenced somewhat by the nature of the document: if the document has multiple fonts of very different widths, the Output Processor will make some mistakes. Horizontal spacing can be preserved accurately on most documents.

TREATMENT OF VERTICAL SPACE

If all vertical spacing is preserved, End of Line marks are used to simulate the distance between one line and another on the page, in much the same manner as horizontal spaces simulate the distance between one word and another. In double-spaced documents, this causes two end of line marks to follow each line in a paragraph.

If vertical breaks are preserved, End of Line markup is used to simulate distance between separate paragraphs only. One End of Line mark will be used between lines within a paragraph. If vertical spacing is removed, one end of line mark will be used between all lines in the document.

Vertical space, i.e., blank lines in a document, may be treated in three different ways:

- By removing vertical spacing, only one end of line string will be issued at the end of each line, no matter how far down the page the next line is.

- By preserving vertical spacing, extra end of line strings will be issued between lines which could have blank lines between them. Note that in double- or triple-spaced documents, this will cause the insertion of a large number of extra end of line strings.

- By preserving vertical breaks, extra end of line strings are inserted between paragraphs, and then only if the distance between the lines is greater than the distance between lines within a paragraph.

END OF LINE MARKUP

If variable length records were selected, an End of Line string must be specified, also. This is a prompted menu item. Up to six characters may be entered (normally, or in hexadecimal). The default is usually a Carriage Return (HEX 0D). This item is not available if the Record Format option selected is Fixed length. Entering *NONE* will cause a space to be inserted between the last word of a line and the first word of the next line, unless the last word ends in a hyphen.

END OF PAGE MARKUP

A character string may represent the end of a page. This is also a prompted menu item, entered in the same manner as the End of Line markup. The default is usually a Form Feed (HEX 0C). End of page strings may be disabled altogether by selecting a null string as the end of page string. This is done by selecting the line with the call-up number, and immediately pressing ACCEPT.

END OF PARAGRAPH MARKUP

End of Paragraph markup offers the same treatment as End of Page markup; the default is none. A character string may be selected to represent the end of a paragraph. It will always be followed by the end of line string. Odd styles of paragraphing, such as Block or Hanging Indention, will not alter the Output Processor's ability to recognize individual paragraphs.

The paragraph recognition feature can be disabled by entering a null string here. Simply select the line using the call-up number, and immediately press ACCEPT.

NOTE

The Output Processor cannot recognize paragraphs as an operator can (i.e., a set of sentences that make sense as a unit). A series of clues derived from the position of the text on a page signals the Output Processor that a paragraph exists.

If the vertical distance between one line and the next is significantly greater than what was encountered in the previous two lines, an end-of-paragraph code is inserted. Lines that contain groups of words that are separated by several spaces are usually considered "single-line paragraphs". Thus, the individual lines in many tables (centered, aligned to decimal tabs, etc.) are viewed as paragraphs by the Output Processor.

1.3.3 PROGRAMMABLE RS-232 PORT

This menu will be displayed only if the output device selected is a programmable RS-232 port (asynchronous port #2 is programmable).

Output Tailor - Programmable RS-232 Port Menu

1	Baud Rate	9600
2	Number of Bits per Character	7
3	Number of Stop Bits	1
4	Parity	None

Enter Call-up number to alter any line.

BAUD RATE

Operators may choose from among a wide variety of baud rates. The baud rate refers to the number of bits that can be transmitted over the communications line in one second. Like all the options in this menu, the choice must agree destination device requirements.

NUMBER OF BITS PER CHARACTER

This line is used to choose the number of bits in each character and interacts somewhat with the option selected for the parity line. If ASCII data is being transmitted (the usual case), select 7 bits for this option (unless no parity is desired, in which case 8 bits must be selected). If EBCDIC data is being transmitted, select 8 bits and no parity.

The number of bits selected here determines how many bits will be transmitted for each character, excluding the parity and stop bits. If the option selected for parity is *NO*, a parity bit is not transmitted. Most RS-232 connections which use ASCII codes without parity "expect" a parity bit, although they will not use it to validate the transmission.

NUMBER OF STOP BITS

This line is used to choose the number of stop bits that are to follow each character. Again, it must agree with the number used by the destination device.

PARITY

This line determines whether or not a parity bit is to be sent. If a parity bit is sent, it will make the sum of the "on" bits for a character Even or Odd. If no parity is chosen, a parity bit will not be transmitted.

1.3.4 TRANSMISSION PARAMETERS MENU

This menu is displayed only if the Output Device selected is Tape, RS-232, or synchronous.

Output Tailor -Transmission Parameters Menu

1 Communications Protocol	Asynchronous
2 Block Size	No options available
3 Tape Labelling	No options available
4 Treatment of Last Block of Tape	No options available
Enter Call-up number to alter any line.	

COMMUNICATIONS PROTOCOL

No options are presented for this menu item if the output device is Tape. If the selected option is synchronous, there are two possibilities: transparent and non-transparent. Asynchronous protocol also handles Xon/Xoff (pause/resume) protocol. Echoplex protocol sends a character, waits for it to be sent back and then sends another.

Synchronous protocols:

In order to create a standard for communications between systems, ASCII and EBCDIC have reserved characters that can never be translated into other codes . These characters include *start* and *end-of-text* characters. Synchronous protocols require more reserved characters than asynchronous ones. Non-transparent protocol uses 12-15 reserved characters (commands) that have to be in specific locations during communications.

Transparent communications indicates that these commands are "invisible" unless preceded by a DLE (Data Link Escape) character. DLE is the only reserved character in transparent mode. If a system "sees" a DLE, the character immediately following it will be interpreted as a command. Kurzweil supports transparent and non-transparent synchronous protocol in the following configurations:

1.   *Transparent, with EBCDIC control codes* -- 2780 protocol has two states: transparent and non-transparent. The former can be used when the characters being transmitted do not conflict with the codes used by the protocol itself. Most files can be transmitted in non-transparent mode.

2.   *Non-Transparent, with EBCDIC control codes* -- If an attempt is made to transmit a character which cannot be sent non-transparently, an error message will appear on the console, and the transmission will end.

BLOCK SIZE

This menu item is available only if the output device is Tape or synchronous. The block size must be a multiple of the record size, if the fixed length option was selected for the record format. The block size must be an even number.

The number selected may be determined by the characteristics of the destination device. Many implementations of 2780 protocol, for example, will not accept a block size larger than 400.

TAPE LABELLING

This line requires an option only if the output device chosen was Tape. Two types of tapes may be written. A labelled tape contains an IBM standard label. In the Output Processor itself, the operator must provide the Data Identifier, the Creation Date, and the Expiration Date for the label. The other kind of tape is unlabelled. Any number of files may be written onto an unlabelled tape. Refer to section **1.6** for a complete description of the Output Processor Tape Label Menu. Also, note that only one file may be written onto a labelled tape.

TREATMENT OF LAST BLOCK ON THE FILE

The last block may be padded so that it is a full block size, or it may be padded to an even number of characters, greater than four. If the last block is padded to full size, the operator may choose to pad it with nulls or with spaces.

Most of the time, a document will not completely fill the last block of the tape. Operators may choose to:

- Write the last block as a partial block

- Pad the last block so that it is a full-sized block.

The pad character may be:

- a Blank or

- a Null.

1.4 CHARACTER TRANSLATION SET MENU

The first character translation screen (displayed below) receives its answers from an old Character Translation Set (if specified) or from a table of defaults that will cause a conversion to ASCII code.

The Character Translation Set is used for "one-to-one" code conversions (i.e., ASCII to EBCDIC). A Character Translation Set name must be specified before moving on to subsequent menus. Any legal name may be used. The name that is provided must also be specified in any Output Tailor which is to use the set.

CHARACTER TRANSLATION SET MENU

1 Character Translation Set Name	NONE (or old set name)
2 Multiple Shift Modes	No
3 Shift Down Character	No options available
4 Shift Up Character	No options available
5 Number of Tables in File	1
6 Text Type for Table One	All text
7 Text Type for Table Two	No options available
8 Text Type for Table Three	No options available
9 Text Type for Table Four	No options available
Enter Call-up number to alter any line.	

CHARACTER TRANSLATION SET NAME

The Character Translation Set name must be entered before the next menu will be displayed. Enter any legal name. If a translation set already exists with that name, it can be overwritten. If no such set exists, it will be created when ACCEPT is pressed to exit from the Character Translation Menus.

MULTIPLE SHIFT MODE

Most Character Translation Sets will require only one shift mode. Multiple modes are required for certain types of character codes. TTS, for example, requires a lower and an upper shift mode. If multiple modes are specified, each character which is being translated must be identified as belonging to one of the two modes, or as being used in both. Upon transmission, when a character being output is in a different mode than the previous character, it is preceded by either the shift up character, if the latter character is in the upper shift mode, or the shift down character.

SHIFT UP CHARACTERS

If multiple shift modes are required, this line must specify the code (in hexadecimal) used to shift from the lower to the upper mode.

SHIFT DOWN CHARACTER

If multiple shift modes are required, this line must specify the code (in hexadecimal) used to shift from the upper to the lower mode.

NUMBER OF TABLES IN FILE

There may be up to four different character translation tables in one Character Translation Set. This allows the Kurzweil system to translate different types of text in a different manner. Generally, one table is sufficient. Use multiple tables only if certain fonts require different character codes.

TEXT TYPE FOR TABLE ONE, TWO, THREE and FOUR

The text type may be *All*, or any one of the ten fonts (0-9). If one of the fonts is specified, the table will be applied only against text in that particular font.

If multiple tables are specified, each must be applicable against a different text type.

1.5 CHARACTER TRANSLATION TABLE MENU

This menu is used in the creation of Character Translation Sets. It is used to set up one of a possible four tables in a set. It displays a very "busy" screen, which consists of 128 entries arrayed in 16 lines on the screen.

Each entry contains a highlighted hexadecimal number which is the *From* character value, followed by a printable representation of the character (or a period, if the character is not printable), followed by a hexadecimal number which is the *To* character value, followed by the character's shift mode. That shift mode is represented as an "A" for any mode, a "0" for the lower mode, or a "1" for the upper mode.

To change an entry: enter the *From* character value (in Hexadecimal) , followed by ACCEPT. Notice that the selected entry is now highlighted, and that a prompt has been displayed near the bottom of the screen. The *To* character value must then be entered, followed (if multiple shift modes were selected) by the shift mode for the character. If satisfied with all of the entries, press ACCEPT to advance to the next screen. To return to the previous menu, press CANCEL.

Character translations are applied immediately before transmission of the data. Consequently, string translations will be translated again on a character by character basis. Characters with a hex value greater than 7F will not be translated.

ENTER THE "TO" CHARACTER VALUE

This prompt instructs the operator to enter the *To* character value. This value must be entered in hexadecimal. The *From* character value is the ASCII representation, which exists in the document as it is used by this system. The *To* character value is what will result when a character with the from value is translated using this set.

ENTER THE CHARACTER'S SHIFT MODE (A, 0 or 1)

The second prompt occurs only if Multiple Shift Modes were specified in the first menu of the Character Translation Set. The shift mode of the character must be entered. That mode may be an "A", for any mode a "0" for the lower mode, or a "1" for the upper mode. Note that pressing CANCEL in response to this prompt will return control to the *From* character value prompt.

1.6 TAPE LABEL MENU

This menu is displayed when an IBM standard labelled tape is to be written. If *Tape* was selected in the Output Tailor General Menu as the *Output Device* (option 6) and if IBM labels were requested, the following question will be displayed:

Tape Unlabelled. Write label (Y/N)?

If *No* is selected, the request is aborted and control reverts to the General Menu. If *Yes* is selected, the operator is asked to supply a volume serial number, which can be obtained from the "target" installation if the number is unknown.

Finally, the Tape Label Menu is displayed.

Output Processor - Tape Label Menu

```
┌─────────────────────────────────────────────────────────────────┐
│                                                                   │
│   1 Data Set ID                              None                 │
│                                                                   │
│   2 Creation Date                            None                 │
│                                                                   │
│   3 Expiration Date                          None                 │
│                                                                   │
│                                                                   │
│                                                                   │
│   Enter Call-up number to alter any line.                         │
│                                                                   │
└─────────────────────────────────────────────────────────────────┘
```

DATA SET IDENTIFIER

The Data Set identifier (or, in IBM terminology, the DSNAME) is set by default to the document name. If desired, it can be changed to something else. The name may be up to 17 characters in length.

CREATION DATE

The creation date is a five-digit field. A Julian date is entered here.

EXPIRATION DATE

The expiration date is a five-digit field. Again, a Julian date is to be entered, although some systems accept 99999, to indicate a file without an expiration date.

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

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_____User with little prior OCR/computer experience.

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