

File names must be specified for directory devices, but the extension can be omitted. If the extension is not given, it is assumed to be .REL unless the /L switch appears in the command string. In this case, the output extension .LST is assumed.

Project-programmer numbers appearing after a file name apply to that file only. If the project-programmer number appears before the file name, it applies to all subsequent files until another device is specified.

<programs>

- = Names of programs (on DSK or DTA only) to be used in the updating process. They are grouped within angle brackets in the same order as they appear in the file and are separated by commas. When manipulating all the programs within a file, only the file name need be specified. Program names cannot appear for the output file.

(command)

= Code for the function to be performed. This code can be either preceded by a slash or enclosed in parentheses and must appear at the end of the command string. Each command results in the updated file being output to the output device.

Switches are:

```
/A append  
/B backspace one file  
/C copy and delete local symbols  
/D delete  
/E extract  
/H type this text  
/I insert  
/K skip one file  
/L list programs  
/R replace  
/S list entries  
/T skip to logical eot  
/W rewind  
/X index  
/Z zero directory
```

```
# GLOB
#
# GLOB reads multiple binary program files produced by MACRO and
# FORTRAN and generates an alphabetic cross-referenced list of all
# the global symbols encountered. It may also search specified
# files in Library Search Mode, checking for globals only if the
# program was loaded by the LOADER in Library Search Mode. For
# further information on Glob read DECsystem10 Assembly Language
# Handbook, Utilities Section.
#
#
# Standard Command String Format:
#
# *outputfile=inputfile,inputfile,inputfile/switch/switch<Altmode>
#
# Switches:
#
# /A include All global symbols in the GLOB listing (this is the
# default)
# /E include only Erroneous global symbols (undefined or multidefined)
# in the GLOB listing
# /F include only Fixed global symbols in the GLOB listing
# /H type the Help message
# /L Library search mode on
# /M Library search mode off
# /N include only Unreferenced global symbols in the GLOB listing
# /P include multiple specifications in references lists
# /Q exclude /P
# /R include only Relocatable global symbols in the GLOB listing
# /S include only multiply Specified global symbols in the GLOB listing
# /X complement title switch
#
# Defaults: DSK:.REL[self] on input
# DSK:same as infile.GLB[self] on output if no out, TTY:
#
# Flags used in listings:
#
# M multiple definitions
# N never referenced
# S defined several times with the same value
# U undefined
```

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HERMES

HERMES

The HERMES Message System is a computer program for sending and receiving messages over a computer network. The HERMES System has features that help the user read messages, compose messages for sending, and create and manage files of messages.

BASIC INSTRUCTIONS FOR USING THE HERMES SYSTEM

ENTERING AND LEAVING

Type HERMES<CR> to the TOPS-20 prompt "@". The HERMES Message System responds with the HERMES prompt ">", and surveys any messages that have arrived since your last session.

For example:

```
@HERMES<CR>
HERMES 4.0.22 1-OCT-77
-+ 8 252 30 Sep 77 MYER at BBN-TENEXA Plans for visit
```

When you want to leave HERMES, type:

```
>QUIT<CR>
```

If you have DELETED any messages, HERMES asks whether you want to EXPUNGE them. When messages are EXPUNGED, they are physically removed from the file, and the remaining messages are renumbered.

If you see the prompt ">>" or ">>>", you must first type "DONE">

```
>>DONE<CR>
>QUIT<CR>
```

After you QUIT, you may continue by typing CONTINUE to the @ prompt:

```
@CONTINUE<CR>
>
```

If you wish to logout directly from HERMES, type

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>LOGOUT<CR>

READING MESSAGES

HERMES tells you when you have messages that have arrived recently. HERMES prints a "survey" of each message, when you log in or when a new message arrives:

-+ 1 536 15-Jul-77 MOOERS at BBN-TENEXA HERMES HELP INFORMATIO

For a quick survey of all messages in your current message-file,

>SURVEY<CR>

To print the text of a single message:

><LF> The LINEFEED key (NOT followed by <CR>) prints the NEXT message, AND sets it to be the CURRENT message.

When a new message arrives, it is generally the NEXT message, unless you have been skipping around in your file.

>^ PREVIOUS The UP-ARROW or CARET key (NOT followed by <CR>) prints the message AND sets the CURRENT message.

>PRINT<CR> prints the CURRENT message.

READING SPECIFIC MESSAGES

>SURVEY 4,2,5:7<CR> surveys messages 4,2,5,6,7.

>PRINT 4,2,5:7<CR> prints the messages in the sequence AND sets the CURRENT message to 7.

SENDING MESSAGES

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To send a message, type "COMPOSE" to the HERMES prompt ">":

>COMPOSE<CR>

COMPOSE gives you a series of prompts that guide you through composing a message. The To: and Cc: fields must be filled in with names of "directories" on BBN computers. The To, Cc and Subject fields end with <CR> but the Text field ends with <CTRL-Z>.

After you type <CTRL-Z>, the system asks

SEND?: You may answer YES<CR> or NO<CR>.

If you answer YES<CR>, HERMES SENDS your message. If HERMES is able to deliver it immediately, it tells you that the copy of the message to an addressee is "delivered". If not, HERMES queues the message for another program, named MAILER, which picks the message up a few minutes later and delivers it. HERMES does not tell you which messages are queued.

If you type NO<CR>, HERMES does not SEND the message. Instead, you can do more work on the message. For example, you can add another name to the CC: field:

>>CC: YOURNAME<CR> Notice the double prompt ">>".

When you want to send the message, type SEND<CR> and "confirm" with a second <CR>.

>>SEND<CR> (CONFIRM) <CR>

Using the SEND command takes you back to the ">" prompt.

If you change your mind about sending, after the computer prints (CONFIRM), you can stop it with <CTRL-U> on TOPS-20.

REPLYING TO MESSAGES

To reply to a message in your message-file:

>REPLY<CR>

gives you prompts for your reply to back to the CURRENT message.

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>REPLY 5<CR> replies to Message 5.

FORWARDING MESSAGES

To forward a message in your message-file to someone else:

>FORWARD <CR> forwards the CURRENT message, and prompts you for addressees and comments.

MESSAGE MANAGEMENT

To organize your messages, HERMES provides facilities for grouping messages into named sequences. A named sequence is an ordered set of messages. Individual messages can appear in as many different named sequences as you wish.

For example, to create a sequence named ANSWERED, you type:

>CREATE SEQUENCE ANSWERED<CR>

This enters the sequence editor and HERMES prompts you with a double arrow. To add messages 3,4,5 and 7 to this sequence:

>>ADD 3:5,7<CR>
>>DONE

Once a sequence is created, you can add messages without entering the sequence editor. You use the ADD command and specify both the messages and the named sequence:

>ADD 9 ANSWERED<CR>

To find out which sequences a message is in, use the WHEREIS command:

>WHEREIS 9
9 is in ANSWERED

To see a list of all messages in a sequence, for example in ANSWERED, type:

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>SHOW ANSWERED<CR>
3:5,7,9

Sequences can be used in all message handling commands. For example, to survey all messages in ANSWERED, type:

>SURVEY ANSWERED<CR>

To list all of them on the line-printer, type:

MESSAGE-FILES

The message-file you see when you enter the HERMES system is your INBOX, which has the file-name MESSAGE.

To direct the attention of the HERMES system to another message-file, type

>GET <file-name><CR>

If your FILENAME-INPUT switch is set to HERMES, all files have single-word names, which are extended and recognized like other words in HERMES commands. If you have a file named NEWFILE, and no other files beginning with NEW, you can type:

>Get NEW<CR> (CONFIRM)<CR>

To see a list of your message-files, type

>Show MESSAGE-FILES<CR>

For more information, type

>DESCRIBE FILENAME-INPUT-SWITCH<CR>.

PANIC BUTTONS

<CTRL-O> stops print-out of text anywhere; prints ^O.
<RUBOUT/DELETE> TENEX: stops a command before the final <CR>.
<CTRL-U> TOPS-20: stops a command before the final <CR>.
<CTRL-E> stops a command at any time; prints ^E.

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<CTRL-C> stops HERMES anywhere and returns you to the operating system; prints ^C. You can recover by typing CONTINUE to the @ prompt.

To type a control character, e.g., <CTRL-C>, hold down the CTRL key while you type the letter C.

NOTE: Occasionally, by accident, you may get into a program that runs under HERMES in a "lower fork". Such a program will have a different prompt (such as "*"). In this situation, <CTRL-C> will return you to HERMES.

EDITING CHARACTERS

<CTRL-A> TENEX: deletes a single character.
<RUBOUT/DELETE> TOPS-20: deletes a single character.
<CTRL-W> deletes a single word.
<CTRL-Q*> deletes a line of text.
<CTRL-R> retypes a line of text.
<CTRL-S*> retypes an entire field.
<CTRL-Z> ends the Text:-field; prints ^Z.

* On TOPS-20, in "terminal page mode", <CTRL-Q> freezes the screen of the scope and <CTRL-S> releases the scope.

TYPING IN COMMANDS

You can use either the space character or the Escape-key (or ALT MODE) to separate the different sections within a command.

The Escape-key <ESC> causes HERMES to print out completely any word used in command and then to print "noise words" to introduce the next word, if it is possible to type one. At such a point, typing <ESC> causes HERMES to insert the "default" word. Most commands have a set of defaults, chosen to be most useful to the beginning user.

For example, PRINT prints the current message in the form specified by the PTEMPLATE onto your terminal (symbol TTY:).

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If the current message is No. 10, and you type "PR", followed by a series of <ESC>'s you will see:

>PRINT (messages) 10 (using template) PTEMPLATE (on file) TTY:

You may type "?" at almost any point in the HERMES system to see what words you are allowed to type in next.

>? gives a list of top-level HERMES commands.
>SU? lists commands that begin with "SU".
>SURVEY ? lists all the things that you may type in at that position in the "SURVEY" command.

Use ? and <ESC> freely.

? tells what choices you have.
<ESC> tells what defaults the system has set up.

HERMES "LIFE-STYLES"

The FILENAME-INPUT switch controls whether file-handling is done entirely through the HERMES system or whether TENEX file-names and TENEX commands for showing and deleting files must be used.

The SPACE-FUNCTION switch and the CR-FUNCTION switch, change the way the space character and <CR> behave.

>DESCRIBE LIFE-STYLES<CR>
for more information.

NEWS, HELP AND SUGGESTION COMMANDS To print the latest News on your terminal, type NEWS.

>NEWS<CR>

You can also output News or Help to the line-printer or a file.

>NEWS LPT:<CR>
or
>NEWS <file-name><CR>

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```
>HELP LPT:<CR>
or
>HELP <file-name><CR>
```

If you have suggestions or questions, please use the SUGGESTION command:

```
>SUGGESTION<CR>
```

This command prompts you for Subject and Text, then creates a message addressed to the HERMES staff.

ON-LINE DOCUMENTATION The on-line documentation material is basically a reference manual arranged as short topics with associated examples. The topics are organized in a table of contents or OUTLINE.

```
>OUTLINE<CR>
shows the first two layers of topic names,
and is equivalent to the command
```

```
>OUTLINE HERMES (to depth) 2<CR>
```

You may use the OUTLINE command with any topic, and with the depth argument set to 2, 3, 4 ... All.

To see the contents of a topic, type

```
>DESCRIBE <topic><CR>
```

The topic defaults to "HERMES" at top command level, to "MESSAGE-EDITOR" when you are creating a message, and to other appropriate topics in other parts of the system. For more information, type

```
>DESCRIBE DOCUMENTATION<CR>
```

HG Manual

HG is a simple message reading program. It is designed to allow manipulation of files of messages in an unobtrusive manner. The following is a summary of HG's commands. (As of 8-Aug-77)

An item list can be any of the following things:

n - where is a given item

n1,n2,n3 - where each nn is an item number (need not be increasing values)

n1-n2 - where n2 > n1 (Note that n1:n2 will also work)

altmode or % - which is shorthand for the highest numbered item

Any combination of the above separated by commas.
(n1,n2-n3,<altmode>)

carriage return - use the list that showed up with the last brief print out (1 line) of the messages.

ALWAYS-SHOW - Set a list of items to be always shown when HG starts up; as if they were new items. This is for messages that one might want to be reminded about.

BEFORE - Have the filter show only messages before a given date and time. The time may be omitted, 00:00 of the date will be assumed.

CC - Require a given name in the CC list. This is part of the global filter.

DELETE - Delete a specified list of items. Confirmation will be asked for when the list is given.

DON'T-ALWAYS-SHOW - Negates the setting of ALWAYS SHOW.

FILTER-STATUS - Current settings of the global filter. (BEFORE, CC, SINCE, FROM, SUBJECT, & TO settings).

FORWARD - Forward a list of items to a list of addressees. The following subcommands exist:

CC - Add to the current carbon copy list (even if previously null).

DELETE - Remove any addressees starting with the given string (partial string match) from the TO and/or CC lists.

DISPLAY - Display any or ALL of the various fields.

FROM - Set the "FROM" field to a specific name. The SENDER field remains the logged in user name.

QUIT - Exit, aborting what was in progress.

SUBJECT - Set the subject field to a desired string.

TEXT - Insert text that is to be inserted before the forwarded text. Z (control-Z) to end input, E (control-E) to abort.

TO - Add to the current list of addressees.

A carriage return to the "For>" prompt will cause "[Confirm]". Confirming with another carriage return will cause the message to be sent.

FROM - Have filter show items from a single user name. Enough characters to make the name unique is sufficient.

GET - Bring a specified message file into the working area. If the current message file has been changed (any deletes done), the user will be asked if the file should be updated before the new file is read in for use.

HELP - Help works one of two ways. HELP<cr> gives a short more general help message. HELP <command name> will give a help string specific to that command.

LIST - Give a brief list of the messages. A single line is printed for each item in the file. The filter is applied for this command & those items coming through the filter set the default item list. Each single line contains the item number, the size of the message (**** means > 9999 chars in the message) the date the message was received, the author of the message (unless the user authored it, in this case the first entry of the TO list is given), and as much of the subject line that will fit on the rest of the line. LIST's subcommands may be invoked by using a "," and carriage return to terminate the list command. Subcommands are:

LPT - Put the brief list out to the line printer. This is a short form for OUTPUT (to file) LPT:

OUTPUT - Put the brief list out to a specified file.

NO - Turns off various parts of the filter. (NO SUBJECT, NO BEFORE etc.)

NOT - Negates various commands; like PERPETUAL.

PERPETUAL - Sets a specified list of items to be UNDELETEABLE. This perpetual setting is currently only honored by HG.

PROFILE - Allows the user to set various parameters that will be retained from session to session. They are as follows:

CC-LIST - Show the CC list when printing the message (read command)

COMBINE - Ties together the ALWAYS SHOW & PERPETUAL commands. This means that using one of these commands automatically invokes the other.

CONFIRM-UPDATES - Require that the user be asked if a file should be updated. This is asked if items have been deleted. HG will expunge these deleted items if YES is given in response the confirm request.

DELETE - Set default parameters for deletion as follows:

REPLY - Delete the message after a REPLY has been made.

WRITE - Delete the message after it has been written to a file.

DISPLAY-PROFILE - Prints the current settings of the various parameters settable in the profile. Also displays the last date & time various files were read with HG.

DON'T -

COMBINE - Don't tie the ALWAYS SHOW & PERPETUAL commands together.

CONFIRM-UPDATES - Don't request confirmation when an update of a message box is to be done.

DELETE - Negates the various settings of DELETE as follows:

REPLY - Don't delete messages after a REPLY (system default).

WRITE - Don't delete messages after writing them to a file (system default).

ERASE - Erase the screen (of scopes only) with the following string of characters. This allows a user to use the hardware erase feature in his scope.

FORM-FEED - Do a form feed before printing each message. This setting works only on scope terminals.

FROM - Sets the default FROM field. This string will be used whenever none is given when SENDING, REPLYing, or FORWARDing a message.

HG-NEWS - In the normal setting, new items of interest are shown to the user at start up. (Once only). These items are from the file <DOCUMENTATION>HG.CHANGES.

NO - Negates various settings of the profile.

PAUSE - Pause in READ subcommand mode after each message. (This is the default setting)

PROTECTION - Sets the default protection for files written by HG.

QUIT - Return to main command level.

REMOVE - Remove a file name/date & time entry from the profile. Note that this command re-numbers the entries.

TO-LIST - Show the TO list when printing the message (read command)

VERBOSE - Show all of the message during the read command.

QUIT - Exit from HG. If any changes have been made to the file (deletes) the user will be ask if the file should be updated. Respond with a Y or an N and confirm either with a carriage return.

READ - Reads a specified item list. If the user is in PAUSE mode after each message the user will have the following options:

ADDRESS-LIST - Print the TO LIST & CC LIST that the current message was sent to.

ALWAYS-SHOW - Mark this item to always be shown at start up.

CC-LIST - Print the CC LIST the message was sent to.

DELETE - Delete the current item.

DON'T - Negates ALWAYS SHOW or DELETE. Don't delete negates the delete on write & delete on reply settings. default or the DELETE command.

FORWARD - Forwards the current item to the supplied list of addressees. See the main command level documentation about FORWARD for subcommands.

LPT - Write a copy of the current message to the line printer. The DELETE settings are completely ignored on this command (DELETE can't ever happen). The LPT command also attempts to break lines longer than 72 characters so that they don't run off the print page.

NOT - Currently only NOT PERPETUAL. Makes the current item deletable.

PERPETUAL - Make the current item UNdeletable.

QUIT - Abort the rest of the read command.

REPLY - Reply to the current message. Fills in the TO, CC and subject fields with those of the message just read. It also places the string "In response to your message of <date & time>" into the body of the message. Subcommands are as follows:

CC - Add to the current carbon copy list of addressees.

DELETE - Delete any addressees starting with the given string (partial string match) from the TO and/or CC lists.

DISPLAY - Display the current state of the various fields or ALL.

FROM - Fills in the FROM field with the desired string.

QUIT - Exit from REPLY aborting what has been done.

SUBJECT - Override the default subject with the supplied one.

TEXT - Allows the text body of the REPLY to be typed in. B (Control B) maybe used to insert a file or invoke TECO. Z (control-Z) to end input, E (control-E) to abort).

TO - Add to the current list of addressees.

A carriage return will request a confirmation ([Confirm]) which if confirm with another carriage return will send the reply.

SEND - Compose and send a message. See main level commands for details on the commands to the "Send>" prompt.

STATUS - Gives the current status of this item.

TO-LIST - Print the TO list the current message was sent to.

UNDELETE - Undelete a list of items. Items can be undeleted up to the time an "update" is done on the mailbox.

WRITE - Write the current message to a specified file.

SAVE - Write all items to a specified file.

SEND - Compose and send a message. The commands to the "Send>" prompt are:

CC - Add to the current carbon copy list of addressees.

DELETE - Delete any addressees from the TO and/or CC lists that start with the specified string (partial matches).

DISPLAY - Display any of the various fields. ALL will display all of them.

FROM - Specify the FROM field. Used when one wishes to have "Jimmy Carter" rather than "CARTER@WASH" as the from field.

QUIT - Exit aborting anything that been done so far.

SUBJECT - Specify the subject field for this message.

TEXT - Type in the body of the message. B (Control-B) can be used to insert a file or invoke TECO. Z (control-Z) to end input, E (control-E) to abort.

TO - Add to the current list of addressees.

A carriage return will respond with "[Confirm]". Confirming with another carriage return will cause the message to be sent.

SINCE - Set the filter so that item after a given date an time are seen.

STATUS - Reports the current status of specified list of items.

SUBJECT - Set the filter so only items of a specified subject will be seen in the LIST command.

TO - Set the name to be required in the TO list by the global filter.

UNDELETE - Undelete a list of items.

VERBOSE - A temporary (current session only) setting that causes the entire message to be printed in the READ command. (Over-rides the current profile settings).

WRITE - Write an item list to a specified file. Terminating the file name with a comma will give the user the following options:

ABORT - Abort the write & return to command mode.

BEGIN - Start the write. Carriage return serves the same purpose.

DELETE - Causes each item to be deleted after writing it to the file.

SEPARATE - Put each item on its own piece of paper. Make sure you only use this when writing to the LPT: or a file you don't want to read with HG or similar program.

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WRAP - Attempts to break lines longer than 72 characters so the end of long lines aren't lost on the LPT:. As with SEPARATE, use this only when writing to the LPT:.

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HTYPE

HTYPE

HTYPE is a program for printing files on the XEROX 1700 printer. It utilizes reverse printing and other features of the 1700 printer to print text at a very high speed. Right justified text may be re-adjusted using the variable character pitch feature to improve the quality of such documents. HTYPE also includes a facility for producing multi-column formats.

Preparation of Documents for HTYPE

No special preparation of documents is necessary for using HTYPE unless certain special features of HTYPE are to be utilized. In the absence of such special needs, HTYPE will print documents as exact replicas of those documents as they would appear on an ordinary terminal. There are four special features which might want to be used. These are: rejustification, HTYPE parameter setting, special escape sequences for subscripting and so forth, and multi-column capability. Each of these is discussed below.

HTYPE has the capability of re-justifying text which has been previously justified by one of the RUNOFF programs. The method employed is to first remove the additional spaces which RUNOFF added to achieve right justification and then expand or compress all inter-word spaces equally so that the desired column width is achieved. Generally, the only special step needed in preparing a document which is to be rejustified is to set the right margin about 5 characters greater than the final width desired. For example, if the final width is 65 characters (6.5 inches), then use a right margin of 70. The extra width is desirable so that lines will be compressed as well as expanded so that the average character density is normal. The use of hyphenation might also be considered since excessive expansion may be necessary when long words fall at the end of lines.

The parameters which govern HTYPE's actions may be set from the .DOC file as well as from the terminal. Such parameters are flagged in the file by the appearance of an SOH character (control-A). Each parameter consists of a single letter followed by as many numbers as necessary to specify the parameter setting. Each parameter is terminated by either another SOH (if another parameter follows) or by a carriage-return or by an STX (control-B). Generally these parameters will appear at the very beginning of the file but may appear anywhere within the file.

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In this case these parameter changes will take effect when that point is processed for printing. However, beware that if the page on which such parameters appear is not printed, then those parameter changes will not occur. A special case is made for the first page of the file. If that page begins with a SOH, then all the parameters following that SOH up to the following STX or FF (form-feed) are processed prior to entering the parameter setting dialog with the user. This happens whether the first page is printed or not. Also, if that first page consists of nothing but parameters then that page is not counted as a page; the following page is numbered "1".

The parameters which may be set are as follows ([] is used to indicate optional numbers):

J Turns off rejustification.

J[nn[f]] Sets rejustification to column nn with flag character f.

H nn sets the horizontal character spacing to nn.

V nn sets the vertical line spacing to nn.

P turns on pause mode.

N turns off pause mode.

M turns off multiple column mode.

M nn[mm[ll[kk[jj]]]] turns on multiple column feature with column spacing of nn, first line of mm. lines per column of ll, number of columns of kk and rejustification of jj. See below for further explanation of these parameters.

Special Escape Sequences

It is possible to include special sequences of characters in the .DOC file for HTYPE to process. These character sequences are enclosed between an initial DLE (control-P) and control-]. Generally, these sequences should have zero net width; that is, if they position the carriage horizontally, they should return the carriage to its starting point. Exceptions to this rule may be made if a subsequent such sequence on the same line undoes the

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horizontal movement. If this rule is violated, and rejustification is applied to the line, the result is unpredictable.

The multi-column feature is described below. Preparing a document with multiple columns is largely a trial and error procedure since the page length of each page must be altered to account for the number of lines on the page which are in multiple column format and the number which aren't.

Running HTYPE

To run HTYPE, type to the EXEC:

@HTYPE<cr>

In order to determine the parameters needed to do its job, HTYPE interrogates the user with a series of questions. These questions are arranged in order of decreasing need of specification. To terminate the questioning, end the answer with a carriage return. HTYPE will immediately space to the top of the next page and wait for paper to be adjusted etc. Terminating the answer with a comma causes HTYPE to advance to the next question. Terminating with an uparrow (circumflex) goes back to the preceding question. If no answer precedes the carriage return, comma, or circumflex, the default setting (or previously specified setting) is kept. The default setting is printed in brackets at the end of the question.

HTYPE first asks for the name of the file to be printed.

Input file: text.doc

This may be any disk file containing text. On TENEX, the default extension is .DOC. On TOPS20, the extensions of .DOC, .TXT are searched for in that order. If no file with either extension is found, then no default is assumed which, if the name is unique, will find that file. Otherwise, the extension must be given.

Next, HTYPE asks for a list of pages to print. These should be specified as a list of page groups separated by commas. A page group is specified as n:m and means pages n through m inclusive. The symbol % may be used to indicate the last page of the file and the symbol * may be used to indicate all pages. 1:% is

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equivalent to *. The default setting for this parameter is * or all pages. A typical specification might be:

Pages[1:%] 1,3:5,%

If the number before the colon is greater than the number after the colon, the pages are listed from the higher number through the lower.

Next, you must say whether the text should be re-justified. If this question is answered N, then the resultant output will be an image of the file as if it had been copied to a normal terminal. Answering Y, causes text which was right justified by (M)RUNOFF(OUT) to be re-justified as explained above. This results in a much improved appearance. To avoid rejustifyfing lines which were not justified by RUNOFF, lines will not be rejustifyfied which are shorter than the specified column, which contain tabs, which contain a sequence of more than 6 spaces, or in which the length of the minimum string of spaces is smaller than two less than the length of the maximum string of spaces. These checks serve to detect almost all of the cases where the line was not originally justified. There is the possibility, however, that text may be re-justified which was not justified originally and which is not detected by the above criteria. This is unavoidable.

Two parameters are associated with rejustifyfication. The right margin must be specified. This is usually 65 but may vary from document to document. This parameter determines the location of the rightmost end of the output line. The location of the leftmost end is the same as it is in the file being printed. If a flag character is specified, then that character is considered a space for determining where a line begins and ends. The flag character is often vertical bar. Type just a terminator if there is no flag character. A typical specification for re-justification might be:

Rejustify with variable spacing?[No] Yes,
Location of right margin:[65] 68,
Flag character: |,

Next you will be asked if you want to pause between pages. The default pause, is suitable for individual sheets of paper. No pause is suitable if continuous forms are being used.