

USERS GUIDE FOR THE WATER RESOURCES DIVISION BIBLIOGRAPHIC RETRIEVAL AND REPORT GENERATION SYSTEM

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USERS GUIDE FOR THE WATER RESOURCES DIVISION BIBLIOGRAPHIC
RETRIEVAL AND REPORT GENERATION SYSTEM

ABSTRACT

The Water Resources Division maintains a bibliographic reports data base (WRDBIB) using WRSIC* tapes as input. The WRDBIB data base includes some 8700 WRD report citations and is updated quarterly. (The annual update volume is ca. 700 titles.) The data base contains bibliographic data elements and key-words descriptive of WRD reports released for publication or open-filed during the period 1968 to present. The data base is resident in the Multics computer in Reston and may be accessed by registered Multics users in the field.

A RETRIEVAL AND REPORT GENERATION system has been developed by applying Multi_trieve (MT-) Retrieval and Report-generation software to bibliographic data files. Users may search WRD reports derived from WRSIC tapes on the following bibliographic and subject data fields: authors, organizational source, title, citation, descriptors, and WRSIC (accession) number. The USERS GUIDE is intended to assist the user in selecting and executing retrieval and report generation procedures.

A GENERAL INTRODUCTION describes the organization of the USERS GUIDE and the online READY_REFERENCE feature: WBSum.info. A schematic overview of the WRDBIB Retrieval and Report generation system and of WRDBIB files required for program execution is given at this point. Section II: INTRODUCTION TO WRDBIB provides a description of Multi_trieve features from PROGRAM CREATION to REPORT GENERATION as applied to WRDBIB programs. Section III: WRDBIB PROGRAM EXECUTION describes the actual RETRIEVAL and/or REPORT GENERATION PROCEDURES providing detailed instructions and program execution examples. Three APPENDICES include detailed instructions on how to access Multics and the WRDBIB data base (APPENDIX I); a Glossary of Selected Terms used by the Multi_trieve system (APPENDIX II), and procedures illustrating how to execute a fairly complex RETRIEVAL and REPORT GENERATION SESSION in ten steps (APPENDIX III)-- beginning with problem definition to creating custom REPORTS and INDEXES.

The User will learn to describe his INPUT record in terms of a DATA DICTIONARY, and use it to create a custom WRDBIB PROGRAM. The user will learn to formulate a PROGRAM STATEMENT (command) appropriate to his/her RETRIEVAL and/or REPORT GENERATION problem: He/she may execute exploratory RETRIEVAL runs supplying all responses which may be stored as RESPONSE files for future similar retrievals.

To execute RETRIEVAL and REPORT GENERATION PROGRAMS the user will formulate PROGRAM STATEMENTS which will include control arguments. The user may wish to use the "response" argument together with the "change_list" argument. This will allow him/her to recall a WRDBIB RESPONSE file with custom REPORT specifications and to interactively alter certain parameters as designated by the "change_list": For example, INPUT files, selection (MATCH) criteria, and SORT criteria.

The user will learn to translate his retrieval problem into RETRIEVAL STATEMENTS. These selection criteria are designed to match expected values of DICTIONARY elements against character strings found in a given INPUT record. Use of relational operators (partial name, equal to, greater than, less than, range) and of BOOLEAN "AND/OR" logic is illustrated.

Finally, the user will learn to create custom REPORTS using various WRDBIB RESPONSE files with detailed format specifications. Interactive entry of REPORT elements in response to system's prompts is illustrated. Examples are, entry of the REPORT "title", or of "descriptors" as additional print element. The user will use various output options for his OUTPUT files. Detailed file manipulation procedures, as well as the use of Multics text editor "ted", are given in APPENDIX_I: WRDBIB DIRECTORY AND WRDBIB FILES.

The USERS GUIDE supplements the basic MULTI TRIEVE Users Manual (CCD 1980).

Available online are fifteen selected topics of the USERS GUIDE in form of "info" segments labelled "WBsum.info" which may be accessed with the "help" command. The "info" segments are designed as "ready_reference" and complement the information in the USERS GUIDE.

* WRSIC: Dept. of Interior. Water Resources Scientific Information Center.

SECTION I.

GENERAL INFORMATION

- A. INTRODUCTION TO USERS GUIDE
- B. ONLINE READY_REFERENCE: `Wbsum.info`
- C. WRDBIB SYSTEM: SCHEMATIC OVERVIEW
- D. LISTING OF MULTICS READY_REFERENCE SECTIONS

SECTION I

GENERAL INFORMATION

A. INTRODUCTION TO USERS GUIDE

A.1. Objectives:

The Users Guide is intended to provide ready reference information to users of the WRDBIB RETRIEVAL and REPORT GENERATION system as applied to searching bibliographic data. The aim is to make Water Resources Division reports generally accessible to users in Reston and in the field for browsing and retrieval on user-specified search criteria, or by types of materials (all maps, Water Supply Papers, Open-File Reports, specific journal articles, etc.), and to enable users to prepare their own custom reports and indexes.

The WRDBIB data base has been compiled from extracts of WRSIC* bibliographic tapes covering the WRSIC accession period: 1968 to present. The data base includes 8500+ WRD report citations. (The annual update volume is about 700 titles.) The "Master" file (7407 records) is tape-archived, while the "Current" files (1200 records) are accessible online. Users may search the following variable fields: Author, publication year, source organization, title, citation, descriptor/identifier, and WRSIC (accession) number. The record fields are described in the DATA DICTIONARY.

The Users Guide is conceived to compliment the Multi trieve Manual**. To aid the user WRDBIB programs operate in a tutorial mode. Thus upon mastering the elementary Multics command language at the systems and the editor levels,*** the user may apply "custom" (user-formatted) retrieval and report generation PROGRAMS to interactive searching of WRDBIB files.

The Users Guide provides information on data elements and their formats as represented in the DATA DICTIONARY. It describes WRDBIB INPUT (data) files and PROGRAMS which must conform to the DATA DICTIONARY format. It teaches how to execute RETRIEVAL AND/OR REPORT GENERATION PROGRAMS using WRDBIB RESPONSE files as the major control argument, together with "change_list" arguments which allow to interactively change INPUT files, MATCHING and SORT criteria during program execution. The syntax of the PROGRAM command is fully described:

```
<PROGRAM NAME> [-response <path>] [-change <change_list>]
```

where "change_list" may designate: "in" (INPUT file); "mc" (MATCHING criteria); and "sc" SORT criteria in any combination.

* WRSIC: Water Resources Scientific Information Center. Dept. of Interior.

** See: MULTI_TRIEVE [Manual]. U.S. Geological Survey. CCD. (1980)

*** It is assumed the user has a working knowledge of Multics command language, editing techniques, and basic skills in file manipulation as learned in the course: Introduction to Multics. For ready reference see Introductory Multics Handbook. USGS CCD (1980).

The Users Guide suggests retrieval strategies and translates them into RETRIEVAL STATEMENTS using relational operators and Boolean ("AND/OR") logic.

The Users Guide introduces various REPORT generation options. The user may specify a "standard MT" REPORT format or create a custom REPORT by choosing a RESPONSE file with appropriate format specifications. The user may direct his REPORT output to the terminal or to a remote printer. Instructions are given how to obtain a sample "dump" of one or more records at the terminal and how to retrieve and store a data (OUTPUT) file for use as INPUT in other searches. A discussion of reformatting procedures and the creation of AUTHOR INDEXES is included. A custom formatted report record is shown in figure I-1 below.

The generated bibliographic citations may be sorted alphabetically by author or numerically by the WRSIC number. A sort by the WRSIC (accession) number will enable the user to tie into the published Selected Water Resources Abstracts (SWRA) and to read the abstracts of cited reports.

```
----- Author(s)
|
WOLANSKY, R. M.; MILLS, L. R.; WOODHAM, W. M.;      1979 <----- Publn.year
AND LAUGHLIN, C. P.;
  POTENTIOMETRIC SURFACE OF FLORIDAN AQUIFER, SOUTHWEST <----- Title
  FLORIDA WATER MANAGEMENT DISTRICT AND ADJACENT AREAS,
  MAY 1979,
GEOLOGICAL SURVEY OPEN-FILE REPORT 79-1255, 1979.    <----- Citation
1 SHEET.
*MAPS, *AQUIFERS, *WATER LEVELS, *POTENTIOMETRIC LEVEL, <----- Descriptors
*FLORIDA, WATER WELLS, WATER UTILIZATION, IRRIGATION,
WATER LEVEL FLUCTUATIONS, *FLORIDAN AQUIFER, SOUTHWEST
FLORIDA, WATER MANAGEMENT.
                                           81-00141 <----- WRSIC no.
```

Figure I-1.--CUSTOM-FORMATTED RECORD: Includes Variable Field Designation.

A.2. Organization:

Section I: General Information begins with an Introduction to the Users Guide stating its objectives and outlining its organization. This is followed by a section suggesting how to use this Users Guide. A brief description of the online ready reference feature: WBsum.info is given. A Schematic Overview of the WRDBIB System and its auxiliary procedures follows. A Listing of Multics Ready Reference Sections is appended here.

Section II. Introduction to WRDBIB Features provides a Program Execution Overview with illustrations (section II.A.) This is followed by section II.B. WRDBIB Files and Statements with a description of Multi_trieve features from Program creation to Report generation as applied to WRDBIB programs. Section II.C. covers available Output Features.

Section III: WRDBIB Program Execution describes the actual retrieval and/or report generation processes providing detailed instructions and program execution examples.

Three Appendices include detailed instructions as outlined below:

APPENDIX_I of the Users Guide contains access procedures to the working directory and its files. It details listing and printing procedures for WRDBIB files using commands at the Multics command and the editor levels. Use of online (storage) archives as well as tape archives is illustrated.

APPENDIX_II includes a Glossary of Selected Terms that have a special meaning in applied Multi_trieve programs. Since users will be familiar with the majority of terms in Multics parlance, only the usage of selected Multics terms has been redefined here in relation to the WRDBIB program.

APPENDIX_III includes a sample Retrieval Session with step-by-step instructions and examples illustrating user/computer interaction during program execution while searching the Water Resources Division bibliographic (WRDBIB) reports data base.

A.3. How to use this Users Guide:

Depending on the user's proficiency level in using Multics commands and editor features, the user may select any one of the following approaches:

(1) Glance over section I: GENERAL INFORMATION. If you are at ease with Multics, you might prefer to consult online "help" segments for additional information.

-- Go to section I.B. Online Ready Reference: "WBsum.info" and check out the information segment using the "help" command. For more detailed access procedures to the working directory and its files see APPENDIX_I.

-- To get a feel for the system look at section I.C. Schematic Overview of the WRDBIB System and its components.

(2) Begin with section I: GENERAL INFORMATION. Study section I.C. Schematic Overview of WRDBIB System.

-- Proceed to section II.A. Program Execution Overview. This will tell you on four pages and in three figures all you need to know about executing a WRDBIB retrieval and report generation program.

-- Do you understand the PROGRAM STATEMENT entry? (See section II.A.2.)

-- Do you understand what the RESPONSE file is all about? (See section II.B.7.) Print the two referenced RESPONSE files and compare format specifications! (See APPENDIX_I for procedures listing and printing library files.)

-- Do you understand how to formulate your RETRIEVAL STATEMENT? (See II.B.6.)

NOTE: FOR A DESCRIPTION OF WRDBIB FILES AND INPUT/OUTPUT PROCEDURES
SEE SECTIONS II.B AND II.C.

(3) Skim the introductory section I and study Schematic Overview in I.C.

-- Go to section III: WRDBIB PROGRAM EXECUTION PROCEDURES.
Read the two Overview sections III.A.1. and III.A.2.

-- Select PROCEDURE_A: Retrieval Program--you provide the responses!
(See EXAMPLE in fig. III-1.)
or PROCEDURE_B: Retrieval and/or Report Generation Procedure
using WRDBIB library files (in argument form).

-- List and select your INPUT file(s) and, optionally, your RESPONSE file.
RESPONSE files are printed in figs. III-2, III-4, III-6, III-12.
(See use of editor commands in APPENDIX_I.)

-- Execute: See EXAMPLES in figs. III-3, III-5, III-7, III-9, and III-11.
Custom REPORTS are printed in figs. III-8, III-10, and III-13.

NOTE: In any case study APPENDIX_III. A WRDBIB RETRIEVAL & REPORT GENERATION SESSION in ten detailed steps--beginning with the search strategy!

B. ONLINE READY_REFERENCE

B.1. "WBsum.info":

WRDBIB RETRIEVAL and REPORT GENERATION procedures are available online in form of "info" segments which may be accessed randomly with the "help" command. The "WBsum.info" file consists of fifteen parts which address WRDBIB program functions and provide examples of program execution. Using "help" responses the user may obtain as much or as little information as he/she desires on topics such as: The program command, file input, retrieval statements, response file, and report generation.

To list the various segments of "WBsum.info", link to the master file in the >IO directory and enter the list command. (User entries follow ":")

```
: lk >udd>Wrdbib>NTamberg>IO>WBsum.info
: ls WBsum.info                               or : ls <path>WBsum.info
```

The system will print all add_names which are indicative of their contents. Use "help" command to recall desired "info" sections!

```
: ls WBsum.info
```

Segments = 1, Lengths = 15.

```
rew 15 WBsum.info
      WBintro.info
      INPUT.info
      RETRstmt.info
      RETRpr.ec.info
      RESPONSE.info
      REPgen.info
      PROG.ex.info
      PROG.ec.info
      GWpr.ec.info
      REFORM.ec.info
      INDEX.ec.info
      DICT.ec.info
      COMPdict.info
      C+E/STDrep.ec.info
```

The access procedure using the exec_com WRDBIB.ec is listed in APPENDIX_I, section A.3.

A brief outline describing use of WBsum.info units in conjunction with the "help" command is given below. For more detail see online info segment WBhelp.info.

B.2. Access Procedure:

- (1) Establish links to WRDBIB files and programs by linking to WRDBIB.ec. This is a one-time step. (Check link in your home directory!)

```
: lk >udd>Wrdbib>NTamberg>IO>WRDBIB.ec
```

Add search path to "working directory" at the beginning of session in order not to use the "-pn" (pathname) argument:

```
: asp -wd (Add search_path of the >IO working_dir)
```

- (2) Execute--

```
: ec WRDBIB (This will place you into the Wrdbib>IO
subdirectory and list all units of the
WBsum.info segment. Then it will start
reading the first info.section which
describes the general procedure of using
"help" commands!)
```

- (3) Use "help" command to read "info" segments--*

```
: help <seg_name.info> -title
or : help -pn <seg_name.info> -title (No search path added!)
or : help <path.info> -title (No search path added!)
```

NOTE: The argument "-title" will print all section titles within a given "info" segment for the user to access.

To list user responses for selective reading of "info" segments enter at section break of any info segment: "?"
The system will print responses and usage.

- (4) Examples--

```
: help WBintro -title (Recalls the WBintro.info segment for
your information and list its section
titles.)

: help PROG.ex PROG.ec -title (These segments show how to enter input
in form of statements to the system.
PROG.ec shows actual program execution.)
```

* To learn about the "help" command enter

```
: help help.info or help help (You may disregard the info suffix!)
```

The system will start printing the info segment.

B.3. Contents of "WBsum.info":

A listing of individual WBsum.info segments is given in figure I-2 below. Select label following the ":Info:" designation for your "help" command:

```
help <segment_name> [-title]
```

Ex.: help WBintro -title

NOTE: The argument "-title" will list the section titles of any referenced info unit.

For prompts on expected user responses enter "?" at any section break.

```
:Info: WBsum: 08/04/82  Introduction to WBsum.info segments.
:Info: WBintro: WB: 08/05/82  WRDBIB PROGRAM Functions & Statements
:Info: INPUT: Input: 07/06/82  INPUT.info
:Info: RETRstmt: 07/11/82  RETRIEVAL STATEMENT & OPER.CONDITIONS
:Info: RETRpr.ec: 08/05/82  Executing RETRIEVAL PROGRAM ("Creation" Program)
:Info: RESPONSE: 07/28/82  RESPONSE file.info
:Info: C+E/STDrep.ec: C+E.ec: 08/05/82  Comp&Exec.; DUMP & STAND_MT_Rep_gen.
:Info: REPgen: 07/11/82  Creating CUSTOM_REPORT_format (RESPONSE.file)
:Info: PROG.ex: 07/14/82  HOW TO ENTER STATEMENTS INTO PROGRAM (Exercise)
:Info: PROG.ec: 07/14/82  PROG.exec with chg_mc argument (AND_logic)
:Info: GWpr.ec: 07/11/82  PROG.exec with chg_in,mc args (OR_logic)
:Info: REFORM.ec: 07/11/82  PROG.exec--Reformatting_data (REPORT_GEN.)
:Info: INDEX.ec: AUX: 08/01/82  Creating AUTHOR INDEX and Exercise
:Info: DICT.ec: 07/14/82  Creating custom PROGRAM with DATA DICTIONARY
:Info: COMPdict: 07/28/82  PROGRAM_compilation using "extdict"
```

Figure I-2.-- LISTING OF WBsum.info HEADER LINES.

C. SCHEMATIC OVERVIEW OF WRDBIB SYSTEM

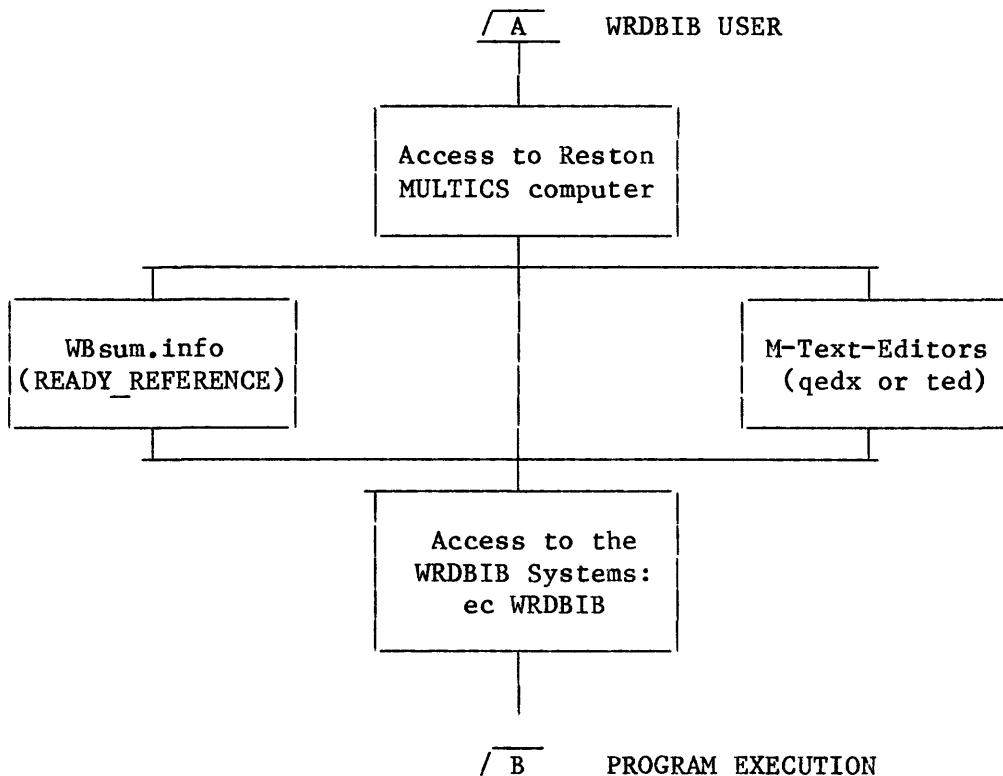
C.1. SCHEMATIC OVERVIEW: To search the WRD reports data base using Multi-trieve (MT-) RETRIEVAL AND REPORT GENERATION software and WRDBIB data and programs the user needs access to the Reston Multics computer and to the "Working Directory" containing WRDBIB files (1968 to date: 8600 records) and procedures listed below. Your working directory is: (For Access procedures see APPENDIX I.)

>udd>Wrdbib>NTamberg>IO

ACCESS MULTI TRIEVE &
WORKING DIRECTORY >IO

Containing:

- (1) WRDBIB DATA DICTIONARY
- (2) WRDBIB PROGRAMS
- (3) WRDBIB INPUT Files (DATA)
- (4) WRDBIB RESPONSE Files
- (5) ONLINE READY REFERENCE:
WBsum.info files



C.2. PROGRAM EXECUTION CHECKLIST:

EXECUTE A WRDBIB PROGRAM BY USING OR CREATING THE RIGHT RESPONSE FILE:
(Choose procedure in PATH I or II or a combination thereof.)

PATH I	PATH II
2.1. SELECT A WRDBIB PROGRAM	2.1. CREATE YOUR WRDBIB PROGRAM
2.2. SELECT A WRDBIB RESPONSE FILE	2.2. CREATE YOUR OWN RESPONSE FILE (Provide your own responses)

-- To change the REPORT FORMAT--use the MULTICS editor [qx, ted]

-- Specify report OUTPUT MEDIUM: terminal or central site

-- Specify disposition of OUTPUT files: Save: yes/no

- 2.3. USE THE PROPER PROGRAM STATEMENT (command) TO START YOUR PROGRAM!
ENTER [OPTIONAL] CONTROL ARGUMENTS BY CALLING A RESPONSE FILE WITH A
SUITABLE REPORT FORMAT AND SPECIFYING INTERACTIVE CHANGES OF SELECTED
PARAMETERS:

`<PROGRAM_NAME> [-rsp <path>] [-chg <list>]`

NOTE: You must specify the "-change" argument: "-change <list>"
together with the "-response" argument. You may specify interactive
change of one or all control parameters during PROGRAM EXECUTION:

-- change INPUT files[-chg in]
-- change MATCH (selection) criteria ...[-chg mc]
-- change SORT criteria[-chg sc]

Example:

`<NOVpr> -rsp <path> -chg in,mc
 -chg in,sc
 -chg in,mc,sc`

- 2.4. EXECUTE RETRIEVAL AND/OR REPORT GENERATION PROGRAM:

-- Respond to all queries

-- Enter statements to the system according to specified format!

See: Section C.3. ENTRY CONVENTIONS.

C.3. ENTRY CONVENTIONS:

ALL STATEMENTS TO THE SYSTEM END IN A BLANK AND A PERIOD
OR A PERIOD ON A NEW LINE!

RETRIEVAL STATEMENTS MUST BE ENTERED ACCORDING TO SPECIFIED FORMAT:

```
-----  
|<DICTIONARY VARIABLE>=<OPERATOR><VALUE>|  
-----
```

- SELECT APPROPRIATE OPERATOR TO FACILITATE ALPHAMERIC OR NUMERIC
COMPARISONS: pub=eq1981 . (DIRECT MATCH USES "equal, eq" OPERATOR.)
- USE "pn" (partial name) TO MATCH A SUBSTRING IN AN EXTENDED FIELD.
FOR EXAMPLE--SEARCHING THE "title" FIELD: tit=pn"FLORIDA" .
(Substring must be enclosed in quotation marks!)
- ALL INDEX TERMS (VALUES) ARE ENTERED IN CAPS.
- NO BLANKS ARE ALLOWED IN VALUE TERM.-- CONNECT TWO ADJACENT INDEX
WORDS USING THE UNDERSCORE: "NEW_YORK"

For a discussion of the RETRIEVAL STATEMENT format see Section II.6.
See also MATCH CRITERIA in PROGRAM EXECUTION EXAMPLES in Section III!
Online read the RETRstmt.info unit!

C.4. USE MULTICS EDITOR:

Use "qedx" or "ted" to read and edit your files. Always make sure you know the specifications of your RESPONSE file! (For application see APPENDIX_I.) A summary of basic "edit" commands is given below:

4.1 Edit mode is used to change data.

edit-

r (read)	- reads data from a file into the buffer
p (print)	- writes to the terminal
P (print)	- "ted" only: line numbers precede each line
d (delete)	- deletes line(s) in buffer
s (substitute)	- replaces characters
w (write)	- writes from the buffer to a segment
q (quit)	- terminates the editor

4.2 Input mode is used to enter data from your keyboard into the buffer. (You are using buffer 0, b0, unless you changed buffers.*)

Enter by typing-

a (append)	- add after current line
i (insert)	- insert before current line
c (change)	- replace current line

There are no request in the "input" mode. You just enter data. Exception is the "f" which ends the "input" mode and returns you to the "edit" mode. (Be sure you know which mode you are in!)

4.3 Using "qedx":

"qedx" uses an imaginary line pointer.

present location is give by	.= or =
last line in text is given by	\$=
locate by absolute line number	1 or 10 or 15
locate by relative line number	-1 or +2
locate by content of line	/xyz/

where /xyz/ = "regular expression"

"qedx" requests are addressable. The line number or range of lines should precede the "qedx" request.

1,\$p	(print complete file from first to last line)
.,15p	(print from current line through line 15)
10p	(print line 10)
p	(print current line)

"ted" supplies line-numbering feature:

1,\$P	(prints file with line number preceding each line)
-------	----------------------------------------------------

Requests may follow one another in a string except the following must be at the end of the line or on a new line:

r (read)
e (execute)
w (write)
q (quit)

This is because all except q may be followed by an argument.

* For use of buffers see Introductory Multics Handbook.

C.5. ESSENTIALS OF FILE MANAGEMENT

5.1. Multics Commands:

Familiarize yourself with basics of FILE MANAGMENT (set access, list access, link, copy, etc.)
(For applications see APPENDIX_I.)

pwd	print_working_directory
cwd <path>	change_working_directory <path>
cp <path2> [<path>]	copy <path1>
dl <path>	delete <path>
dp <path>	daemon_print <path>
ec <path>	execute <path>
la <path>	list_access <path>
lk <path>	link <path>
uk <path>	unlink <path>
ls [<-arg>]	list <-argument>
pr <path>	print <path>
rn <path1> <path2>	rename <path1> <path2>
ac ...	archive <key> <ARCHIVE> <path1> <path2> where "key" = t (table); x (extract); ad (add delete); ud (update delte); <ARCHIVE> is the archive name with suffix ".archive"

5.2. Keep Track of Your Working Directory:

- Monitor size and most recent entries
(ls -tt; ls -ft N where N=1,2,3;)
- Monitor contents and access information
(la <seg>, ls, ls -lk, ls -a;)
(ls *.<suffix>: ls *.response ; ls *.data ; ls *.report;)
(ls <prefix>* : ls auth* ; ls prefix*.* ;
ls ret_*. or ls ret*.data)
- Monitor cost (ru, ru -long)

(See Section III.D. and APPENDIX_III: WRDBIB RETRIEVAL SESSION step 10.)

D. LISTING OF MULTICS READY_REFERENCE SECTIONS:

03/24/83 Ready References

D.1. Introduction:

Ready References are compact segments of documentation, with two purposes:

- (1) To give users an opportunity to use the main features of Multics commands or functions that they are not familiar with, without having to read the complete documentation.
- (2) To serve as quick references for all users--new or experienced--to the more commonly-used features of various commands and functions.

Each ready reference segment consists of specific instructions and examples. It is not intended that these references will replace existing documentation; it will often be necessary to refer to the full documentation. In particular, Commands and Active Functions, order number AG92, gives more detail about the use of Multics commands presented here. MPM Reference Guide, AG91, gives information about the general usage of Multics.

TABLE OF CONTENTS:

Name	No.	Revised	Subject
----	---	-----	-----
abbrev_rr	15	08-13-80	Creating abbreviations
abs_rr	14	08-29-80	Submitting absentee jobs
archive_rr	07	08-13-80	Archiving segments
buffer_rr	13	08-29-80	Use of buffers with qedx and ted
carry_rr	10	08-29-80	Moving files from one site to another
compose_rr	20	03-10-81	Formatting manuscript text with compose
con_rr	05	03-24-83	Computer managed meetings (continuum)
help_rr	19	03-11-83	Using the help command
labels_rr	11	07-02-81	Making address files and labels
lts_rr	04	08-13-80	Logging interactive terminal sessions
mail_rr	03	04-22-81	Sending mail and messages to other users
new_user_rr	01	03-11-83	Helpful information for new users
probe_rr	06	03-12-81	Probe, debugging aid for compiled programs
qx_rr	02	08-14-80	The qedx editor, and how to edit segments
read_mail_rr	17	08-29-80	Reading mail and messages from others
ready_ref		03-11-83	Introduction and table of contents for rrs
runoff_rr	08	08-14-80	Creating manuscript text with runoff
segs_rr	12	08-14-80	Common commands used with segments
send_mail_rr	16	08-29-80	Sending mail to other users
tab_it_rr	09	08-29-80	Creating data formatted in columns
ted_rr	18	05-26-82	Creating and editing text using ted

D.2. Getting Copies:

There are three ways to get a copy of any of the ready reference segments. To get a copy of the segment about computer managed meetings, for example, do one of the following:

1. Type: `help con_rr -all`
2. Dprint a copy by typing: `dp >doc>iis>con_rr.info`
3. Call any of the ISD offices listed below to get an 8 1/2 by 11 inch printed page, or a bound set of all the Ready References.

	FTS	COMMERCIAL
Denver, CO	234-5322	(303)-234-5322
Flagstaff, AZ	261-1312	(602)-779-3311 Ext.1312
Menlo Park, CA	467-2663	(415)-326-2663
Reston, VA	928-7123	(703)-860-7123

Using "help" Command:

To review parts of a ready reference, the help command may be used with the -title argument.

`help rdm_rr -title`

This prints a heading line, a list of section titles, the number of lines in each section, and then asks:

More help?

You can then type the section request to read the one you want to see next:

`scn examples` (The system will read section "examples".)

SECTION II.

INTRODUCTION TO WRDBIB FEATURES

- A. PROGRAM EXECUTION OVERVIEW
- B. WRDBIB FILES AND STATEMENTS
- C. OUTPUT FEATURES

SECTION II

INTRODUCTION TO WRDBIB FEATURES

A. PROGRAM EXECUTION OVERVIEW.

A.1. WRDBIB PROGRAM FEATURES:

WRDBIB, a Multi_trieve application program, was created to provide an easy method of retrieving data and generating reports from WRDBIB bibliographic data files. To aid the user the Multi_trieve program operates in a tutorial mode; however, for effective use a working knowledge of the MULTICS command language and the use of its editors [qedx or ted] is most desirable. The Multi_trieve program is available at both MULTICS sites: Reston and Denver.

The RETRIEVAL process operates in two stages:

(1) Program Creation:

The user links to the Multi_trieve system using the exec_com:

```
-----  
| ec multi_trieve |  
-----
```

NOTE: A link to >udd>Userast>LHarms>multitrieve must be provided in the working_directory. (See APPENDIX_I for description of >IO directory.)

The user provides the name of the INPUT segment to be searched and a DATA DICTIONARY describing the record variables. From this information the program creates a customized retrieval PROGRAM for the user. (See section B.2. below. Online read WBSum.info segment: COMPdict.info.)

(2) Program Execution:

To execute a program the user must issue the program command (PROGRAM STATEMENT) that will link him/her to the Multi_trieve system and initiate processing according to custom features specified by the associated [optional] arguments. This involves the actual execution of all user responses as entered at the terminal, or specified in the form of a selected RESPONSE file supplied in argument form: "-rsp <path>". An optional "-change_list" argument, entered together with the "-response" argument allows the user to interactively change custom parameters:

```
-----  
| <PROGRAM NAME> [-rsp <path>] [-chg <list>] |  
-----
```

where "list" may include: "in" (INPUT file), "mc" (MATCH criteria), and "sc" (SORT criteria) in any combination.

See: Section_III for a detailed discussion of WRDBIB program execution procedures.

A.2. PROGRAM STATEMENT (Command):

To execute a program the user must issue the program command that will link him to the Multi_trieve system and initiate processing according to custom features which may be entered at the terminal or specified by the associated [optional] arguments. The following PROGRAM STATEMENTS apply to WRDBIB program execution: (Brackets denote optional arguments!)

```
-----  
| <PROGRAM NAME> [-rsp <path>] [-chg <list>] |  
-----
```

EXPLORATORY RETRIEVAL/CREATING RESPONSE FILE: (Use PROGRAM NAME: "NOVpr".)

NOVpr -- execute to list its associated DATA DICTIONARY.
 Use "BREAK" key to interrupt further execution!

 -- execute exploratory retrieval programs, "dump-
 listing" sample records at the terminal and
 saving the retrieved data segments.

 -- execute a full retrieval and report generation
 program in order to create your own RESPONSE file.

REPORT GENERATION:

NOVpr -rsp FORM -- the "rsp <path>" argument supplies a set of respon-
NOVpr -rsp AUT ses, created during a previous program execution,
 and saved as RESPONSE file: "<path>.response".
 (Be sure you know the specified INPUT file!)

 -- FORM.response together with the statement:
 "MATCH criteria:=all .", that is "ALL RECORDS WILL
 BE SELECTED", will reformat a previously retrieved
 data segment (named by either the RESPONSE file
 or the PROGRAM. (Executing with control arguments--
 see below!))

 -- AUT.response under the same conditions will create
 an AUTHOR INDEX for a given INPUT file: Again,
 "ALL RECORDS WILL BE SELECTED." (See also below!)

RETRIEVAL AND/OR REPORT GENERATION:

NOVpr -rsp FORM -chg in,mc,sc
NOVpr -rsp newpr -chg in,mc
NOVpr -rsp AUT -chg in,sc

 -- the "chg_list" argument (where <list> = in, mc, sc)
 specifies which CONTROL ARGUMENTS may be changed
 interactively during program execution.

 -- if "MATCH criteria:=all ." the program is used to
 reformat a previously retrieved segment using the
 "-chg in" option to interactively change the INPUT
 file; "-chg sc" allows to change the SORT sequence.

A.3 SYSTEMS FEATURES: Briefly the features of the WRDBIB program are as follows: (See section II.B for a description of these applied Multi_trieve features.)

FILE INPUT: An arbitrary number of INPUT files can be used for any given run. All of the INPUT files must be compatible with the DATA DICTIONARY used during the creation of the WRDBIB custom program. File input may be changed interactively by specifying a PROGRAM STATEMENT (command) with control arguments and entering the "change in" argument as follows: NOVpr -rsp FORM -chg in

RECORD SELECTION: The basic RETRIEVAL STATEMENT consists of a name from the DATA DICTIONARY designating the variable field (a constant), an operator relating how this constant is to be compared to the corresponding value (a variable) in the INPUT record (the search term).

Operators defining relational conditions for numeric variables are: "equal to, eq"; "greater than, gt"; "less than, lt"; "range, rg" between two values; numeric "or".

To compare alphameric strings we use the "partial name, pn" operator followed by the value term --enclosed in quotes-- which identifies a unique string within an extended variable field. For example, when searching the title field (tit), citation field (cit), or the descriptor field (des):

```
tit=pn"FLORIDA"
des=pn"AQUIFER" .
```

NOTE: ALL VALUE TERMS MUST BE ENTERED IN CAPITAL LETTERS.
THE LAST RETRIEVAL STATEMENT MUST END IN A BLANK AND A PERIOD
OR A PERIOD ON A NEW LINE.

The "equal, eq" operator may be used for direct match of short alphameric fields, such as the WRSIC (accession) number. (For example: 80-00562 where the dash "-" is a nonnumeric character!)

Complete selection criteria may consist of any number of basic RETRIEVAL STATEMENTS. (Each variable field may be referenced once only during a given RETRIEVAL run!) These MATCH criteria can be changed interactively provided, a "change mc" argument has been included in the PROGRAM STATEMENT: NOVpr -rsp FORM -chg mc.

OUTPUT: After the desired records have been selected various REPORTS can be printed. The user can elect to simply "dump" some of the records at the terminal or at the central site, use the "Standard_MT" (Multi_trieve) report format, or create his own format by using a suitable customized RESPONSE file. (See section II.B.7. RESPONSE FILE.) The user has the option to SORT his "standard_MT" or custom REPORT.

OUTPUT segments can be saved for later use. The segments are identified by the system as follows: ("XXXX" are numeric identifiers!)

retXXXX.report	contains the user's report.
ret_XXXXXX.data	contains the retrieved data segment.
ret_XXXXXX.response	contains the saved user RESPONSE file if it was created during the session!

A.4. SYSTEMS RESPONSES: When the user executes a WRDBIB program, it will perform the following program functions: (For example see fig. II-1.)

- If response argument entered, read the RESPONSE segment and state the <resp_path>.
- State the path of your INPUT file. In response to the "change_in" statement query the user for the name of a different INPUT file, or of additional INPUT file(s).
- Query the user for statement of MATCHING criteria ("mc"). Read them back to you and ask for your verification or correction.
- Retrieve the desired records; state the number of records read and the number of records selected for each file.
- Provide the following output options: (a) "dump-listing, (b) generate a report using MT-"standard" format, or (c) generate report "custom"-formatted by the user. (d) No report. In every event the system will save data segment for future use.
- Generate a custom-formatted report according to specifications of your RESPONSE file. You will be asked to provide inter-actively: (a) Your REPORT title; (b) designate if you wish "descriptors" to be printed in your custom REPORT.
- Provide for SORTING of the retrieved records. If you entered a "change_sc" argument, you will be asked to designate an alternate SORT sequence.
- Print or display a formatted report at a specified site (terminal or central/remote site.)
- * -- Query the user if he wishes to prepare "another report".
- * -- Query the user if he wishes to make (execute) "another run".
- ** -- Allow the user to save the PROGRAM and his OUTPUT files including the newly created RESPONSE file for later use.

Compare the responses (instructions) contained in a given RESPONSE File against the above list of possible program functions. (See Section B.7.3. RESPONSE File--EXAMPLE: Fig. II-7.)

-
- * Only during initial RETRIEVAL program requiring user-supplied responses. (The user creates his own RESPONSE file.) Yes/no responses solicited.
 - ** Only during "Creation Program" when the user compiles his custom PROGRAM and creates a customized RESPONSE file--yes/no response! The system will also save REPORT and DATA segments--if the user or his RESPONSE file so indicate. (The user may edit his RESPONSE file accordingly: Yes/no responses are required.)

A.5. PROGRAM EXECUTION EXAMPLE USING WRDBIB LIBRARY FILES.

The PROGRAM STATEMENT specifies a change of MATCH criteria given in the RESPONSE file: "Form.response". (See: Section III. PROGRAM EXECUTION.)
 NOTE: User statements and responses follow the initial colon ":"!

```
: NOVpr -rsp FORM -chg mc <----- PROGRAM COMMAND
MULTI_TRIEVE RESPONSES READ FROM FILE
>user_dir_dir>Wrdbib>NTamberg>FORM.response <----- "RESPONSE" path
INPUT FILES: >user_dir_dir>Wrdbib>NTamberg>auth81 <----- INPUT file

ALL RECORDS WILL BE SELECTED. <----- "-chg mc" prompt
DO YOU WISH TO CHANGE, AND OR DELETE ANY OF THESE VALUES?
: yes
TO DELETE A VARIABLE ENTER A d AS THE VALUE, SUCH AS xx=d
TO ADD OR CHANGE A VARIABLE ENTER AS NORMAL INPUT
SUCH AS xx=eq....
ENTER MATCHING CRITERIA FOR RECORD SELECTION.
: aut=pn"POST" <-----
ENTER YOUR ADDITIONAL CRITERIA. RETRIEVAL
: des=pn"GLACIER" . <----- STATEMENTS

NAME CONDITION VALUE
aut pn POST
des pn GLACIER ] "AND"-Logic

DO YOU WISH TO CHANGE OR DELETE ANY OF THESE VALUES?
: no <----- RETRIEVAL
TOTAL NUMBER OF RECORDS READ = 640
TOTAL NUMBER OF RECORDS SELECTED = 5
* "Enter title line" <----- REPORT-
: A. POST's GLACIER REPORTS for 1980/81: GENERATION

** <-----
THE NAME OF SAVED REPORT PRINT FILE IS ret3522.report <--- FILE OUTPUT
THE NAME OF THE SAVED DATA SEGMENT IS ret_183478.data <---
END OF JOB (Level 2)
r 16:35 4.547 612 level 2 ("Ready" message)
```

```
* Interactive prompt for custom report title.
** The SORT criteria (sc) of the FORM.response file specify
    SORT by WRSIC number: "wno a ."
```

Figure II-1.--PROGRAM EXECUTION USING CONTROL ARGUMENTS: RESPONSE File responses are altered online by argument: "-change mc".

A.6. CUSTOM REPORT FORMAT:

POST's GLACIER REPORTS

DATE: 01/31/83

PAGE: 1

- 1 POST, A.; 1980
PRELIMINARY BATHYMETRY OF MC CARTY FIORD AND NEOGLACIAL
CHANGES OF MC CARTY GLACIER, ALASKA,
GEOLOGICAL SURVEY OPEN-FILE REPORT 80-424, 1980. 4 SHEETS.
81-00056
- 2 POST, A.; 1980
PRELIMINARY BATHYMETRY OF AIALAK BAY AND NEOGLACIAL CHANGES
OF AIALIK AND PEDERSON GLACIERS, ALASKA,
GEOLOGICAL SURVEY OPEN-FILE REPORT 80-423, 1980. 1 SHEET.
81-00057
- 3 POST, A.; 1980
PRELIMINARY BATHYMETRY OF BLACKSTONE BAY AND NEOGLACIAL
CHANGES OF BLACKSTONE GLACIERS, ALASKA,
GEOLOGICAL SURVEY OPEN-FILE REPORT 80-418, 1980. 2 SHEETS.
81-00138

Figure II-2a.--A TYPICAL CUSTOM REPORT: POST's GLACIER REPORTS.
The bibliographic citation format is specified by RESPONSE file
FORM.response. Records were sorted numerically on the WRSIC_no.

POST's GLACIER REPORTS (1980+)

DATE: 01/31/83

PAGE: 1

- 1 POST, A.; 1980
PRELIMINARY BATHYMETRY OF MC CARTY FIORD AND NEOGLACIAL
CHANGES OF MC CARTY GLACIER, ALASKA,
GEOLOGICAL SURVEY OPEN-FILE REPORT 80-424, 1980. 4
SHEETS.
*BATHYMETRY, *GLACIERS, *ALASKA, *GLACIAL DRIFT,
*ICEBERGS, GLACIAL SEDIMENTS, FJORDS, SCOUR, DATING,
GLACIOLOGY, HYDROGRAPHY, MAPS, PROFILES, *MCCARTY
GLACIER(AK), *MCCARTY FIORD(AK).
81-00056
- 2 POST, A.; 1980
PRELIMINARY BATHYMETRY OF AIALAK BAY AND NEOGLACIAL CHANGES
OF AIALIK AND PEDERSON GLACIERS, ALASKA,
GEOLOGICAL SURVEY OPEN-FILE REPORT 80-423, 1980. 1
SHEET.
*BATHYMETRY, *GLACIERS, *ALASKA, *GLACIAL DRIFT,
*ICEBERGS, GLACIAL SEDIMENTS, FJORDS, SCOUR, DATING,
GLACIOLOGY, HYDROGRAPHY, MAPS, PROFILES, *AIALIK BAY(AK),
AIALIK GLACIER(AK), PEDERSON GLACIER(AK).
81-00057

Figure II-2b.--CUSTOM REPORT WITH DESCRIPTORS: POST'S GLACIER REPORTS.
Report format is specified by RESPONSE file: "newpr.response".

II.B. WRDBIB FILES AND STATEMENTS

B. WRDBIB FILES AND STATEMENTS.

B.1. DATA FILES AND STATEMENT FORMATS REQUIRED FOR PROGRAM EXECUTION:

To execute a RETRIEVAL and REPORT-GENERATION PROGRAM using the multi_{trieve} software, the user must have access to the following four types of files:

- (1) <DATA DICTIONARY> -- lists the retrievable (addressable) variables by their label. (optional print label), starting position within the input record, and size. The DATA DICTIONARY is used to compile a custom MULTI_{TRIEVE} PROGRAM against WRDBIB INPUT files. (See DICT.ec.info!) The user must know his variables in order to formulate his MATCH criteria in terms of RETRIEVAL STATEMENTS.
- (2) <PROGRAM> -- The PROGRAM provides a framework for systems' queries and user responses. The PROGRAM name acts as a COMMAND starting program execution according to user responses.
- (3) <INPUT FILES> -- are DATA files or segments which the user may search according to specified selection/MATCH criteria. INPUT files must be compatible with the format specified in the DATA DICTIONARY used for PROGRAM compilation. (See INPUT.info.)
- (4) <RESPONSE FILES>* -- constitute the sum-total of all responses provided by the user during the execution of a given retrieval and/or report-generation PROGRAM. RESPONSE files may be stored and recalled in argument form (-response <path>) for retrievals which make use of the same REPORT format specifications. To change some of the RESPONSE file parameters online a "-change_{list}" argument may be added to the PROGRAM STATEMENT. (See RESPONSE.info!)

PROGRAM STATEMENT: PROGRAM entry syntax to start program execution is given below: (See Section III for PROGRAM EXECUTION procedures.

```
-----  
| <PROGRAM_name> -rsp <path> -chg <change_list> |  
-----
```

For example:

```
NOVpr -rsp FORM -chg in mc  
NOVpr -rsp AUT -chg in,sc
```

This will prompt the following changes online:

- "-chg in" will allow change of INPUT file(s)
- "-chg mc" will allow change of MATCH criteria
- "-chg sc" will allow change of SORT criteria

* The use of a custom RESPONSE file is optional; the user may choose to supply his/her own responses!

B.2. DATA DICTIONARY:

The DATA DICTIONARY contains all data elements describing the WRDBIB data files and all input segments derived from it to be used in retrievals.

There is no limit to the number of variable names the DICTIONARY can contain or to the length of the names. The variable names cannot contain any special characters except the underscore, "_". The DICTIONARY must contain the retrieval name, starting position (no.), and size of each variable field (number of characters); the elements must be separated by blanks. Print names may be included optionally following the corresponding retrieval name, separated by blanks. If the print name is to include blanks, it must be enclosed in quotes. (Print names are used as headers in standard reports.) The DATA DICTIONARY does not have to define every character in the input record, only those the user is interested in. The variables can be in any order, overlap one another, or skip characters.

The user can provide the DATA DICTIONARY describing WRDBIB input segments in one of two ways:

- The DATA DICTIONARY may be created by using the Multics text editor.
- The system can query the user to enter his DATA DICTIONARY descriptions directly into the PROGRAM.

RETRIEVAL NAME	PRINT NAME	START POS	FIELD LENGTH
wno	wrsic.no	1	8
acyr	acc.yr	1	2
acno	acc.no	4	5
aut	author	9	90
sso	source	99	120
tit	title	219	200
cit	citation	419	230
des	descriptor	649	380
pub	pub.yr	1029	4
idn	ident	1033	2

Figure II-3.--DATA DICTIONARY DESCRIPTION: "extdict"

B.2.1 DICTIONARY CREATED IN MULTICS TEXT EDITOR:

(User entry follows the colon, ":",!))

```
: ted      <----- call editor "ted"
: i        <----- enter "input" mode
: wno WRSICno 1 8
: acyr 1 2
: acno 4 5
: aut author 9 90
: sso source 99 120
: tit title 219 200
: cit citation 419 200
: des descriptor 649 380
: pub pub.yr 1029 4
: idn 1033 2
: \f      <----- exit "input" mode
: w extdict <----- write to segment_name (save)
: q       <----- quit editor
```

r ____ (Your "ready" message at Multics command level)

The segment "extdict" now contains a DICTIONARY describing a data segment (INPUT record) to be used in retrievals.

APPLICATION: The DATA DICTIONARY is used to create a custom PROGRAM by linking to MULTI_TRIEVE software and compiling against a WRDBIB INPUT (DATA) file. The syntax is as follows:

```
or  |      : ec multi_trieve extdict
    |      : ec multi_trieve extdict [-norun]
    |-----|
```

where the optional [-norun] argument prevents immediate execution of the newly created program!

NOTE: See also online "help" segments: DICT.ec.info
COMPdict.info

B.2.2 DICTIONARY CREATED DURING CREATION PROGRAM:

The user enters the MULTI_TRIEVE "exec_com": (See: Multics Handbook!)

```
-----  
|      ec multi_trieve      |  
-----
```

and the system will solicit the DATA DICTIONARY from him. (Fig. II-4 .)

The user enters the retrieval name, print name (optional), starting position, and size of each variable of his DATA DICTIONARY separated by blanks. When completed the user transmits a blank and a period. (Note: The colon ":" is followed by user entries!)

```
      : ec multi_trieve  <----- Link to Multi_trieve  
      ec >udd>Userast>LHarms>multi_trieve  
      ENTER NAME DESIRED FOR YOUR RETRIEVAL PROGRAM  
      : RETRpr <----- PROGRAM name  
      DO YOU WANT TO SAVE THE DICTIONARY YOU ARE GOING TO INPUT?  
*      : yes  
      PLEASE ENTER NAME FOR THIS DICTIONARY:  
      : tempdict <----- DICTIONARY name  
      TRANSMIT NAME(S), STARTING POSITION AND SIZE OF EACH VARIABLE  
      FOR YOUR DATA DICTIONARY, SEPARATED BY BLANKS  
      NO IMBEDDED BLANKS ALLOWED IN NAME(S)  
      WHEN FINISHED TRANSMIT A PERIOD .  
      : wno WRSICno 1 8 <-----  
      : aut AUTHOR 9 90 <-----  
      : tit TITLE 219 200 <----- DICTIONARY input  
      : pub PUByr 1029 4 <-----  
      : . <-----  
      NAME OF INPUT DATA FILE  
      : auth81 <----- INPUT file  
      COMPILING YOUR RETRIEVAL PROGRAM, PLEASE WAIT FOR NEXT QUESTION.
```

PL/I 26a

```
-----  
      <----- Hit BREAK key here to prevent  
               immediate program execution!
```

..... or: Continue executing your "CREATION PROGRAM"
--the system will prompt you!

Figure II-4.--DATA DICTIONARY CREATED DURING PROGRAM EXECUTION.

* NOTE: The user has the option of saving the DATA DICTIONARY that was just entered. This DATA DICTIONARY could then be used later for PROGRAM compilation using method B.2.1. (See COMPdict.info .)

B.3. CREATING A WRDBIB PROGRAM: (COMPILING)

When the user activates the Multi_retrieve process in order to create a custom WRDBIB PROGRAM he/she can specify the name of a segment which contains the DATA DICTIONARY.

PROCEDURE: To initiate program compilation use the "exec_com": multi_retrieve.ec and optional arguments as given below.

```
-----  
| ec multi_retrieve  [<dict_path>]  [-norun]  |  
-----
```

- the system will ask the user to supply a PROGRAM NAME,
- the system will ask the user to supply the name of the INPUT file,
- the system will ask the user to supply the a DATA DICTIONARY in order to define the variables in the INPUT file--provided, a DICTIONARY has not been referenced in argument form in the exec_com command!
- the optional [] "-norun" argument prevents immediate execution of the newly created PROGRAM.

A "PROGRAM CREATION" example using a WRDBIB DATA DICTIONARY is given in fig. II-5 . (For direct input of a DATA DICTIONARY into the PROGRAM see fig. II-4.)

```
: ec multi_retrieve extdict -norun  
ec >udd>Userast>LHarms>multi_retrieve extdict -norun  
ENTER NAME DESIRED FOR THE RETRIEVAL PROGRAM:  
: NOVpr  
NAME OF INPUT FILE  
: auth81  
COMPILING YOUR RETRIEVAL PROGRAM, PLEASE WAIT FOR NEXT QUESTION.  
  
PL/I 26a  
DO YOU WANT TO SAVE YOUR RETRIEVAL PROGRAM FOR LATER USE?  
: yes  
THE NEXT TIME YOU WANT TO EXECUTE YOUR PROGRAM ENTER THE COMMAND  
NOVpr  
  
GOOD BYE  
r _____ (Your "ready" message!)
```

Figure II-5.--CREATING A CUSTOM PROGRAM USING A WRDBIB DICTIONARY.
The program is saved for future application.

See also: Online ready reference -- COMPdict.info.

B.4. INPUT FILES:

B.4.1. WRDBIB INPUT FILES:

The user has the option to search the following primary INPUT files:

- (1) The "Master" file: "auth6880" -- containing 7407 records, and
- (2) the "Current" (update) files.

- (1) The "Master" file: "auth6870" (6637 records) tape-archived*
(partitioned into "auth7174"
four sections) "auth7578"
"auth7980" (770 records) " " "
- (2) The "Current" files :
Update files 1979/80: "auth356" (356 records)
("auth80")
Acc.yr. 1981 to 5/82 : "auth81" (827 records)

*

tape-archived INPUT files may be recalled on demand. (See APPENDIX_I)
for procedure.)

The user may substitute the names of other files to be searched. These files may be subsets of the Master file or the Current files which have been retrieved on a major retrieval key: ret_XXXXXX.data. (See APPENDIX_III, steps 7, 8, 9.)

All files specified will be searched to find records that meet the MATCH criteria. When the program finishes searching a file, it will print the name of the file, the number of records read, and the number of records retrieved. The program retains the names of all INPUT files until the user is finished with his session. The next time the program is executed, the user will once again have the opportunity of searching other files.

B.4.2 ALTERING INPUT FILES DURING PROGRAM EXECUTION:

When the user enters the "-change in" argument in addition to the "-response <path>" argument in his PROGRAM STATEMENT:

```
-----  
| NOVpr  -rsp FORM  -chg in |  
-----
```

the system will print the following prompts:

```
YOUR CURRENT INPUT FILE IS >udd>Wrdbib>NTamberg>auth7980  
DO YOU WISH TO USE A DIFFERENT INPUT FILE?  
: (yes/no) <----- USER response  
THE NEW INPUT FILE MUST BE COMPATIBLE WITH THE DICTIONARY  
DESCRIBING THE OLD INPUT FILE.  
PLEASE ENTER THE NAMES OF INPUT FILES.  
THE NAMES MUST BE SEPARATED BY BLANKS.  
THE LAST NAME MUST BE FOLLOWED BY A BLANK AND A PERIOD.  
: auth81 . <-----USER response  
DO YOU WANT TO SEARCH ADDITIONAL FILES WHICH CONFORM  
TO THE DICTIONARY?  
: (yes/no) <----- USER response, if yes, see below!  
INPUT FILES: >udd>Wrdbib>NTamberg>IO>auth81
```

The user may search several files simultaneously. Additional files may be entered as response to the second prompt:

```
.....  
  
DO YOU WANT TO SEARCH ADDITIONAL FILES WHICH CONFORM  
TO THE DICTIONARY?  
: yes  
PLEASE ENTER THE NAMES OF INPUT FILES.  
THE NAMES MUST BE SEPARATED BY BLANKS.  
THE LAST NAME MUST BE FOLLOWED BY A BLANK AND A PERIOD.  
GW.dt Org.dt .  
ANY MORE FILES TO SEARCH?  
: no  
INPUT FILES: >udd>Wrdbib>NTamberg>IO>auth81  
              >udd>Wrdbib>NTamberg>IO>GW.dt  
              >udd>Wrdbib>NTamberg>IO>Org.dt
```

NOTE: All the files selected must conform to the DATA DICTIONARY describing the original file. (See section B.2.)

NOTE: If the name of a file entered does not exist, the PROGRAM will notify the user of the problem. The user may reenter any incorrect file names.

For examples of INPUT procedures see SECTION III: Fig.s III-6, III-7, III-9.
Online see: INPUT.info, PROG.ex.info, and PROG.ec.info.

B.5. DEFINING PROGRAM VARIABLES:

B.5.1 CHECKING INTERNAL PROGRAM DICTIONARY:

Before beginning his retrieval session using a WRDBIB PROGRAM, the user should make sure he knows its DICTIONARY specifications. A brief check may be run by entering the PROGRAM name and executing as shown below. (Fig. II-6.)

NOTE: The colon ":" denotes user response.

```
: NOVpr
  YOUR CURRENT INPUT FILE IS >udd>Wrdbib>NTamberg>IO>auth81
  DO YOU WISH TO USE A DIFFERENT INPUT FILE?
: no
  DO YOU WANT TO SEARCH ADDITIONAL FILES WHICH CONFORM
  TO THE DICTIONARY?
: no
  DO YOU WANT TO SEE THE DICTIONARY?    <-----
: yes
      DICTIONARY DESCRIPTION
RETRIEVAL NAME  PRINT NAME      START POS    FIELD LENGTH
wno             wrsic.no       1             8
acyr            acc.yr         1             2
acno            acc.no         4             5
aut             author         9            90
sso             source        99           120
tit             title         219           200
cit             citation       419           230
des             descriptor     649           380
pub             pub.yr        1029            4
idn             ident         1033            2

DO YOU HAVE ANY STRICTLY NUMERIC FIELDS IN YOUR DATA ...
      To interrupt program execution hit BREAK key here <-----
```

Figure II-6.--CHECKING PROGRAM DICTIONARY.

B.5.2 DECLARING NUMERIC VARIABLES:

Notice that we are dealing with string variables up to 380 characters long. We have defined both, alphabetic and numeric variables; the latter must be declared as numeric when numeric comparisons are desired. (See RETRIEVAL STATEMENT.) They may be treated as alphameric strings, if so desired. To define numeric variables proceed as follows:

```
DO YOU HAVE ANY STRICTLY NUMERIC FIELDS IN YOUR DATA
THAT YOU WANT TREATED AS NUMERIC VARIABLES FOR COMPARISON PURPOSES?
: yes
PLEASE ENTER THE VARIABLES TO BE TREATED AS NUMERICS
THE NAMES MUST BE SEPARATED BY BLANKS
THE LAST NAME MUST BE FOLLOWED BY A BLANK AND A PERIOD.
: pub acyr acno .*
```

Notice the format: One or more variables from the DICTIONARY are entered separated by blanks; the statement ends with a blank and a period.

The user defined the publication year (pub), the accession year (acyr), and the accession number (acno) as numeric variables. Therefore, numeric comparisons may be specified in subsequent RETRIEVAL STATEMENTS using operators "equal, eq", "greater than, gt", "less than, lt", the numeric "or", the "range" between to numerics. (See examples in section B.6.)

B.6. RETRIEVAL STATEMENT.

B.6.1 HOW TO FORMULATE YOUR RETRIEVAL STATEMENT: The user must know how to formulate his RETRIEVL STATEMENT(s). The following syntax applies:

<code><variable name>=<relational operator><VALUE></code>

where <variable name> is one of the variable fields listed in the DICTIONARY.
<relational operator> designates the condition to be checked (eq, pn, lt, gt, rg, or), and
<VALUE> refers to a particular INDEX TERM to be matched in the INPUT file(s). (The <VALUE> string must be entered in CAPITAL LETTERS!)

NOTE: When searching WRDBIB input files described by the WRDBIB DICTIONARY the best search results are achieved with three or less RETRIEVAL STATEMENTS--which comprise the MATCH criteria (mc).

A GIVEN ENTRY OF MATCH CRITERIA MUST END IN A BLANK AND A PERIOD OR A PERIOD ON A NEW LINE FOLLOWING THE LAST RETRIEVAL STATEMENT.

B.6.2 RETRIEVAL RELATIONAL OPERATORS: The following relational operators can be used in a general retrieval request:

DESCRIPTIVE NAME	RETRIEVAL NAME	APPLICATION
partial name match (partial notation)	pn	-- -- for alphameric strings
equal	eq	-- -- for alphameric comparisons
less than	lt	--
greater than	gt	-- -- for numeric comparisons *
range	rg	--
numeric or	or	--

The user may wish to create a report using ALL the records in the data file. The special retrieval command to inform the program that all records are to be retrieved is the condition: "all ."

* WRDBIB variables which may be treated as numerics are: Publication year, pub; (WRSIC) accession year, acyr; and accession number, acno. (See fig. II-6 DICTIONARY DESCRIPTION. See also Examples in section B.6.3.)

B.6.3 EXAMPLES:

Enter RETRIEVAL STATEMENTS according to format shown below. The system will prompt you as follows:

- (1) When providing your own responses to a RETRIEVAL program:

```
ENTER MATCHING CRITERIA FOR RECORD SELECTION
: <----- Enter RETRIEVAL STATEMENT
```

- (2) When using "-response" and "-change mc" arguments:

```
ALL RECORDS WILL BE SELECTED.
DO YOU WISH TO CHANGE, AND OR DELETE ANY OF THESE VALUES?
: (yes/no)          (If yes, the system will specify the entry format)

TO DELETE VARIABLES ENTER A d AS THE VALUE , SUCH AS xx=d
TO ADD OR CHANGE A VARIABLE ENTER AS NORMAL INPUT
SUCH AS xx=eq....          (or xx=pn"...." . See below!)

ENTER MATCHING CRITERIA FOR RECORD SELECTION.
: <----- Enter RETRIEVAL STATEMENT
```

For string searches use the "partial name, pn" operator:

NOTE: The term that is to be matched within a variables field follows the pn operator and must be enclosed in quotes.

```
: des=pn"ACID_RAIN" .      (No blanks are allowed between words--
                           must use underscores to connect!)
```

For numeric comparisons:

NOTE: The relational operators "range, rg", and "or" use the slash "/" to separate one value from another. If any value used with these operators contains a slash, each slash must be preceded by the escape character " \" to notify the program that the next slash is part of the value and not the delimiter! (See Multi trieve Manual.)

```
pub=lt1980 .              (to retrieve reports published before 1980)

acyr=eq82 .                (to retrieve reports accessed in 1982
acno=or00066/00075/00123 .  having specified accession numbers)

pub=rg1980/1982 .          (to retrieve reports published during
                           1980, 1981, 1982.)
```

For direct (alphameric) comparisons use operator: "equal, eq"

```
wno=eq81-00756 .          (to retrieve by direct accession number match.
                           where "-" is a non-numeric character.)

pub=eq1981 .              (to retieve all reports published in 1981.)
```

(See also EXAMPLES in Section_III: Figs. III-3 and III-5.)

B.6.4 COMPOUND (LOGIC) OPERATORS: "AND"/"OR".

To formulate a desired search the user may compound his retrieval statements by introducing logic operators:

"OR" logic within one variable field
"AND" logic combining two or more variable fields

"OR" logic allows to specify alternate forms of a descriptor or all applicable descriptors denoting one search concept.

"AND" logic allows to combine two or more search concepts, such as the "author" statement and a "title" term; a "citation" term and a "descriptor" value. (See EXAMPLES below.)

APPLICATION OF "AND/OR" (LOGIC) OPERATORS: Boolean logic is used implicitly in Multi_trie retrieval statements.

EXAMPLE of "AND" Logic--when searching the Current file: "auth81":

RETRIEVE ALL MAP REPORTS AUTHORED OR COAUTHORED BY POST SINCE 1980

Upon system prompt type compound RETRIEVAL STATEMENTS as shown below:

ENTER MATCHING CRITERIA FOR RECORD SELECTION

: aut=pn"POST"

: cit=pn"MAP" .

(Compare fig. II-1.)

EXAMPLE of "OR" Logic:

Use "OR" operator to retrieve all aspects expressing one search concept.

Use "OR" operator to express variant spelling forms of desired index term.

: des=pn"GROUNDWAT"GROUND-WAT"GROUND_WAT"AQUIFER"WELL" .

NOTE: The user may use combinations of "AND/OR" logic as long as the every variable field is only referenced once during a given RETRIEVAL run.

NOTE: Two successive RETRIEVAL runs will result in "AND" logic, when the second program uses the data retrieved in the first run as INPUT in the second. This approach is used for large volume output. See RETRIEVAL PROBLEM illustrated by the "Retrieval Session" in APPENDIX III.

(See also APPENDIX III: WRDBIB RETRIEVAL SESSION. Step 2.)

B.7. RESPONSE FILE:

B.7.1 RESPONSE FILE FUNCTION:*

The RESPONSE file incorporates all system's queries and the responses provided by the user during an entire MULTI_TRIEVE session. Such a session may include several retrievals and several reports. The purpose of a customized RESPONSE file is to allow the user to run similar retrieval and report generation programs without having to reenter all the detailed specifications. The label for the RESPONSE file is of the form retXXXXXX.response where "XXXXXX" is a numeric. (The user is advised to rename his customized RESPONSE files; the suffix ".response" must be retained.)

To use the RESPONSE file, the user enters it as an argument when the MULTI_TRIEVE program is executed. The program statement is of the form:

```
-----  
| NOVpr -rsp <path_name> [-chg <list>] |  
-----
```

B.7.2 ALTERING RESPONSE FILE DURING PROGRAM EXECUTION:

To alter some of the information contained in a RESPONSE FILE, the "-change" argument can be used when the Multi_trieve program is executed. The <list> may contain one or more input parameters specifying online change of either the INPUT file(s), (in), or different MATCH (selection) criteria (mc). Shown below is a PROGRAM STATEMENT with control arguments "-response newpr" specifying RESPONSE file "newpr.response" and "-change <list>" arguments: "-chg in,mc"--that is, different INPUT files and MATCH criteria. The user enters:

```
-----  
| NOVpr -rsp newpr -chg in,mc |  
-----
```

RESPONSE file specifications may contain keywords "<%D>" or "<%S>" which will cause the program to interactively ask the user for additional input. (See section C.4 Creating a Custom Report.)

Fig. II-7. shows an edited RESPONSE FILE. The data before the "!=" on each line are descriptors the program attaches to describe the responses. The data after the "!=" are the user's response to the program's questions.

* For more detail see WBSum.info segments: RESPONSE.info and REPgen.info online.

B.7.3 EXAMPLE OF RRESPONSE FILE:

Figure II-7 below lists a typical RESPONSE file with customized REPORT specifications.

different input files:=no	<-----	INPUT Files:	R
any more files:no	<-----	-chg in	E
dictionary:=no			T
any numeric fields:=no			R
matching criteria:=all .	<-----	MATCH Criteria:	I
change criteria:=no	<-----	-chg mc	E
			V
			A
			L

dump listing:=no
standard feport:=no
own formatted report:=yes
brief mode:=yes
page heading report_line:=%S,"Enter title line">
page heading report_line:=%<65>DATE: <%DATE>
page heading report_line:=%<65>PAGE: <%PCOUNT>
page heading report_line:=
page heading report_line:=.
detail report_line:=%<CR> <11><aut><52><pub>
detail report_line:=%<13><tit><68>
detail report_line:=%<15><cit><68>
detail report_line:=%<13><%D,"Enter addn. variable: 'des'/'idn'"><68>
detail report_line:=%<60><wno>
detail report_line:=
detail report_line:=.
any PAGE BREAK FORMATS:=no
any RECORD SPACE BREAKS:=no
any REPORT TOTAL LINES:=no
sort records:=yes <----- SORT Criteria:
sort variable:=aut a wno d . <----- -chg sc

print at terminal:=no
print at central site:=yes
copies:=1
save report print file:=yes
any other reports:=no
save retrieved record segment:=yes
another run:=no

Figure II-7.--TYPICAL RESPONSE FILE SPECIFIES A CUSTOM REPORT FORMAT
(Edited version of "newpr.response".)

C. OUTPUT FEATURES.

C.1. SORTING

The records that have been selected by the retrieval process can be sorted prior to printing a report. The user should abstain from sorting on long variable fields. Limit your sorting to short variables, such as the WRSIC number ("wno") and the publication year ("pub"). You may also sort the author field ("aut") and the organizational source ("sso").

SORT STATEMENT:

The variable fields selected for sorting must be followed by a qualifier: "a" (ascending sort sequence) and "d" (descending). The first name entered becomes the major sort key, the next the secondary key. The names and the -lrt sequence character must be separated by blanks. The sort input is terminated by a blank and a period. An example of this input is given below:

EXAMPLE:

The records are to be sorted on two fields. "pub", the publication year will be the major sort key followed by author field "aut". "pub" will be sorted in descending "d" order (reverse chronological) and "aut" will be sorted in ascending "a" sequence (from A to Z).

Program:

DO YOU WANT TO SORT THE RETRIEVED
RECORDS PRIOR TO PRINTING THE REPORT?

User response

: yes

Program:

PLEASE ENTER THE VARIABLES NAMES TO SORT ON EACH
FOLLOWED BY EITHER AN "a" FOR ASCENDING SEQUENCE OR
A "d" FOR DESCENDING. THE ORDER THEY ARE ENTERED WILL
BE THE SORT ORDER. ALL ITEMS MUST BE SEPARATED BY
BLANKS AND THE LAST ENTRY TERMINATED BY A BLANK AND
A PERIOD.

User response

: pub d aut a .

C.2. "DUMP-LISTING" OUTPUT

C.2.1 "DUMP-listing" PROCEDURE:

If you specified that a sample of your output (1-5 records) be "dump-listed" at the terminal, the system will oblige when you respond to the query: (See RETRIEVAL PROGRAM example in fig. II-8)

```
DO YOU WANT A SIMPLE DUMP LISTING OF SOME OF YOUR RECORDS?
: yes
HOW MANY RECORDS DO YOU WANT TO SEE?
: 1
DO YOU WANT THE DUMP PRINTED AT YOUR TERMINAL?
: yes
```

```
<-----The system will "dump-list" one record at the terminal!
          All elements will be listed in the sequence they have
          been entered into the system (using the 132 character
          paper width--see fig. II-9.)
```

If you specified OUTPUT at the central site you will get a statement showing which segments or files have been saved and their respective (default) labels:

retXXXX.report	(where X=numeric)
ret_XXXXXX.data	(for saved data segment)

(See also: Section C.3: Standard_MT Report Generation-OUTPUT SEQUENCE.)

C.2.2 RETRIEVAL PROGRAM: Using "Dump-listing" Option.

```
: NOVpr <-----PROGRAM STATEMENT
YOUR CURRENT INPUT FILE IS >udd>Wrdbib>NTamberg>TEMP>auth8l
DO YOU WISH TO USE A DIFFERENT INPUT FILE?
: no
DO YOU WANT TO SEARCH ADDITIONAL INPUT FILES WHICH CONFORM
TO THE DICTIONARY?
: no
DO YOU WANT TO SEE THE DATA DICTIONARY?
: no
DO YOU HAVE ANY STRICTLY NUMERIC FIELDS IN YOUR DATA THAT YOU
WANT TREATED AS NUMERIC VARIABLES FOR COMPARISON PURPOSE?
: no
ENTER MATCHING CRITERIA FOR RECORD SELECTION.
: tit=pn"COLORADO" .

      NAME                      CONDITION      VALUE

      tit                      pn             COLORADO

DO YOU WISH TO CHANGE, ADD OR DELETE ANY OF THESE VALUES?
: no
TOTAL NUMBER OF RECORDS READ = 640
TOTAL NUMBER OF RECORDS SELECTED = 31
DO YOU WANT A SIMPLE DUMP LISTING OF SOME OF YOUR RECORDS?
: yes
HOW MANY RECORDS DO YOU WANT TO SEE?
: 1
DO YOU WANT THE DUMP PRINTED AT YOUR TERMINAL
: yes
      ..... one record is "dump_listed" at your terminal
                        (See format in fig. II-9.)

DO YOU WANT THE DUMP PRINTED AT THE CENTRAL SITE?
: no
-----
      Hit BREAK key if you wish to interrupt further program execution!
      If you wish to save the retrieved data continue below!

DO YOU WISH TO CREATE A STANDARD REPORT USING THE SELECTED RECORDS?
: no
DO YOU WISH TO CREATE YOUR OWN FORMATTED REPORT?
: no
DO YOU WANT TO SAVE THE SEGMENT CONTAINING THE RECORDS JUST RETRIEVED?
: yes                                <----- save data!
THE NAME OF THE SEGMENT SAVED IS ret_100410.data
DO YOU WISH TO MAKE ANOTHER RUN?
: no
DO YOU WANT TO SAVE YOUR RESPONSES SO YOU CAN RUN THIS SESSION AGAIN?
: no
END OF JOB (Level 2)
```

Figure II-8.--RETRIEVAL PROGRAM DUMP-LISTING OUTPUT.

The format of a "dump-listed" record is shown in fig. II-9.

C.2.3 EXAMPLE: "DUMP-LISTING" OUTPUT:

The first record retrieved by the preceding retrieval program is dump-listed in the same sequence its data elements were entered into the data base. (See section B.2. DATA DICTIONARY.)

NOTE: Headings are labels from the DATA DICTIONARY associated with the "NOVpr" program! Each data field begins on a new line.)

```
\c                                02/24/82

\c                                PAGE      1

                                DUMP LISTING
                                author
                                source
WRSICno  acc.yr  acc.no
\c                                title
\c                                citation
\c                                descriptor
\c
pub.yr  ident

81-00366      81  00366 HALL, D. C.; AND DUNCAN, A. C.;
GEOLOGICAL SURVEY, LAKEWOOD, CO. WATER RESOURCES DIV.
HYDROLOGIC DATA FROM UPPER GRANGE HALL CREEK BASIN, NORTHGLENN, ADAMS COUNTY, C
COLORADO,
AVAILABLE FROM OFSS, USGS, BOX 25425, FED. CTR., DENVER, CO. 80225. PAPER COPY
\c2 P, 2 FIG, 34 TAB, 10 REF.
*HYDROLOGIC DATA, *STREAMFLOW, *SURFACE RUNOFF, *WATERSHEDS(BASINS), *COLORADO,
\c GROUNDWATER RESOURCES, RAINFALL, SNOWMELT, SEDIMENT TRANSPORT, WATER QUALITY
\c, WATER ANALYSIS, DATA COLLECTIONS, *NORTHGLENN(CO), *ADAMS COUNTY(CO), *GRAN
\cGE HALL CREEK(CO),
1980

end of report
```

Figure II-9. "DUMP-LISTING" OUTPUT: One sample record is listed at the terminal. (Note the automatic wraparound feature (c) adjusting for CRT screen width.)

C.3. CREATING A STANDARD REPORT:

C.3.1 CREATING A "Standard MT" REPORT:*

After inspecting one dump-listed record at the terminal (see section C.2.3. SAMPLE RETRIEVAL PROGRAM), the user may want to generate a "standard MT" report. This allows him to generate a somewhat structured report: The user may specify the sequence of desired print variables, he may use breaks to list subtotals (of numeric variables), and he may sort on any designated variable. The user may provide a page heading (title). (The default line length of the report will be 134 characters!)

STANDARD REPORT: The retrieval program queries the user's response to the various report options. The report options are as follows:

- User specified page heading.
- Printing of any or all items from the data dictionary.
- Page breaks when the value of any variable(s) change.
- Double space breaks when the value of any variable(s) change.
- Accumulating report totals and averages for any numeric variables.
- Accumulating subtotals and averages for any numeric variables. These are printed on page breaks and/or double space breaks.
- Performing arithmetic calculations.
- Obtaining record counts for any break condition.
- Suppressing the printing of detail lines.
- Sorting the retrieved records prior to printing the report.
- Printing the report at the user's terminal or at the central site or both.
- Printing as many different reports as desired from the retrieved records.
- Saving report segment for possible printing by the user at a later time.
- Using any character as a report highlighter.

* "Standard MT" stands for STANDARD_MULTI_TRIEVE (REPORT).

C.3.2 STANDARD REPORT GENERATION PROPCEDURE.

REPORT specifications are as follows: (User responses follow the colon ":".)

```

-----
DO YOU WISH TO CREATE A STANDARD REPORT USING THE SELECTED RECORDS? C
: yes R
DO YOU WANT THE BRIEF MODE OF QUESTIONS FOR REPORTS? E
: yes A
YOU MAY ENTER A MAXIMUM OF 5 LINES FOR THE PAGE HEADING. T
PLEASE ENTER LINE 1 E
: COLORADO RECORDS
PLEASE ENTER LINE 2 S
: . [This signifies end of page heading!] T
PLEASE ENTER THE VARIABLE NAMES (as listed in the dictionary) N
TO BE PRINTED. D
: aut pub tit wno . [names are separated by blanks and A
end in a blank and a period!] R
DO YOU WANT PAGE BREAKS WHEN ANY VARIABLES CHANGE? D
: no
DO YOU WANT DOUBLE SPACES WHEN ANY VARIABLES CHANGE? R
: no E
DO YOU WANT ANY REPORT TOTALS? P
: no O
DO YOU WANT ANY RECORD CALCULATIONS? R
: no T
DO YOU WANT ANY REPORT CALCULATIONS?
: no
DO YOU WISH TO SUPPRESS THE PRINTING OF THE DETAIL LINES?
: no
-----
DO YOU WANT TO SORT THE RETRIEVED RECORDS PRIOR TO PRINTING S
THE REPORT? O
: yes R
PLEASE ENTER THE VARIABLE NAMES TO SORT ON T
: aut a .
-----
DO YOU WANT THE REPORT PRINTED AT YOUR TERMINAL? R
: no E
DO YOU WANT THE REPORT PRINTED AT THE CENTRAL SITE? P
: yes
HOW MANY COPIES DO YOU WANT PRINTED AT THE CENTRAL SITE? O
: 1 U
DO YOU WANT TO SAVE THE REPORT PRINT FILE? T
: yes P
THE NAME OF THE SAVED REPORT PRINT FILE IS ret1806.report U
-----T
DO YOU WANT ANY OTHER STANDARD REPORTS FROM THIS RETRIEVAL?
: no
** DO YOU WISH TO CREATE YOUR OWN FORMATTED REPORT <----- if yes,
: no

```

(OUTPUT continued)

** Use WRDBIB RESPONSE files to create custom formatted REPORTS!
(See section C.4. below: CREATING A CUSTOM REPORT.)

C.3.2 OUTPUT PROCEDURE continued:

```
DO YOU WANT TO SAVE THE SEGMENT CONTAINING THE RECORDS JUST RETRIEVED?
: yes
THE NAME OF THE SEGMENT SAVED IS RET_101253.data
DO YOU WISH TO MAKE ANOTHER RUN?
: no
DO YOU WANT TO SAVE YOUR RESPONSES SO YOU CAN RUN THIS SESSION AGAIN?
: yes
THE NAME OF THE SEGMENT SAVED IS ret101253.response
END OF JOB (Level 2)
DO YOU WANT TO SAVE YOUR RETRIEVAL PROGRAM FOR LATER USE? no
GOOD BYE
r 10:19 8.917 2459
```

Online see WBSum.info section: REPgen.info.

C.3.3 SAMPLE RESPONSE FILE: Shows "Standard_MT" REPORT specifications:

```
different input file:=no
any more files:=no
dictionary:=yes
any numeric fields:=no
matching criteria:=tit=pn"COLORADO" .
change criteria:=no
dump listing:=no
records to dump:=0
print at terminal:=no
print at central site:=no
standard report:=yes
brief mode:=yes
page heading:=COLORADO RECORDS
page heading:=.
VARIABLES PRINTED:=aut pub tit wno .
any PAGE BREAKS:=no
any DOUBLE SPACE BREAKS:=no
any REPORT TOTALS:=no
any RECORD CALCULATIONS:=no
any REPORT CALCULATIONS:=no
suppress detail lines:=no
sort records:=yes
sort variable:=aut a .
print at terminal:=no
print at central site:=yes
copies:=1
save report print file:=yes
any more standard reports:=no
own formatted report:=no
save retrieved record segment:=yes
another run:=no
```

Figure II-10.--STANDARD REPORT RESPONSE FILE: "STD.response"

NOTE: The "Standard MT" format is useful for numeric applications.
(See the Multi retrieve Manual for detailed information.)

C.4. CREATING A CUSTOM REPORT:

C.4.1 Report Format Specifications: When the user chooses to create his own formatted report, the format of each line of the report is specified. There are six categories of lines:

- | | | |
|------------------------------|--------------------------------|--------------------|
| (1) Page heading..... | used for WRDBIB custom reports | |
| (2) Detail record lines..... | used for WRDBIB custom reports | |
| (3) Before record break..... | optional | |
| (4) After record break..... | optional | Used in: |
| (5) Page break..... | optional | "Standard MT" |
| (6) Report total..... | optional | Reports. |
| | | (See section C.3.) |

C.4.2 Header Lines and Detail Record Lines: A report line can be constructed from two items:

- (1) User text
- (2) Keywords enclosed by angle brackets, "<>"

A report line can contain either one or both of these items. User text is anything entered by the user not enclosed by angle brackets. A typical report line might look like this: (See section 10. KEY-WORDS.

```
page heading report_line:=<64>DATE: <%DATE>
page heading report_line:=<64>PAGE: <%PCOUNT>
detail report_line:=<%CR><10><author><60><62><pubyr><66>
```

C.4.3 Printing Wraparound: If the user specifies an item ("des"= descriptor field) for which the allowed print length is smaller than the actual length specified in the data dictionary, the program will automatically print the item on a many lines as necessary, aligning the starting print position with the originally specified column for that item. The lines entered by the user are considered logical lines. Due to wraparound, a logical line could generate several physical lines to be printed in the report. (See fig. II-11 .)

```

----- Author(s)
/
WOLANSKY, R. M.; MILLS, L. R.; WOODHAM, W. M.;      1979 <----- Publn.year
AND LAUGHLIN, C. P.;
POTENTIOMETRIC SURFACE OF FLORIDAN AQUIFER, SOUTHWEST <----- Title
FLORIDA WATER MANAGEMENT DISTRICT AND ADJACENT AREAS,
MAY 1979,
GEOLOGICAL SURVEY OPEN-FILE REPORT 79-1255, 1979.    <----- Citation
1 SHEET.

*MAPS, *AQUIFERS, *WATER LEVELS, *POTENTIOMETRIC LEVEL, <----- Descriptors
*FLORIDA, WATER WELLS, WATER UTILIZATION, IRRIGATION,
WATER LEVEL FLUCTUATIONS, *FLORIDAN AQUIFER, SOUTHWEST
FLORIDA, WATER MANAGEMENT.

81-00141 <----- WRSIC no.

```

Figure II-11.--CUSTOM-FORMATTED REPORT: An Example of Wraparound Printing.

C.4.4 Using Key-words:

The items enclosed by "<>" are considered keywords by the program. These include line position numbers preceding and following data variables. When the program encounters a pair of angle brackets, it attempts to replace that string with the appropriate action. Key-words proper are tagged with the "%" sign. (See section 5. Selected Key-word List.)

```

Example:      <%DATE>      ..... will print the current date
              <%COUNT>    ..... will print the current page number
              <%CR>        ..... will print the record count
              <11><aut>     ..... indicates starting position of
                              "author" field on given line.

```

If no key-word matches the string the program allows the user to reenter the line or use the line as it exists. It sends an "Error Message". (See section: ERROR MESSAGES.) Anything not enclosed by angle brackets is considered user text and will be printed as it appears.

```

EXAMPLE: header_line is:=<66>DATE: <%DATE>-- will print:  DATE: <current date>

```

C.4.5 Key-Words Prompting User Interaction:

```

<%S,"title string"> ..... for inactive report title entry,
<%D,"add print variable string"> ..... specifies an additional "print"
                                      variable from DATA DICTIONARY.

```

WRDBIB APPLICATION: See Section III. PROGRAM EXECUTION using the "newpr.response" file as "-response" argument. (Fig. III-9.)

C.5. SELECTED KEY-WORD LIST:

Key-Words: There are many key-words that can be used to format a report. Some key-words have predetermined sizes and formats. Following is the Key-Word list:

<n>	where "n" is an integer between 1 and 136. This indicates the starting column for the item following the "<n>".
<?>	indicates the line is to be printed only if the data from the record is nonblank.
<">	causes the line to be centered.
<_>	controls the underline feature for a given line. The underline keyword operates in pairs. The first "<_>" encountered in a report line turns on the underline feature. All text and data following it will be underlined until a second "<_>" is encountered or the end of the report line is reached. There can be any number of pairs of underline keywords on a report line.
<!>	controls the boldface printing feature for a given line. The boldface printing keyword operates in pairs. The first "<!>" encountered in a report line turns on the boldface printing feature. All text and data following it will be boldface printed until a second "<!>" is encountered or the end of the report line is reached. There can be any number of pairs of boldface printing keywords on a report line.
< >	controls the capitalized letter feature for a given line. The capitalized letter keyword operates in pairs. The first "< >" encountered in a report line turns on the capitalized letter feature. All text and data following it will be capitalized until a second "< >" is encountered or the end of the report line is reached. There can be any number of pairs of capitalized letter keywords on a report line.
-	when the tilde, "~", is embedded in the user's data record it will force a line break for text-type information, if wraparound is required.
<%PAGE>	causes a page eject.
<%C>	causes the record count for the current break to be used in a calculation or printed. The size of the count is seven characters.
<%CR>	causes the count for the record to be printed. The size of the count is seven characters.

C.5 SELECTED KEY-WORD LIST: Continued

- <%CB> causes the count (KW) for the current record break to be printed. The size of the count is seven characters.
- <%CP> causes the count for the current record for the current page break to be printed. The size of the count is seven characters.
- <%DATE> causes the date to be printed. The size of the date is eight characters and is of the form mm/dd/yy.
- <%PCOUNT> causes the page count to be printed. The size of the new page count is six characters.
- <%D[,"prompt_string"]> causes the program to prompt the user, interactively, for a variable name from the dictionary even when the user program is executing using the "_response" argument. The name is then substituted for the "%D" in the report line and evaluated as the dictionary name keywords listed earlier. The user can provide his own prompt message, "prompt_string", or a default message of "PLEASE ENTER DICTIONARY VARIABLE NAME:" is printed.
- <%S[,"prompt_string"]> causes the program to prompt the user, interactively, to enter a character string to be substituted for the "%S" even when the user program is executing using the "_response" argument. This string can contain any text or keywords the user chooses to enter. The user can provide his own prompt message, "prompt_string", or a default message of "PLEASE ENTER REPLACEMENT STRING:" is printed.

SECTION III.

WRDBIB PROGRAM EXECUTION

PROCEDURES

- A. RETRIEVAL: EXECUTING W/USER-SUPPLIED RESPONSES
- B. RETRIEVAL AND REPORT GENERATION USING CONTROL ARGUMENTS
- C. REPORT GENERATION: USING CONTROL ARGUMENTS
- D. DIRECTORY CHECK

SECTION III

WRDBIB PROGRAM EXECUTION PROCEDURES

A. RETRIEVAL: EXECUTING W/USER-SUPPLIED RESPONSES

A.1. OVERVIEW: PROGRAM STATEMENT (Command)-- HOW TO ENTER AND EXECUTE A RETRIEVAL PROGRAM:

The user has two options:

- (1) Enter and execute an exploratory RETRIEVAL PROGRAM: Enter the name of your compiled PROGRAM and the system will prompt you for responses. You will be creating your own RESPONSE file. (See example below!) Save the retrieved data segment for subsequent REPORT GENERATION.

: <PROGRAM_NAME>*

- (2) Enter and execute a custom RETRIEVAL AND REPORT GENERATION PROGRAM. Enter your PROGRAM STATEMENT and [optional] CONTROL ARGUMENTS:

: <PROGRAM NAME> [-rsp <path>] [-chg <list>]

where -rsp <path> calls a previously created RESPONSE file: <path>.response, which provides all responses for succesful program execution including format specifications for a custom formatted REPORT.
(See: Section II. RESPONSE FILE.)

-chg <list> the "list" specifies the CONTROL ARGUMENTS which are to be altered interactively by the user: "in"= INPUT file(s), "mc"= MATCH (selection) criteria, "sc"= SORT criteria

NOTE: The "-chg_list" argument must be entered together with the "-rsp <path>" argument which it modifies. (Examples follow below.)

* When you elect to use WRDBIB PROGRAMS, RESPONSE and INPUT files: you need only compile a PROGRAM if you wish to change the DATA DICTIONARY describing your INPUT (DATA) files. (See COMPdict.info!)

EXAMPLES OF PROGRAM STATEMENTS: (User entry follows the initial colon ":")

```
: NOVpr                                (retrieves and saves data--creates
                                         RESPONSE file. (see fig. III-1.)

: NOVpr  -rsp RETR  -chg in,mc          (retrieves data--see fig. III-3;
: NOVpr  -rsp newpr -chg in,mc          and creates REPORT--see fig. III-5.)

: NOVpr  -rsp FORM  -chg in             (creates REPORT from previously
                                         retrieved data--figs.III-7,III-9.)

: NOVpr  -rsp AUT   -chg in,sc          (creates AUTHOR INDEX using previ-
                                         ously retrieved data--fig. III-12.)
```

NOTE: The outcome of a PROGRAM is determined by user responses. When using a custom RESPONSE file (in argument form) the user must be familiar with all specifications therein in order to use available "change" argument options to full advantage.

Use Multics editor, qedx, to read and edit your RESPONSE file.
(See fig. III-4.)

A.2. OVERVIEW: RETRIEVAL REQUEST STRUCTURE:

The user must know how to formulate a WRDBIB RETRIEVAL STATEMENT using the Multi retrieve format, and how to apply "AND/OR" logic in order to compound search statements. The user may enter several search requests using separate lines for each statement and terminating with a blank and a period following the last statement or with a period on a separate line. One or more RETRIEVAL STATEMENTS comprise the MATCH CRITERIA (mc).

The Syntax of the RETRIEVAL STATEMENT is as follows:

<Dict_Variable>=<operator><VALUE> .

(1) VARIABLE: where <Dict_Variable> is one of the variables listed in the DATA DICTIONARY: "aut", "pub", "sso", "tit", "cit", "des", "wno";

(2) OPERATIONAL CONDITIONS: where <operator> is the condition to be checked: "eq", "lt", "gt", "rg", "pn" (Operator) as defined below. A special condition "all ." is used to retrieve ALL records.

For alphameric strings: "partial notation, pn"; -- used for delimiting a specific string in quotes (pn"____") within an extended alphameric field. "equal, eq" may be used for direct match.

APPLICATION: Searching the "aut", "tit", "cit", "des" fields of your INPUT files.

For numeric variables: "equal, eq"; greater than, gt"; "less than, lt"; "range, rg"; numeric "or";

APPLICATION: Direct match of numeric variables which must be so defined during program execution: "pub"; "acno".

(3) VALUE: These are the specific names or index terms to be matched and retrieved from a given INPUT file--(use CAPITAL LETTERS!)

(4) "OR"-LOGIC: The user may enter several values to be matched against a given variable field. Examples are entry of near-synonyms and alternate spelling modes:

des=pn"GROUNDWATER"GROUND_WATER"GROUND-WATER"AQUIFER"WELL" .

(5) "AND"-LOGIC: Two or more RETRIEVAL STATEMENTS represent "AND" logic. For example, retrieve on search statement: FLORIDA AND <GW-concept>

tit=pn"FLORIDA"
des=pn"GROUNDWATER"GROUND_WATER"GROUND_WATER"AQUIFER"WELL" .

For more detail see RETRIEVAL SESSION: Steps 1 and 2 in APPENDIX_III.

A.3 RETRIEVAL PROGRAM EXECUTION

A.3.1 PROCEDURE_A: HOW TO EXECUTE A RETRIEVAL PROGRAM--IN FOUR EASY STEPS.

(1) PROGRAM STATEMENT (Command): Enter the NAME of a custom program and proceed to execute. Supply all responses to program prompts. You are creating a RESPONSE file. (User responses follow the ":")

: NOVpr (See fig. III-1. RETRIEVAL PROGRAM.)

(2) FILE INPUT: Respond to the following prompts!

- DO YOU WISH TO SEARCH A DIFFERENT INPUT FILE? (yes/no)
- DO YOU WANT TO SEARCH ADDITIONAL INPUT FILES WHICH CONFORM TO THE DICTIONARY? (yes/no)

If a DIFFERENT INPUT file is desired respond to the following prompt:

- PLEASE ENTER THE NAMES OF INPUT FILES.
THE NAMES MUST BE SEPARATED BY BLANKS.
THE LAST NAME MUST BE FOLLOWED BY A BLANK AND A PERIOD.
: auth82 . (For example see fig. III-5.)

(3) RECORD SELECTION: Respond to the following prompts!

- DO YOU WANT TO SEE THE DATA DICTIONARY? (yes/no)
(This will print the labels of all variables you may want to search, starting position in record, and field length!)
- DO YOU HAVE ANY STRICTLY NUMERIC FIELDS IN YOUR DATA...(yes/no)
(You must define numeric variables for comparison purposes!)
- ENTER MATCHING CRITERIA FOR RECORD SELECTION
: des=pn"POTOMAC" . (See section RETRIEVAL STATEMENT above!)

NOTE: ALL INDEX TERMS (VALUES) ARE ENTERED IN CAPS!
USE UNDERSCORE TO CONNECT INDEX WORDS SEPARATED BY A BLANK!
ALL STATEMENTS TO THE SYSTEM END IN A BLANK AND A PERIOD
OR A PERIOD ON A NEW LINE FOLLOWING THE STATEMENT!

(4) OUTPUT:

- Dump-list (yes) one (1) record at the terminal, if so desired!
- Save retrieved data segment for INPUT in a REPORT GENERATION program.
- Save your newly created RESPONSE file if you wish to use it again for a similar retrieval run. (See section III.A.4.; fig. III-2. RETR.response.)

EXAMPLE:

RETRIEVE "POTOMAC" REPORTS FROM UPDATE FILE "auth81".

See: Fig. III-1 below for PROGRAM EXECUTION.

A.3.2 PROGRAM EXECUTION: EXAMPLE--CREATING A RESPONSE FILE.

```

: NOVpr    <-----PROGRAM STATEMENT
YOUR CURRENT INPUT FILE IS >udd>Wrdbib>NTamberg>TEMP>auth81
DO YOU WISH TO SEARCH A DIFFERENT INPUT FILE?
: no
DO YOU WANT TO SEARCH ADDITIONAL INPUT FILES WHICH CONFORM
TO THE DICTIONARY?
: no
DO YOU WANT TO SEE THE DATA DICTIONARY?
: no
DO YOU HAVE ANY STRICTLY NUMERIC FIELDS IN YOUR DATA THAT YOU
WANT TREATED AS NUMERIC VARIABLES FOR COMPARISON PURPOSE?
: no
ENTER MATCHING CRITERIA FOR RECORD SELECTION.
: des=pn"POTOMAC" .

      NAME                      CONDITION      VALUE
des                      pn          POTOMAC

DO YOU WISH TO CHANGE, ADD OR DELETE ANY OF THESE VALUES?
: no
TOTAL NUMBER OF RECORDS READ = 640
TOTAL NUMBER OF RECORDS SELECTED = 3
DO YOU WANT A SIMPLE DUMP LISTING OF SOME OF YOUR RECORDS?
: yes
HOW MANY RECORDS DO YOU WANT TO SEE?
: 1
DO YOU WANT THE DUMP PRINTED AT YOUR TERMINAL
: yes

      ..... one record is "dump_listed" at your terminal

DO YOU WANT THE DUMP PRINTED AT THE CENTRAL SITE?
: no
DO YOU WISH TO CREATE A STANDARD REPORT USING THE SELECTED RECORDS?
: no
DO YOU WISH TO CREATE YOUR OWN FORMATTED REPORT?
: no
DO YOU WANT TO SAVE THE SEGMENT CONTAINING THE RECORDS JUST RETRIEVED?
: yes
THE NAME OF THE SEGMENT SAVED IS ret_101253.data
DO YOU WISH TO MAKE ANOTHER RUN?
: no
DO YOU WANT TO SAVE YOUR RESPONSES SO YOU CAN RUN THIS SESSION AGAIN?
: yes
THE NAME OF THE SEGMENT SAVED IS ret101253.response
END OF JOB (Level 2)
ready                      (ready message)
rn ret101253.response RETR.response  (rename "response" segment!)
ready                      (ready message)

```

Figure III-1. WRDBIB RETRIEVAL PROGRAM: RETRIEVING POTOMAC REPORT DATA.
The user provides all (15) responses--following the colon ":" .

A.4 RETRIEVAL OUTPUT

A.4.1 RETRIEVAL RESPONSE FILE: RETR.response

Listed below are responses used to execute your RETRIEVAL PROGRAM and stored (optionally) in your new RESPONSE file, RETR.response: (See fig. III-1 for program execution example.)

```
different input file:=no
any more files:=no
dictionary:=yes
any numeric fields:=no
matching criteria:=des=pn"POTOMAC" .
change matching criteria:=no
dump listing:=yes
records to dump:=1
print at terminal:=yes
print at central site:=no
standard report:=no
own formatted report:=no
save retrieved record segment:=yes
another run:=no
```

Figure III-2.--RETRIEVAL RESPONSE FILE: "RETR.response".

APPLICATION OF RETR.response: Use as step 1 to retrieve data!

The user may use RETR.response for future RETRIEVAL runs when no custom REPORT is desired. (EXPLORATORY RUNS!) The RESPONSE file is used as "-response" argument together with one or more "-change_list" arguments. See examples of PROGRAM STATEMENTS (commands) below:

- (1) to enter a different or additional INPUT files
: NOVpr -rsp RETR -chg in
- (2) to change the MATCH (selection) criteria
: NOVpr -rsp RETR -chg mc (See fig. III-3.)
- (3) to change INPUT and MATCH criteria
: NOVpr -rsp RETR -chg in,mc

See: Section_B. RETRIEVAL AND REPORT GENERATION USING CONTROL ARGUMENTS.

A.4.2 DATA SEGMENT: ret_XXXXXX.data (where XXXXXX is numeric)

The saved data segment may be used (1) as INPUT for further RETRIEVAL or (2) in a REPORT_GENERATION program. (See: Section_C.)

To reformat a previously retrieved data segment enter a PROGRAM STATEMENT using a "response" argument (including suitable report format specifications) and a "change in" argument to enter file ret_XXXXXX.data.

```
: NOVpr -rsp FORM -chg in (See fig. III-7.)
```

NOTE: Choose "FORM.response" to generate a list of bibliographic citations. (Fig. III-8.) The "change in" argument will provide the prompts allowing you to change your INPUT file. Your MATCHING criteria should read: Matching criteria=all.-- ALL RECORDS WILL BE SELECTED.

B. RETRIEVAL AND REPORT GENERATION USING CONTROL ARGUMENTS

Execute a custom RETRIEVAL AND REPORT GENERATION PROGRAM using control arguments: Your "-response, -rsp" argument will supply a RESPONSE file which will provide all the necessary responses for program execution. The user must provide interactive responses to "-change, -chg <list>" prompts, and respond to queries resulting from key-words <%S> or <%D> used in report format specifications. (See: Section II.C.4.)

To execute an exploratory RETRIEVAL PROGRAM proceed according to steps (1)-(4).

To execute a one-step RETRIEVAL & REPORT GENERATION PROGRAM do steps (1)-(8).

(See Section_C for REPORT_GENERATION PROGRAMS: Reformatting retrieved data.)

B.1 PROCEDURE_B: Using -rsp <path> -chg <list>

(1) Select your RESPONSE file. (Read and/or edit responses!)

-- For exploratory RETRIEVAL use RETR.response and appropriate "-change <list>" arguments. (See fig. III-3.)

-- For one-step RETRIEVAL & REPORT GENERATION programs use newpr.response or FORM.response as your response argument, and "-change <list>" arguments. (See figs. III-4 and III-6.)

(2) Select INPUT file(s).

(3) Enter PROGRAM STATEMENT. Use the following syntax:

```
-----
      : NOVpr -rsp RETR -chg in,mc      (Exploratory Retrieval--no Report)
or   : NOVpr -rsp FORM -chg in,mc      (Retrieval and Report Generation )
or   : NOVpr -rsp newpr -chg in,mc     ( " " " " " )
or   : NOVpr -rsp FORM -chg in,sc      (Reformatting data see Section C.)
-----
```

(4) Execute by responding to prompts of your RESPONSE file:

-- Enter your desired INPUT file(s).

-- Enter your RETRIEVAL STATEMENTS according to specified format.
(See: HOW TO FORMULATE YOUR RETRIEVAL STATEMENT, section A.2)

-- Respond with yes/no responses where indicated.

-- Save retrieved data segment. (See fig. III-3.)

For REPORT GENERATION see steps (5) to (8).

PROCEDURE_B Continued:

- (5) Generate custom-formatted REPORTS using WRDBIB RESPONSE files:
The REPORT GENERATION sequence may be executed as a separate PROGRAM. (See Section_C.)
- (6) Use the "-chg sc" argument in your PROGRAM STATEMENT for an alternate SORT sequence. (See: Section_C.5 NUMERIC INDEX.)
 - Enter yes/no responses as prompted.
 - Enter SORT statement according to format.
- (7) Respond to special interactive features prompted by key-words:
 - Enter your REPORT title when prompted: "Enter title line!"
 - When entering the "newpr.response" file as "response argument" use the <%D,"Add print variable 'des'/'idn'" feature to interactively add the "descriptor" variable to custom REPORT.
- (8) Dprint REPORT, specify no. of copies. Rename file, when saved!

NOTE: A typical RETRIEVAL AND REPORT GENERATION PROGRAM (one-step procedure) is shown in fig. III-5.

See also APPENDIX_III: PROGRAM EXECUTION EXAMPLES in steps 5, 6, 8, 8A.

B.2 RETRIEVAL PROGRAM: Using -rsp RETR -chg mc

EXAMPLE: EXPLORATORY RETRIEVAL. (NO REPORT GENERATED.)

PROBLEM: RETRIEVE WATER SUPPLY PAPERS FROM UPDATE FILE "auth81".

```
: NOVpr -rsp RETR -chg mc <----- PROGRAM COMMAND
MULTI TRIEVE RESPONSES READ FROM FILE
>user_dir_dir>Wrdbib>NTamberg>RETR.response <----- "RESPONSE" path
INPUT FILES: >user_dir_dir>Wrdbib>NTamberg>auth81 <----- INPUT file
```

ALL RECORDS WILL BE SELECTED. <----- "-chg mc" prompt
DO YOU WISH TO CHANGE, AND OR DELETE ANY OF THESE VALUES?

```
: yes
TO DELETE A VARIABLE ENTER A d AS THE VALUE, SUCH AS xx=d
TO ADD OR CHANGE A VARIABLE ENTER AS NORMAL INPUT
SUCH AS xx=eq....
ENTER MATCHING CRITERIA FOR RECORD SELECTION.
: cit=pn"SUPPLY PAP" <----- new MATCH critria
ENTER YOUR ADDITIONAL CRITERIA.
: .
```

NAME	CONDITION	VALUE
cit	pn	SUPPLY_PAP

DO YOU WISH TO CHANGE OR DELETE ANY OF THESE VALUES?

```
: no
<----- RETRIEVAL
```

TOTAL NUMBER OF RECORDS READ = 640
TOTAL NUMBER OF RECORDS SELECTED = 14
THE NAME OF THE SAVED DATA SEGMENT IS ret_183478.data <--- OUTPUT
END OF JOB (Level 2)
r 16:35 4.547 612 level 2 ("Ready" message)

```
: rn ret_183478.data WSP81.dt (rename data segment!)
```

":" precedes user responses

Figure III-3.--RETRIEVAL PROGRAM EXECUTION USING CONTROL ARGUMENTS:
RESPONSE file responses are altered online by argument: "-chg mc".

NOTE: The retrieved data segment may be reformatted according to
PROCEDURE C (fig. III-7.) The following custom REPORTS may be gene-
rated: A BIBLIOGRAPHY (fig. III-8.) and an AUTHOR INDEX (fig. III-13.)

B.3 RETRIEVAL AND REPORT GENERATION PROGRAM

B.3.1 RESPONSE FILE: "newpr.response":

Use RESPONSE file "newpr.response" with REPORT format specifications for RETRIEVAL and custom REPORT GENERATION with optional descriptors. SELECT AND READ YOUR RESPONSE FILE: (Use Multics text editor!)

```
: qx
: r newpr.response
: l,$p
different input file:=no
any more files:=no
dictionary:=no
any numeric fields:=no
matching criteria:=all .
change criteria:=no
dump listing:=no
standard report:=no

-----
own formatted report:=yes
brief mode:=yes
page heading report_line:=<%S,"Enter title line">
page heading report_line:=<68>DATE: <%DATE>
page heading report_line:=<68>PAGE: <%PCOUNT>
page heading report_line:=
page heading report_line:=.
detail report_line:=<%CR><9> <10><aut><58> <60><pub>
detail report_line:=<11><tit><70>
detail report_line:=<13><cit><68>
detail report_line:=<11><%D,"Enter add. print variable: 'des' or 'idn'"><68>
detail report_line:=<61><wno>
detail report_line:=.
any PAGE BREAK FORMATS:=no
any RECORD SPACE BREAKS:=no
any REPORT TOTAL LINES:=no
sort records:=yes
sort variable:=aut a .                                <----- SORT statement
-----

print at terminal:=no
print at central site:=yes
copies:=1
save report print file:=yes
any other reports:=no
save retrieved record segment:=yes
another run:=no
: q                                (quit editor)
ready --- --- ---                (ready message!)
```

Figure III-4.-- RESPONSE FILE: "newpr.response" provides detailed specifications for a custom-formatted REPORT. Prompts for interactive entry of a REPORT title and an additional print variable are included in form of key-words. (See: Section II.C.4. KEY-WORDS.)

See fig. III-5 for PROGRAM EXECUTION procedure using "newpr.response" and "-change in,mc" arguments. The custom REPORT is given in fig. III-10.

B.3.2 PROGRAM EXECUTION: Using -rsp newpr -chg in,mc

EXAMPLE: RETRIEVAL AND REPORT GENERATION (One-step Procedure).

PROBLEM: RETRIEVE "POTOMAC" REPORTS FROM UPDATE FILE "auth81".

```
: NOVpr -rsp newpr -chg in,mc      <----- PROGRAM STATEMENT
MULTI TRIEVE RESPONSES READ FROM FILE
>udd>Wrdbib>NTamberg>TEMP>newpr.response      <----- RESPONSE_path
YOUR CURRENT INPUT FILE IS >udd>Wrdbib>NTamberg>TEMP>auth82 <--- INPUT
DO YOU WISH TO USE A DIFFERENT INPUT FILE?

: yes
THE NEW INPUT FILE MUST BE COMPATIBLE WITH THE DICTIONARY DESCRIBING
THE OLD INPUT FILE.
PLEASE ENTER THE NAMES OF INPUT FILES.
THE NAMES MUST BE SEPARATED BY BLANKS.
THE LAST NAME MUST BE FOLLOWED BY A BLANK AND A PERIOD.
: auth81 .      <----- -chg in
ANY MORE FILES TO SEARCH?

: no
INPUT FILES: >user_dir_dir>Wrdbib>NTamberg>TEMP>auth81
-----
ALL RECORDS WILL BE SELECTED.      <----- -chg mc
DO YOU WISH TO CHANGE, AND OR DELETE ANY OF THESE VALUES?

: yes
TO DELETE A VARIABLE ENTER A d AS THE VALUE, SUCH AS xx=d
TO ADD OR CHANGE A VARIABLE ENTER AS NORMAL INPUT
SUCH AS xx=eq....
ENTER MATCHING CRITERIA FOR RECORD SELECTION.
: des=pn"POTOMAC" .      <----- RETRIEVAL STATEMENT
      NAME                CONDITION        VALUE

      des                pn                POTOMAC

DO YOU WISH TO CHANGE OR DELETE ANY OF THESE VALUES?

: no
-----
TOTAL NUMBER OF RECORDS READ = 640      RETRIEVAL
TOTAL NUMBER OF RECORDS SELECTED = 3
* Enter title line      REPORT_GENERATION
: POTOMAC REPORTS (1980/81 Update)
* Enter add print variable: 'des' or 'idn'
: des
**
THE NAME OF SAVED REPORT PRINT FILE IS ret4326.report      OUTPUT
THE NAME OF THE SEGMENT SAVED IS ret_184057.data      Files
END OF JOB (Level 2)
r 18:43 5.397 892      (ready message)

": " precedes user responses
* interactive prompt
** SORT criteria are specified in newpr.response: alpha SORT by "author" .
```

Figure III-5.--A TYPICAL ONE-STEP RETRIEVAL AND REPORT GENERATION PROGRAM:
Using "newpr.response" file as "response" argument and "change in,mc" arguments.
(See: OUTPUT--REPORT with descriptors in fig. III-10.)

C. REPORT GENERATION USING CONTROL ARGUMENTS

C.1 REFORMATTING PREVIOUSLY RETRIEVED DATA (Step_2)

C.1.1 PROCEDURE C: Using -rsp <path> -chg <list>

Should you wish to reformat a previously retrieved data segment: ret_XXXXXX.data (See EXAMPLE in fig. III-2.), execute a REPORT-GENERATION PROGRAM using selected control arguments as step_2 to your RETRIEVAL PROGRAM (See section B.2.) Proceed as follows:

- (1) Select a RESPONSE file with appropriate report format specifications to serve as your "response" argument.
-- Your RETRIEVAL STATEMENT should read: "matching criteria:=all ."
-- Use Multics editor to read and edit as needed! (See fig. III-4.)
- (2) To reformat a previously retrieved data segment enter the "-change in" argument in your PROGRAM STATEMENT:
-- You wish to use a DIFFERENT INPUT FILE: ret_101253.data .
- (3) Enter the following PROGRAM STATEMENT (command) to start your program: Select either entry!

: NOVpr -rsp FORM -chg in (For bibliographic REPORT)
: NOVpr -rsp newpr -chg in (For bibliographic REPORT w/descriptors)

NOTE: You do not need to change the "change mc" argument if your RESPONSE file contains the statement: "matching criteria:=all ." (See fig. III-4.) However, if you do not read your RESPONSE file beforehand, by all means enter:

```
      : NOVpr -rsp newpr -chg in,mc
or    : NOVpr -rsp FORM -chg in,mc
```

The system will print the specified MATCHING criteria and state:

```
ALL RECORDS WILL BE SELECTED.
DO YOU WISH TO CHANGE, AND OR DELETE ANY OF THESE VALUES?
: no          <----- Your response!
```

- (4) The system will select ALL RECORDS and reformat them according to RESPONSE file specifications.
- (5) Since your "retrieved" data segment is identical to your INPUT data segment, delete the data segment!
- (6) Dprint REPORT; enter no. of copies. To save, rename report file!

See: Fig. III-7 for a sample execution of a REPORT GENERATION program, using RESPONSE file, FORM.response. Fig. III-9 illustrates program execution using RESPONSE file: "newpr.response". The resulting custom REPORT is identical with the one generated by the one-step procedure in Section_B.3.2. (See fig. III-10.)

C.1.2 RESPONSE FILE: "FORM.response"

The customized RESPONSE file "FORM.response" includes REPORT format specifications for bibliographic citations. Type "print, pr" command to read the file:

```
: pr FORM.response
```

```
different input file:=no
any more files:=no
dictionary:=no
any numeric fields:=no
matching criteria:=all .
change criteria:=no
dump listing:=no
standard report:=no
```

```
own formatted report:=yes
brief mode:=yes
page heading report_line:=<%S,'enter title line'>
page heading report_line:=<68>DATE: <%DATE>
page heading report_line:=<68>PAGE: <%PCOUNT>
page heading report_line:=
page heading report_line:=.
detail report_line:=<%CR> <11><aut><48> <50><pub>
detail report_line:=<9><tit><69>
detail report_line:=<11><cit><70>
detail report_line:=<60><wno>
detail report_line:=.
any PAGE BREAK FORMATS:=no
any RECORD SPACE BREAKS:=no
any REPORT TOTAL LINES:=no
sort records:=yes
sort variable:=wno a .          <-----SORT statement
```

```
print at terminal:=no
print at central site:=yes
copies:=1
save report print file:=yes
any other reports:=no
save retrieved record segment:=yes
another run:=no
```

```
r ---- (Ready message!)
```

Figure III-6.--RESPONSE FILE: "FORM.response" when used with "-change in,mc" arguments, provides all specifications for RTRIEVAL and custom REPORT GENERATION. Includes numeric SORT on WRSIC (accession) number.

NOTE: For application as "response" argument see Section C. fig. III-7. Reformatting previously retrieved data.

C.2 CUSTOM REPORT GENERATION: Using -rsp FORM -chg in

C.2.1 REFORMATTING PROGRAM EXAMPLE:

```
: NOVpr -rsp FORM -chg in          <----- PROGRAM STATEMENT
MULTI TRIEVE RESPONSES READ FROM FILE
>udd>Wrdbib>NTamberg>TEMP>FORM.response      <----- RESPONSE_path
YOUR CURRENT INPUT FILE IS >udd>Wrdbib>NTamberg>TEMP>auth81  <-----

/*The user wants to change his INPUT file--prompts follow!*/

DO YOU WISH TO USE A DIFFERENT INPUT FILE?
: yes
THE NEW INPUT FILE MUST BE COMPATIBLE WITH THE DICTIONARY DESCRIBING
THE OLD INPUT FILE.
PLEASE ENTER THE NAMES OF INPUT FILES.
THE NAMES MUST BE SEPARATED BY BLANKS.
THE LAST NAME MUST BE FOLLOWED BY A BLANK AND A PERIOD.
: WSP81.dt .          <----- -chg in

/*This is a previously retrieved data segment */

ANY MORE FILES TO SEARCH?
: no
INPUT FILES: >user_dir_dir>Wrdbib>NTamberg>TEMP>WSP81.dt
-----

TOTAL NUMBER OF RECORDS READ = 14                                RETRIEVAL
TOTAL NUMBER OF RECORDS SELECTED = 14
* Enter title line                                              REPORT_GENERATION
: WATER SUPPLY PAPERS (1980/81 Update)
**
THE NAME OF SAVED REPORT PRINT FILE IS ret4326.report          OUTPUT
THE NAME OF THE SEGMENT SAVED IS ret_184057.data              files
END OF JOB (Level 2)
r 18:43 5.397 892                                             ("Ready" message)
-----

": " precedes user responses
* interactive prompt requesting REPORT title
** SORT criteria are specified in FORM.response: "wno a."
```

Figure III-7.-- REFORMATTING PREVIOUSLY RETRIEVED DATA ACCORDING TO
"FORM.response": REPORT cites bibliographic citation only.

NOTE: The custom REPORT for updated citations of WATER SUPPLY PAPERS is shown in fig. III-8.
See also: AUTHOR INDEX to the REPORT which has been generated using the "AUT.response" file (fig. III-12). The AUTHOR INDEX is shown in fig. III-13; a NUMERIC INDEX is given in fig. III-14.

C.2.2 CUSTOM REPORT (CITATIONS)

WATER SUPPLY PAPERS (1980/81 Update)

DATE: 02/07/83

PAGE: 1

- 1 HERB, W. J.; 1980
SEDIMENT-TRAP EFFICIENCY OF A MULTIPLE-PURPOSE IMPOUNDMENT,
NORTH BRANCH ROCK CREEK BASIN, MONTGOMERY COUNTY, MARYLAND,
1968-76,
AVAILABLE FROM SUPT. OF DOCUMENTS, GPO, WASHINGTON, DC
20402, PRICE, \$2.50. GEOLOGICAL SURVEY WATER-SUPPLY PAPER
2071, 1980. 41 P, 19 FIG, 11 TAB, 19 REF.
81-00060
- 2 REED, L. A.; 1980
SUSPENDED-SEDIMENT DISCHARGE, IN FIVE STREAMS NEAR
HARRISBURG, PENNSYLVANIA, BEFORE, DURING, AND AFTER HIGHWAY
CONSTRUCTION,
AVAILABLE FROM SUPT. OF DOCUMENTS, GPO, WASHINGTON, DC
20402, PRICE, \$2.25. GEOLOGICAL SURVEY WATER-SUPPLY PAPER
2072, 1980. 37 P, 17 FIG, 8 TAB, 10 REF.
81-00361
- 3 FAYE, R. E.; AND CHERRY, R. N.; 1980
CHANNEL AND DYNAMIC FLOW CHARACTERISTICS OF THE
CHATTAHOOCHEE RIVER, BUFORD DAM TO GEORGIA HIGHWAY 141,
AVAILABLE FROM SUPT. OF DOCUMENTS, GPO, WASHINGTON, DC
20402, PRICE, \$3.25. GEOLOGICAL SURVEY WATER-SUPPLY PAPER
2063, 1980. 66 P, 22 FIG, 13 TAB, 11 REF.
81-00362
- 4 WHITE, A. F.; CLAASSEN, H. C.; AND 1980
BENSON, L. V.;
THE EFFECT OF DISSOLUTION OF VOLCANIC GLASS ON THE WATER
CHEMISTRY IN A TUFFACEOUS AQUIFER, RAINIER MESA, NEVADA,
AVAILABLE FROM SUPT. OF DOCUMENTS, GPO, WASHINGTON, DC
20402, PRICE, \$2.25. GEOLOGICAL SURVEY WATER-SUPPLY PAPER
1535-Q, 1980. 34 P, 11 FIG, 5 TAB, 36 REF.
81-00831
- 5 BROGDEN, R. E.; HUTCHINSON, E. C.; 1979
AND HILLIER, D. E.;
AVAILABILITY AND QUALITY OF GROUNDWATER, SOUTHERN UTE INDIAN
RESERVATION, SOUTHWESTERN COLORADO,
AVAILABLE FROM SUPT. OF DOCUMENTS, GPO, WASHINGTON, DC
20402, PRICE, \$1.75. GEOLOGICAL SURVEY WATER-SUPPLY PAPER
1576-J, 1979. 28 P, 4 FIG, 1 PLATE, 5 TAB, 11 REF.
81-01197
- 6 ZACK, A. L.; 1980
GEOCHEMISTRY OF FLUORIDE IN THE BLACK CREEK AQUIFER SYSTEM
OF HORRY AND GEORGETOWN COUNTIES, SOUTH CAROLINA--AND ITS
PHYSIOLOGICAL IMPLICATIONS,
AVAILABLE FROM SUPT. OF DOCUMENTS, GPO, WASHINGTON, DC
20402, PRICE, \$2.50. GEOLOGICAL SURVEY WATER-SUPPLY PAPER
2067, 1980. 40 P, 11 FIG, 1 PLATE, 2 TAB, 24 REF.
81-02677

Figure III-8.--CUSTOM REPORT: BIBLIOGRAPHIC CITATIONS ONLY.
Generated by FORM.response.

C.3 REPORT GENERATION W/DESCRIPTORS: Using -rsp newpr -chg in,mc

C.3.1 REFORMATTING PROGRAM EXAMPLE:

```
: NOVpr -rsp newpr -chg in,mc          <----- PROGRAM STATEMENT
MULTI TRIEVE RESPONSES READ FROM FILE
>user_dir_dir>Wrdbib>NTamberg>TEMP>newpr.response <----- RESPONSE_path
YOUR CURRENT INPUT FILE IS >user_dir_dir>Wrdbib>NTamberg>TEMP>auth81
                                                    INPUT
-----
DO YOU WISH TO USE A DIFFERENT INPUT FILE?
: yes
THE NEW INPUT FILE MUST BE COMPATIBLE WITH THE DICTIONARY DESCRIBING
THE OLD INPUT FILE.
PLEASE ENTER THE NAMES OF INPUT FILES.
THE NAMES MUST BE SEPARATED BY BLANKS.
THE LAST NAME MUST BE FOLLOWED BY A BLANK AND A PERIOD.
: ret_101253.data .          <----- -chg in
ANY MORE FILES TO SEARCH?
: no
INPUT FILES: >user_dir_dir>Wrdbib>NTamberg>TEMP>ret_101253.data
-----
ALL RECORDS WILL BE SELECTED.          <----- -chg mc
DO YOU WISH TO CHANGE, AND OR DELETE ANY OF THESE VALUES?
: no
-----
TOTAL NUMBER OF RECORDS READ = 3          RETRIEVAL
TOTAL NUMBER OF RECORDS SELECTED = 3
* Enter title line          REPORT_GENERATION
: POTOMAC REPORTS (1980/81 Update)
* Enter add. print variable: 'des' or 'idn'
: des
**
THE NAME OF SAVED REPORT PRINT FILE IS ret4326.report          OUTPUT
THE NAME OF THE SEGMENT SAVED IS ret_184057.data          Files
END OF JOB (Level 2)
r 18:42 9.765 1.786          ("Ready" message)

: dl ret_184057.data          (delete since OUTPUT segment = INPUT segment!)
r 18:43 5.397 892          ("Ready" message)
-----

":" precedes user responses
* interactive prompt
** SORT criteria are specified in FORM.response: "wno a."
```

Figure III-9.--CUSTOM REPORT GENERATION: REFORMATTING PREVIOUSLY RETRIEVED DATA SEGMENT ACCORDING TO RESPONSE FILE: "newpr.response". REPORT may include optional "descriptors" (des).

NOTE: The custom REPORT is shown in fig. III-10. The same REPORT has been obtained by executing a one-step RETRIEVAL and REPORT GENERATION program according to PROCEDURE B. (See fig. III-5.)

C.3.2 CUSTOM REPORT WITH DESCRIPTORS:

POTOMAC REPORTS (1980/81 Update)

DATE: 01/31/83

PAGE: 1

- 1 LANG, D. J.; AND GRASON, D.; 1980
WATER-QUALITY MONITORING OF THREE MAJOR TRIBUTARIES TO THE
CHESAPEAKE BAY--INTERIM DATA REPORT,
AVAILABLE FROM THE NATIONAL TECHNICAL INFORMATION
SERVICE, SPRINGFIELD, VA 22161 AS PB81-113888, IN PAPER
COPY, IN MICROFICHE. GEOLOGICAL SURVEY WATER-RESOURCES
INVESTIGATIONS 80-78, SEPTEMBER, 1980. 66 P, 1 FIG, 5
TAB, 9 REF.
*WATER QUALITY, *BASIC DATA COLLECTIONS, *WATER ANALYSIS,
*RIVERS, *CHESAPEAKE BAY, BAYS, SAMPLING SITES, SEDIMENT
TRANSPORT, SEDIMENTS, BOTTOM SEDIMENTS, NUTRIENTS, TRACE
ELEMENTS, PESTICIDES, HERBICIDES, INSECTICIDES, POTOMAC
RIVER, JAMES RIVER(VA), SUSQUEHANNA RIVER(MD).
81-01184
- 2 LUZIER, J. E.; 1980
DIGITAL-SIMULATION AND PROJECTION OF HEAD CHANGES IN THE
POTOMAC-RARITAN-MAGOTHY AQUIFER SYSTEM, COASTAL PLAIN, NEW
JERSEY,
AVAILABLE FROM THE NATIONAL TECHNICAL INFORMATION
SERVICE, SPRINGFIELD, VA 22161 AS PB81-115768, IN PAPER
COPY, IN MICROFICHE. GEOLOGICAL SURVEY WATER-RESOURCES
INVESTIGATIONS 80-11, MAY, 1980. 72 P, 32 FIG, 6 TAB,
33 REF.
*GROUNDWATER RESOURCES, *MODEL STUDIES, *HYDROGEOLOGY,
*AQUIFER CHARACTERISTICS, *NEW JERSEY, COMPUTER MODELS,
WATER SUPPLY, PUMPING, DRAWDOWN, ENCROACHMENT, SALINE
WATER, WATER YIELD, POTENTIOMETRIC LEVEL, GROUNDWATER
RECHARGE, HYDROLOGIC PROPERTIES, LEAKAGE, TRANSMISSIVITY,
GROUNDWATER MOVEMENT, SIMULATION ANALYSIS, EVALUATION,
HEAD LOSS, *COASTAL PLAIN(NJ), *POTOMAC-RARITAN-
81-01185
- 3 RUNNER, G. S.; 1980
WEST VIRGINIA DEPARTMENT OF HIGHWAYS RESEARCH PROJECT 16,
'RUNOFF STUDIES ON SMALL DRAINAGE AREAS' (TECHNIQUE FOR
ESTIMATING MAGNITUDE AND FREQUENCY OF FLOODS IN WEST
VIRGINIA),
AVAILABLE FROM THE OFSS, USGS BOX 25425, FED. CTR.,
DENVER, CO 80225, PRICE: \$6.00 IN PAPER COPY, \$3.50 IN
MICROFICHE. GEOLOGICAL SURVEY OPEN-FILE REPORT 80-1218,
OCTOBER, 1980. 44 P, 24 FIG, 9 REF.
*FLOODS, *NATURAL STREAMS, *RUNOFF, *DRAINAGE AREA,
ESTIMATING, FLOOD PEAK, FLOOD FREQUENCY, REGIONAL
ANALYSIS, REGRESSION ANALYSIS, FREQUENCY ANALYSIS, FLOOD
DATA, DATA COLLECTIONS, STREAM GAGES, *WEST VIRGINIA,
OHIO RIVER BASIN, POTOMAC RIVER BASIN.
81-02985

end of report

Figure III-10.--CUSTOM REPORT WITH DESCRIPTORS GENERATED BY "newpr.response".

C.4 INDEX REPORT GENERATION: Using -rsp AUT -chg in

C.4.1 RESPONSE FILE: "AUT.response" contains the INDEX format specifications. Use the "AUT.response" file in argument form (-rsp AUT) to create an AUTHOR INDEX for your subject bibliography:

```
: NOVpr -rsp AUT -chg in
```

First, enter the "print, pr" command to read AUT.response:

```
: pr AUT.response
```

```
different input file:=yes
input file:=auth82 .
any more files:=no
dictionary:=no
any numeric fields:=no
matching criteria:=all .
change criteria:=no
dump listing:=no
standard report:=no
```

```
own formatted report:=yes
brief mode:=yes
page heading report_line:=<%S,"Enter title line">
page heading report_line:=<64>DATE: <%DATE>
page heading report_line:=<64>PAGE: <%PCOUNT>
page heading report_line:=<2>WRSICNo <9><15>AUTHOR <72>PUBByr
page heading report_line:=
page heading report_line:=.
detail report_line:=<wno> <11><aut><70> <72><pub>
detail report_line:=
detail report_line:=.
any PAGE BREAK FORMATS:=no
any RECORD SPACE BREAKS:=no
any REPORT TOTAL LINES:=no
sort records:=yes
sort variable:=aut a .
```

```
print at terminal:=no
print at central site:=yes
copies:=1
save report print file:=yes
any other reports:=no
save retrieved record segment:=no
another run:=no
```

```
r ---- (Ready message!)
```

Figure III-11.--RESPONSE FILE "AUT.response": CREATES INDEX REPORT
SORTS ALPHABETICALLY ON AUTHORS' NAMES.

See: Fig. III-12 for the AUTHOR INDEX format.

C.4.2 GENERATE AUTHOR INDEX: EXAMPLE_

EXECUTE AN AUTHOR INDEX PROGRAM USING RESPONSE FILE "AUT.response" as "-response" argument and the "change in" argument to enter the retrieved data segment. (See fig. III-7.)

```

:  NOVpr -rsp AUT -chg in          <----- PROGRAM STATEMENT
MULTI TRIEVE RESPONSES READ FROM FILE
>udd>Wrdbib>NTamberg>TEMP>AUT.response    <----- RESPONSE_path
YOUR CURRENT INPUT FILE IS >udd>Wrdbib>NTamberg>TEMP>auth81  <-----
                                                    INPUT

/*The user wants to change his INPUT file--prompts follow!*/

DO YOU WISH TO USE A DIFFERENT INPUT FILE?
:  yes
THE NEW INPUT FILE MUST BE COMPATIBLE WITH THE DICTIONARY DESCRIBING
THE OLD INPUT FILE.
PLEASE ENTER THE NAMES OF INPUT FILES.
THE NAMES MUST BE SEPARATED BY BLANKS.
THE LAST NAME MUST BE FOLLOWED BY A BLANK AND A PERIOD.
:  WSP81.dt .          <----- -chg in

/*This is a previously retrieved data segment */

ANY MORE FILES TO SEARCH?
:  no
INPUT FILES: >user_dir_dir>Wrdbib>NTamberg>TEMP>WSP81.dt

-----
TOTAL NUMBER OF RECORDS READ = 14                                RETRIEVAL
TOTAL NUMBER OF RECORDS SELECTED = 14
* Enter title line                                              REPORT_GENERATION

:  WATER SUPPLY PAPERS:  AUTHOR INDEX  (Update 1980/81)
**
THE NAME OF SAVED REPORT PRINT FILE IS  ret4326.report          OUTPUT file
END OF JOB (Level 2)
r 18:43 5.397 892              ("Ready" message)

-----
": " precedes user responses
*  interactive prompt
**  SORT criteria are specified in AUT.response:  "aut a ."
    (alphabetically by "author" in ascending sequence.)

```

Figure III-12.--REPORT GENERATION: CREATING AUTHOR INDEX REPORT.

NOTE: The AUTHOR INDEX REPORT is shown in fig. III-13.

C.4.3 AUTHOR INDEX REPORT:

TOTAL NUMBER OF RECORDS READ = 14
TOTAL NUMBER OF RECORDS SELECTED = 14

INPUT FILES: >udd>Wrdbib>NTamberg>TEMP>WSP81.dt

WATER SUPPLY PAPERS: AUTHOR INDEX (Update 1980/81)

DATE: 12/07/82
PAGE: 1

WRSICNo	AUTHOR	PUByr
81-02912	BATTEN, W. G.; AND HINDALL, S. M.;	1980
81-01197	BROGDEN, R. E.; HUTCHINSON, E. C.; AND HILLIER, D. E.;	1979
81-00362	FAYE, R. E.; AND CHERRY, R. N.;	1980
81-04333	FETH, J. H.;	1981
81-00060	HERB, W. J.;	1980
81-02708	JORGENSEN, D. G.;	1980
81-06100	KIMBALL, B. A.;	1981
81-06101	MCDONALD, M. G.;	1981
81-03271	MUIR, K. S.; AND COPLEN, T. B.;	1981
81-00361	REED, L. A.;	1980
81-06087	SCHAEFER, F. L.; AND WALKER, R. L.;	1981
81-00831	WHITE, A. F.; CLAASSEN, H. C.; AND BENSON, L. V.;	1980
81-06099	WYRICK, G. G.; AND BORCHERS, J. W.;	1981
81-02677	ZACK, A. L.;	1980

end of report

Figure III-13.--INDEX REPORT TO RETRIEVAL OF WATER SUPPLY PAPERS
ACCORDING TO RESPONSE FILE: "AUT.response".
(Sorted alphabetically by "author" in ascending sequence.)

C.5 NUMERIC INDEX REPORT GENERATION: Using -rsp AUT -chg in,sc

C.5.1 GENERATING NUMERIC SORT:

To change the SORT parameter in the RESPONSE file, AUT.response, the user must supply the "-change sc" argument in his/her PROGRAM STATEMENT:

NOVpr -rsp AUT -chg in,sc

The user will then respond to the following prompts at the REPORT GENERATION stage: (See REPORT format in fig. III-11.)

```
DO YOU WANT TO SORT AS BEFORE?
: no
DO YOU WANT TO SORT THE RETRIEVED RECORDS PRIOR TO PRINTING THE REPORT?
: yes
PLEASE ENTER THE VARIABLES NAMES TO SORT ON
: wno a . (SORT "wno" field in ascending sequence!)
```

For more detail see Section II.C.1. SORTING.

C.5.2 NUMERIC INDEX REPORT:

INPUT FILES: >user_dir_dir>Wrdbib>NTamberg>TEMP>WSP81.dt

INDEX TO WSP REPORT (SORTED ON WRSIC NO.)

DATE: 02/08/83

PAGE: 1

WRSICNo	AUTHOR	PUByr
81-00060	HERB, W. J.;	1980
81-00361	REED, L. A.;	1980
81-00362	FAYE, R. E.; AND CHERRY, R. N.;	1980
81-00831	WHITE, A. F.; CLAASSEN, H. C.; AND BENSON, L. V.;	1980
81-01197	BROGDEN, R. E.; HUTCHINSON, E. C.; AND HILLIER, D. E.;	1979
81-02677	ZACK, A. L.;	1980
81-02708	JORGENSEN, D. G.;	1980
81-02912	BATTEN, W. G.; AND HINDALL, S. M.;	1980
81-03271	MUIR, K. S.; AND COPLEN, T. B.;	1981
81-04333	FETH, J. H.;	1981
81-06087	SCHAEFER, F. L.; AND WALKER, R. L.;	1981
81-06099	WYRICK, G. G.; AND BORCHERS, J. W.;	1981
81-06100	KIMBALL, B. A.;	1981
81-06101	MCDONALD, M. G.;	1981

end of report

Figure III-14.--NUMERIC INDEX REPORT TO RETRIEVED WATER SUPPLY PAPERS:
Sorted on WRSIC (Accession) number.

D. DIRECTORY CHECK:

CHECK YOUR WORKING DIRECTORY: (Use MULTICS systems' commands.)

```
: ls (System will print all files)
: ls -ft 6 (System will print the latest 6 entries)

: rn ret_137546.data new.dt (Rename data you wish to store)
: rn ret3522.report GLACIER.rep (Rename report you wish to store)

: dl *.data (Delete all data segments created by
              default.)

: dp newpr.response (Print "newpr.response" at central site)
: pr FORM.response (Print "FORM.response" at the terminal)

: dp GLACIER.rep (Dprint REPORT at central site.)
```

For more detail on Listing Procedures see APPENDIX_I.B.

See also APPENDIX_III. WRDBIB RETRIEVAL AND REPORT GENERATION SESSION.
Step_10.

APPENDIX I.

A. WRDBIB DATA BASE ACCESS

B. WORKING DIRECTORY AND WRDBIB FILES:

LISTING PROCEDURES

A. WRDBIB DATA BASE ACCESS

A.1. CHECKLIST: ACCESS PROCEDURES--HOW TO ESTABLISH ACCESS TO RESTON MULTICS AND WRDBIB PROGRAMS.

If you wish to execute a MULTI TRIEVE application program to either retrieve records from the WRDBIB data base according to specified search criteria, and/or to prepare a custom formatted report, you must be familiar with the following procedures:

- Establish your person_id, project_id (user_id), and your password
- Master access procedure to RESTON MULTICS using port-sharing device (psd). (For "login procedure" see section A.2.)
- Secure access to MULTI TRIEVE software and WRDBIB files in the Working Directory by linking to and executing the following command ("exec_com"): (See section A.3)

```
lk >udd>Wrdbib>NTamberg>IO>WRDBIB.ec
ec WRDBIB
```

- Check out the WRDBIB library of programs, dictionaries, input files, reports, and response files (providing various input/output options): Selectively list, print or dprint files. (See section B.)
- If you have questions pertaining to program execution and/or application of programs to your own files see WBsum.info segments. Enter the following command:

ec WRDBIB (This will place you in the IO working_dir and explain how to use the "help" command.)
- Enter suggested "info" segments using the "help" command.

help <path> <-argument>

For example:

```
help WBsum -title (you may omit the .info suffix)
help -pn WBsum -title (if you use your own directory
                      and have established search_paths)
```

For more information see section I.B.

NOTE: For RETRIEVAL AND/OR REPORT GENERATION PROCEDURES see Section III WRDBIB PROGRAM EXECUTION and the RETRIEVAL SESSION in APPENDIX III.

A.2. HOW TO ESTABLISH COMMUNICATION WITH MULTICS

A.2.1 DIAL UP PROCEDURE:

-- Dial the telephone number of the computer. Check, if you need to access the outside line! If yes, dial 9+ your number. If you are working with a 300/1200 baud terminal, dial:

in Reston:	860-3150 or 476-5051 or your DATAphone number
in Denver:	232-0058

You will hear the telephone ring, and when the computer answers, a steady high-pitched tone will be heard.

-- Insert the telephone handset into the coupler (with the cord as indicated) or push DATA button on your phone--as the case may be! The light marked ready or carrier should go on. (If not, repeat the dial_up procedure!) Proceed as shown below.

```
-- When the "ready" light comes on, the system will print:
enter class ____          [system asks for desired baud rate]

enter class 41            [type: 41 (from 300 baud port code)]
                           [ 42 (for 1200 baud port code)]
CR                        [hit carriage return and wait for
                           computer access.]
CONNECTING TO THE RESTON MULTICS [system's response]
class 41 start            [communication to Multics established]
```

A.2.2 LOGIN PROCEDURE:

-- The computer will respond with a 2 or 3 line "banner". If the computer is not operating, it will either not answer or it will have a tone but will not respond. The "banner" will look something like this:

```
Multics MR7.0a: USGS; Reston, Va.
Load = 60.0 out of 125.0 units: users = 60, 12/08/82 1435.4 est Wed
```

-- Your regular "login" procedure will look like the following: Proceed (user entry follows the colon ":")

```
: 1 JDoe wrdcrut          [where l=login]
  Password:              [systems response]
: XXXXXXXXXXXX           [enter your password]
  You are protected from preemption until 1435. [systems response]
```

-- The system will proceed to execute your "start_up" commands and print any messages sent to you.

When all the house-keeping is done, you will receive the "ready" message and may proceed with your intended terminal session:

```
ready _____ [your "ready" message]
```

USER ASSISTANCE: For additional help call a USER ASSISTANT:

Denver	303-234-4810	234-4810
Reston	703-860-7179	928-7179

A.3. ACCESS TO WORKING DIRECTORY:

A.3.1 THE Wrdbib WORKING DIRECTORY ">IO":

In setting access to directories the star convention is allowed when used to extend access to all projects for a given person_id.

Your "working directory" is: >udd>Wrdbib>NTamberg>IO
List access to working directory: la >udd>Wrdbib>NTamberg>IO

The system will print:

```
sma  NTamberg.Wrdbib.*
sma  JFisher.Help.*
sma  CSaboe.*.*
sma  *.SysDaemon.*
sa   *.*.*
```

NOTE: Access to directory >IO has been set for all users!
The user should note the access attributes that are available to him, where "s" (status) and "a" (append). (See: Appendix_II.)

A.3.2 WRDBIB.ec Command:

To learn about the WRDBIB library resident in the "IO" directory--execute the exec_com, WRDBIB.ec, as shown below. This will transfer you into the "IO" directory and provide access to the WBsum.info segment describing WRDBIB RETRIEVAL and REPORT_GENERATION procedures.

Procedure: (Note: "read, r" and "execute, e" attributes have been set for general usage.--See: Appendix_II--access attributes!)

-- List access to segment WRDBIB.ec: la >udd>Wrdbib>NTamberg>IO>WRDBIB.ec

```
rew  NTamberg.Wrdbib.*
rw   *.SysDaemon.*
re   *.*.*                (General access has been set!)
```

-- Link to WRDBIB.ec: lk >udd>Wrdbib>NTamberg>IO>WRDBIB.ec

-- Execute WRDBIB : ec WRDBIB

(This will provide all the necessary links and search_paths! See fig. A.I-1.)

NOTE: The user should be familiar with the following Multics commands:

```
-- Change working directory to "IO":      cwd >udd>Wrdbib>NTamberg>IO
-- Change working_dir to your home directory:  cwd
      (There is no systems response after the _cwd command!)
-- Print working directory after "interrupts":  pwd
      (The system will print the path of your current working directory.)
>user_dir_dir>Wrdbib>NTamberg>IO
ready _____ (systems ready message!)
```

A.3.2 WRDBIB.ec Command continued:

PROCEDURE: To execute the `exec_com WRDBIB.ec` enter

: `ec WRDBIB` (The system will respond as follows!)

INTRODUCTION TO `WBSum.info`:

by N.Tamberg (revised September 1982)

To learn how to execute a `WRDBIB RETRIEVAL & REPORT GENERATION` program using `multi_trieve` software, the user should read the online `WBSum.info` segments.

The current procedure will do the following:

- place you into the `>IO` working directory,
- list `WBSum.info` and its add_names to give you an idea of the contents,
- start the introductory "help" segment by printing its header.

The user should selectively read the `info.segment` section by section. After each section the system will solicit user response: More help? Respond: "yes, y" "skip, s" "scn <string>" "no, n" "quit, q" .

To limit your CRT screen to 21 lines respond (yes) to the following query: Are you using a CRT (yes/no) ?

: yes -- the system will print 21 lines, the "EOP" and stop.
(Hit CR (carriage return) to continue reading.)

Segments = 1, Lengths = 15.

```
rew 15 WBSum.info
      WBintro.info
      INPUT.info
      RETRstmt.info
      RETRpr.ec.info
      RESPONSE.info
      REPgen.info
      PROG.ex.info
      PROG.ec.info
      GWpr.ec.info
      REFORM.ec.info
      INDEX.ec.info
      DICT.ec.info
      COMPdict.info
      C+E/STDrep.ec.info
```

Figure A-1.--CONTENTS OF "WRDBIB.ec: INTRODUCTION.

B.1. LISTING PROCEDURES: WORKING DIRECTORY

LISTING CONTENTS OF WORKING DIRECTORY ">IO":

You may list all files of "IO" directory by entering: `ls`
You may list the first "n" entries in IO (n=1,2,3,etc): `ls -ft 3`
You may list "links" to the Wrdbib directory and its files: `ls -lk`
You may list the complete IO directory: `ls -all`
(See below!)

Segments = 19, Lengths = 336.

```
r w    1  PROG.info
r w    2  featur.info
rew    1  WRDBIB.ec
rew    1  WBSumprf.info
re     1  NOVpr
rew   62  Lake.dt
rew    1  FLmap.dt
rew    1  extdict
rew   15  WBSum.info
        WBintro.inf_
        INPUT.info
        RETRstmt.info
        RETRpr.ec.info
        RESPONSE.info
        REPgen.info
        PROG.ex.info
        PROG.ec.info
        GWpr.ec.info
        REFORM.ec.info
        INDEX.ec.info
        DICT.ec.info
        COMPdict.info
        C+E/STDrep.ec.info
rew    1  shlg.response
rew    1  RETR.response
rew   49  auth82
rew  168  auth81
rew   94  auth356
rew    1  AUT.response
rew    3  assrv.dt
rew    3  7880DR.dt
rew    1  newpr.response
rew    1  FORM.response
```

Links = 2.

```
USERS_GUIDE          >udd>Wrdbib>NTamberg>TEMP>USERS_GUIDE
multi_trieve.ec      >udd>Userast>LHarms>multi_trieve.ec
```

Figure A-2.--LISTING WORKING DIRECTORY: >IO.

B.2. LISTING PROCEDURES: PROGRAMS AND DICTIONARIES

B.2.1 SELECTIVE LISTING OF PROGRAMS AND DICTIONARIES:

List the files at your disposal selectively as follows:

Use star convention to identify a class of files with a common suffix!

To list available PROGRAMS use command: `ls *pr`

To list DATA DICTIONARIES use command: `ls *dict`

To print an individual file (DICTIONARY): `pr extdict` (See below!)

RETRIEVAL NAME	PRINT NAME	START POS	FIELD LENGTH
wno	wrsic.no	1	8
acyr	acc.yr	1	2
acno	acc.no	4	5
aut	author	9	90
sso	source	99	120
tit	title	219	200
cit	citation	419	230
des	descriptor	649	380
pub	pub.yr	1029	4
idn	ident	1033	2

Figure A-3.--DATA DICTIONRY: "extdict".
"extdict" describes data elements of the "Current" Input record.

B.2.2 CHECKING DICTIONARY THAT WAS COMPILED WITH A PROGRAM:

PROGRAMS	compiled against DICTIONARY	used for searching
WRpr	wrsdict	"Master" file
NOVpr	extdict	"Current" files

PROCEDURE to check the DATA DICTIONARY associated with your PROGRAM:

```
-- Enter the PROGRAM NAME and execute!
: NOVpr                                     (Press Carriage Return!)
-- Respond to queries: no -- until the query:

DO YOU WANT TO SEE THE DATA DICTIONARY?
-- Respond: yes
The system will print the associated (internal) DICTIONARY!

-- To exit program push BREAK button.
```

The procedure is illustrated in Section II fig. II-6.

B.3. LISTING PROCEDURES: INPUT FILES

INPUT FILES: The names are mnemonic and indicate the years covered:

```
To list enter:  ls auth*      (for "Current" files)
                ls msf       (for multi_segment_files)
```

B.3.1 The user may search the following primary input files (INPUT data):

```
"Master"file (tape_archived): auth6871+    (Multi_segment_file, msf)
and its subfiles ..... auth7174+      ( "      "      "      " )
                        ..... auth7578+  ( "      "      "      " )
                        ..... auth7980
```

```
Updated "Current" files:..... auth365
                        (auth80)
                        ..... auth81
                        ..... auth82
```

B.3.2 The user may use any data segments derived from the above files. Their label is "ret_XXXXXX.data". To list all segments with the suffix "data" using the star convention, enter: `ls *.data`

For example the response may be:

```
Segments = 2, Lengths = 3.
```

```
rew    1  ret_164217.data
rew    2  ret_164007.data
```

-- Delete data segments you don't need: `dl *.data`

-- Rename data segments you wish to store: `rn ret_164007.data FLmap.dt`
(Use common suffix ".dt" for renamed data segments!)

-- To list renamed data segments that end in the suffix ".dt", enter:
`ls *.dt`

```
Segments = 6, Lengths = 84.
```

```
rew    62  lake.dt
rew     9  lowflo.dt
rew     1  FLmap.dt
rew     3  assrv.dt
rew     3  7880DR.dt
```

+ tape-archived files may be recalled using procedure in section AI-B.4.

B.4. TAPE-ARCHIVED INPUT FILES--

HOW TO LIST AND EXTRACT TAPE_ARCHIVED INPUT FILES:

The user must have "execute, e" access to "master.ta"; list access!
The WRDBIB tape archive is labelled: "master.ta" .
The following procedure may be used to extract tape-archived files:
(For more detail read up on the "tape archive, ta" command in your
Multics Manual: Commands and Active Functions.)

B.4.1 TO LIST CONTENTS OF "master.ta":

- Link to the listing label of the WRDBIB tape_archive.
(label ends in suffix ".ta": "master.ta")

: lk >udd>Wrdbib>NTamberg>TEMP>master.ta

- To inspect the contents of your tape archive prior to
recalling the tape, type

: ta t master (where the key "t" stands for "table")

The system will print the table of contents of your tape archive!

B.4.2 TO EXTRACT TAPE-ARCHIVED SEGMENTS:

- Send message to systems operator:

: sm sys oper Please find tape 112756

When tape is ready for mounting systems operator will notify you:
"tape is here!"

- Enter command to extract desired sections of MASTER file!
Note: The WRDBIB tape-archive label is "master.ta"

: ta x master auth7578 auth7980
ready ____ (The system will acknowledge instruction)

: ta go master (Issue "go" command to proceed!)

The systems operator will mount your tape 112756 and copy the specified
segments into your working directory. (Since auth7578 and auth7980
are multi_segment files, msf, copy time from tape to disk may be longer.)

- Upon "ready" message check your working directory.

: ls -ft 3 (System will list the new entries!)

- Execute search of "Master" file sections: auth7578 auth7980 .

See: Section III for PROGRAM EXECUTION PROCEDURES.

: dl auth7578 auth7978 (delete files after your job is finished.
you may extract them from tape_archive!)

B.5. LISTING PROCEDURES: RESPONSE FILES

B.5.1 RESPONSE FILES:

- To list available files use command: `ls *.response`
- To print a selected file use command: `pr FORM.response`

A sample listing may include the following RESPONSE files:

```
FORM.response..... aut/pub/tit/cit/wno-listing
newpr.response..... as above+option to print descriptors
shlg.response..... 2-tier retrievals
X2.response..... " "
std.response..... "standard" (MT)-output
RETR.response..... "dump--listing" only
AUT.response..... Author Index format
```

B.5.2 RESPONSE FILE ARCHIVE:

Response files are short segments which are best stored in a more compact form: They may be "archived" online, that is, the designated response segments are written consecutively to a file called <name>.archive. Use command "archive, ac", a function key (a=add, ad=add delete; u=update; t=table; x=extract); the name of your "archive" (with suffix ".archive") and the names of RESPONSE files. The syntax is as follows:

```
ac <key> <path.archive> <seg1.response> <seg2.response>
```

EXAMPLE: To add two response files to "RESP.archive" and have them deleted as individual segments, enter as follows:

```
ac ad RESP.archive X2.response std.response shlg.response
```

EXAMPLE: To extract RESPONSE files from RESP.archive:
First, check its contents: Enter key "table, t"
Then: To extract use key "x".

```
Enter command: ac t RESP
To extract files: ac x RESP <name.response>
```

See: Multics Commands and Active Functions: Archive, ac.

B.5.3 EDITING RESPONSE FILE: To edit a RESPONSE file use Multics text-editor "ted" with its line-numbering "Print, P" feature. Enter--

```
: ted
: r newpr.response      (read file into buffer)
: 1,$P                  (Capital P (Print) command will print each line
                        --first to last--preceded with a line number!)
```

```
1  different input file:=no
2  any more files:=no
3  dictionary:=no
4  any numeric fields:=no
5  matching criteria:=all .
6  change criteria:=no
7  dump listing:=no
8  standard report:=no
9  own formatted report:=yes
10 brief mode:=yes
11 page heading report_line:=<%S,"Enter title line">
12 page heading report_line:=<68>DATE: <%DATE>
13 page heading report_line:=<68>PAGE: <%PCOUNT>
14 page heading report_line:=
15 page heading report_line:=.
16 detail report_line:=<%CR> <11><aut><48> <50><pub>
17 detail report_line:=<9><tit><69>
18 detail report_line:=<11><cit><70>
19 detail report_line:=<60><wno>
20 detail report_line:=.
21 any PAGE BREAK FORMATS:=no
22 any RECORD SPACE BREAKS:=no
23 any REPORT TOTAL LINES:=no
24 sort records:=yes
26 print at terminal:=no
27 print at central site:=yes
28 copies:=1
29 save report print file:=yes
30 any other reports:=no
31 save retrieved record segment:=yes
32 another run:=no
```

To edit responses use the "substitute, s" command and regular expressions:

```
: 31s/yes/no/p          (The system will substitute "no" for "yes"
                        in line 31 and print the resulting line!)
```

```
: w                    (write, w to segment name: Save the changed file)
: q                    (quit the editor: Exit to Multics command level.)
```

```
ready _____      (ready message)
```

B.6 LISTING PROCEDURES: OUTPUT FILES:

REPORT/DATA FILES: You may wish to check your saved REPORT or DATA files listed by their default label: "retXXXX.report" or "ret_XXXXXX.data".

Use of the star convention is recommended: The star stands for any string denoting one component of the segment name, if followed by a period and a suffix. (Note that periods are used to separate component names!)

To list all segments with the suffix component "report" see below:

```
-- To list enter:  ls *.report
                   ls *.data      (See: Section B.3. INPUT FILES)
```

EXAMPLE:

```
ls *.report
```

```
Segments = 3, Lengths = 3.
```

```
rew    1  ret4242.report
rew    1  ret4147.report
rew    1  ret4058.report
```

If, renamed, but using a common suffix:

```
-- To list enter:  ls *.<suffix>
                   ls *.dt
                   ls *.rep
```

EXAMPLE:

```
ls *.rep
```

```
Segments = 2, Lengths = 2.
```

```
r w    1  POST.rep
r w    1  FLmap.rep
```

APPENDIX II.

GLOSSARY OF SELECTED TERMS

GLOSSARY OF SELECTED TERMS

Access attributes-

Access attributes identify the kinds of access which may be set for a segment or directory. The access attributes for segments are read (r), write (w), execute (e), and null (n). Those for directories are status (s), modify (m), append (a), and null (n). Access attributes are also known as access modes. (See also: Access identifier.)

Access control-

The mechanism for determining who may reference or modify segments (files) and directories.

Access rights-

An access control list (acl) describes the access attributes associated with a particular segment. The "acl" is a list of user identifications and respective access attributes. It is kept in the directory that catalogs the segment or the parent directory. (See access attributes for access modes.)

Access identifier (access_id, access_name)-

A character string representing a user or class of users. It consists of three fields: Person_id.Project_id.tag -- where the tag is the process identifier: "a" = interactive m = absentee; for example: NTamberg,Wrdbib.a (See printout!)

Access modes-

See: Access attributes.

Add_name/alternate name(s)-

A segment, directory, multisegment file, or link may have more than one name and may be referred to equally well by any one of its names. One of the names is the primary name. A segment often has more than one name because it is a program with alternate entry points. (See: Section I.B. WBSum.info.)

Alphameric-

Refers to alphabetic and numeric characters.

Archive-

A method of storing segments online or on tape, so as to conserve space. Access to online archives is by the "archive, ac" command; access to tape archives is by a procedure using a set of "tape_archive, ta" commands. (See: Appendix I.)

Argument-

See: Control argument.

Author Index-

Alphabetic crosslisting of authors' names of retrieved records against another variable (WRSIC/accession no., or publication year).

Citation-

Cited source of publication: Series or journal; volume, number; year of publication; pages, figures, tables
Citation (cit) is a variable field in the input record.

Command- A program designed to be called by typing its name at a terminal. Most commands are system-maintained (Multics commands), but any user program (Multi_trieve MT or WRDBIB) that takes only character-string input arguments--program name for example --can be used as a command. (See also: Program statement.)

Compiling (a program)-
See: Program creation.

Component (of an archive)-
One of the segments placed in an archive. (See the archive, "ac" command in Multics Commands and Active Functions Manual.)

Control argument-
An argument to a command specifies additional information required to execute a program. System control arguments begin with a hyphen, such as -all, -long, -norun. The meaning of each control argument accepted by the command is given as part of the description of the command. (See Appendix A of the MPM Commands and Active Functions Manual.) The Multi_trieve program uses control arguments: -change <list> and -response <path> to prompt for information on-line. Positional arguments (without preceding hyphen) are used to define the control argument: -rsp <path> where <path> is the positional argument defining the desired response function in terms of a library response file. (Note: The program defines the position of these arguments.)

-change <list> argument-
When entered as part of the program statement (command) will solicit additional information from the user which allows online changes of values of certain parameters from those given in the -response argument. The positional argument <list> may include any or all parameters: INPUT file(s) (in), MATCH criteria (mc), SORT criteria (sc).

-response <path> argument-
When entered as part of the program statement (command) will recall the response file designated by <path>--in order to supply the required responses to the system. Certain parameters of the response argument may be changed online when the -change <list> argument is entered with it.

Current files- Input records used to update the Master file: 1980 todate.

Custom report- User-formatted report.

Custom program- User-created program using the exec_com: ec multi_trieve. The program includes a user-defined data dictionary and the user specified Input file.

Daemon- One of several system service processes (sysdaemon) that perform such tasks as process creation, backup, and printing segments on the line printer (hence command: daemon_print, dp).

Data dictionary- A list of data elements defining the input record. This includes their print labels (optional), and their position and length in the input record.

Data elements- Variables/variable fields which may be searched in the input record. Data elements are defined in the data dictionary.

Data segment- A set of retrieved records which have been saved and cataloged in the working directory. (The label ends in ".data")

Descriptor(s)- (1) Index term(s) used to describe the subject content of a report. (2) Also a variable field in the input record "des" as defined in the data dictionary.

Directory- A directory is a segment that contains information about other segments and directories directly below it such as access attributes, number of records, names, and bit count.

Directory (home)- The home directory (or the initial working directory) is the one under which the user logs in. Usually this directory is named: >udd>projectid>personid . (See: Appendix_I.)

Directory (parent)- The immediately superior directory.

Directory (working)- The working directory is the one under which the user is doing his work. Often the working directory is also the home directory. (This is always true at login time.) The user may redefine his working directory by use of the "change-wdir, cwd" command. Your working directory is: >udd>Wrdbib>NTamberg>I0 . (The user may choose to copy this directory into his own home directory.)

Dump-listing- Printing the unformatted record at the terminal or at the central site. The data elements are dumped in the same sequence as they appear in the dictionary: Each variable begins on a new (physical) line.

Editor- Text-editors "qedx, qx" or "ted" are Multics subsystems which may be called for data input or editing. Both editors operate in the input mode and the edit mode with their respective command sets; "qx" edit commands are upward compatible to "ted" . The editor must be exited using the "quit,q" command before program execution at the Multics command level.

Entry format- Format of statement to the system including syntax and punctuation.

Entrypname- The name by which a segment is cataloged in a directory. The entryname is not restricted to one component; it may contain two or more components, separated by periods. (For example: FORM.response; PROG.ec.info).

Exec_com A facility for executing a list of commands contained within a segment. The segment is created within a text editor; its cataloged name must end with the suffix ".ec". To execute use the "execute, ec" command followed by the segment name. (Drop the suffix!) (See: Multi_trieve.ec!)

File(s)- Segment(s) in which related information is stored online.

Help command- A structured command which allows the user to read system's or user-created info segments providing ready reference on system's commands or a factual topic. The syntax is:
help <segment_path> [optional argument]
The info segment suffix ".info" is not entered!
For more information enter online: help help

Index report- See: Author Index. Numeric Index.

Info segment- A ready reference information unit which is stored online and may be accessed with the help command. The information is structured in sections, and after each section the system solicits user response whether "More help?" is desired. The user must use a given set of responses. (See help command.) The info segment label must end with the suffix ".info" to identify it as such.

Input (files)- (1) Primary Input records which have been entered into the data base, and are described by the dictionary. They are the data files which serve as input into the WRDBIB program.
(2) Secondary data files which have been retrieved on some search criterium and are, in turn, entered as input files into a program for further retrieval or report generation. Input files may be changed interactively, if included in the "list" of the "-change <list>" argument as "-change in" and entered with the program statement.

Interactive features- refer to user/computer interaction during program execution caused by the "-change" argument or by the <%S> and the <%D> keywords used in the response file which serves as "-response" argument. (See: Section II.C.4. Key-words.)

Key-words- Numbers, symbols or words entered in angle brackets denoting special action in specifying a report format during the report generation step. (See: Section II.C.5. Key-word List.)

Link- An entry in a directory that points to a segment. A link enables a user to access a segment in directories other than his working directory, given proper access permission. The user may specify the segment by entryname (as though it were cataloged in the working directory) without having to make a copy of the segment. (This cuts down on storage cost.)

Listing procedures-

Using the Multics "list, ls" command to list the contents of a given Directory at the terminal. Use of optional arguments (-tt, -all, -lk, -ft N, where N=1,2,3...) will control the extent of listing (See: Appendix I.)

Logic (Boolean)-

is implicit in the Multi_trieve program. Two or more retrieval statements are compounded into an "ANDed" statement. A single retrieval statement may be expanded to include several descriptive terms (separated by quotes, or slashes if numeric)-- to express various aspects of a search concept. Here "OR" logic is implied.

Master file-

Primary input file containing WRD records covering the WRSIC accession period 1968-1980.

Matching criteria-

Selection criteria entered in a structured format; serving to match the value of a data element, or the partial name (pn) of an extended data field (see Dictionary) according to specifications of relational operators (equal, eq; pn) with those contained in the input record (Input file). Matching criteria may be changed interactively when the "-change mc" argument is entered in the program statement.

Multics commands-

Systems commands at the command level are used in 2-letter and 3-letter abbreviations. (For example: cp, dl, ls, pr, cwd, pwd -- an overview is given in section I.C.5.)

Multisegment file, msf-

An indexed file that occupies more than one segment (the limit is 256 "pages"). The "Master" file is a multisegment file. To manipulate a msf the user must proceed like with a directory: cwd <your msf name>. (Check Multics Manual.)

Multi_trieve-

File-management system designed for use on the Honeywell Multics system. It is designed to facilitate retrieval and report generation from fixed field records using simple English commands in the interactive mode.

Multi_trieve.ec-

A set of commands (an exec_com) which links the user directory to the Multi_trieve program.

Numeric fields-

Defined as such to facilitate numeric comparisons during retrieval program execution. (See: Section II.B.5.2.)

Numeric index-

Crosslisting of authors' names against the WRSIC (accesssion) number, sorted on the latter (semi-chronological order). Sorting on the publication year may be used for large output.

Online ready_reference-

See: Info segments.

Operators- See: Relational operators.

Output file(s)- Files created as a result of program execution. Multi_trieve provides Output files with (default) labels: retXXXX.report; ret_XXXXXX.data; ret_XXXXXX.response-- where XXXX and XXXXXX stand for numeric identifiers.

Page (directory)- A unit of storage in Multics containing 4096 characters. Since each segment occupies at least one page, there is a lot of wasted space at the end of short segments. To conserve storage space create "archives".

Password- A character string supplied by the user and known only to him and the software that controls access to the system. When supplied with the user's Person_id at login time, it validates the true identity of the user.

Pathname- A character string that specifies a segment or directory by its position in the storage hierarchy. (1) The absolute pathname enters the segment's entryname as last element that is preceded by all directory names leading back to the storage system root ">". (2) A relative pathname uniquely identifies a segment relative to the working directory.

Person_id- A unique name assigned to each user of the Multics system. Associated with it is a single password. The Person_id and the password can be used to identify a user on several projects.

Profile (segment)- The segment with the name <person_id.profile> contained in a user's home directory. It contains the abbreviations for that user. It is created by the first call for the abbrev processor. (See: Introductory Multics Handbook.)

Program- See: Custom program. WRDBIB Program.

Program creation- Executing the Multi_trieve.ec (exec_com) using the "-norun" argument. This will create and compile a custom program and save it under a given name for future use. This process is sometimes referred to as the "Creation program".

Program execution- This involves entry of the program statement (command) which may include (optional) control arguments, responding to all systems queries using the format prompted by the system. When the "-response" argument is used, responses are provided by library response files. (See: Control arguments.)

Program statement- First command entered to start program execution. The command line is in the form of a structured statement. The syntax is: <Program name> [control arguments]

Project_id- A project_id is an identification code under which a project is registered in the system. (Ex.: Wrdcr, Wrdbib)

Record selection- See: Retrieval statement.

Reformatting- See: Report generation.

Relational Operators- Used in a Retrieval statement to indicate how a given value (index word) should be matched within the input record.

Ready message- A message that is printed each time a user is at the command level and Multics is "ready" for another command.

Report generation- Program execution in order to generate a custom report using a previously retrieved data segment as input. (See also: WRDBIB Programs.)

Response file- The sum total of all reponses provided by the user during a given program execution session and saved as an output file. The response file name must have the suffix ".response". (See also: Control arguments: "-response" argument.)

Retrieval- Program execution, usually exploratory, to retrieve data. (No report generation.) (See also: WRDBIB Programs.)

Retrieval and Report Generation- Executing an one-step retrieval and report generation program.

Retrieval statement- A structured statement to the system involving the dictionary element, a relational operator, and the value to be matched in the input record. One or more statements comprise the Matching criteria.

Search path- References path_names of directories containing certain subroutines or data items that are referenced symbolically. If entered at the beginning of a session or included in start_up.ec will preferentially search the named directory for desired segment, such as info.segment "WBsum.info". Use "add_search_path, asp" command. (See: Section I.B.)

Selection criteria- See: Matching criteria.

Sort criteria- A structured statement to the system indicating if and how the retrieved records should be sorted. The syntax includes: The dictionary element and a qualifier separated by a space and ending in a blank and a period. Qualifiers are "a" for "ascending" and "d" for "descending" sequence. A nested sort sequence may be specified. The sort criteria may be changed interactively if included in the "list" of the "-change <list>" argument.

Standard_MT report-

Uses a standard Multi_trieve format. The system will prompt the user, should he choose this option during his initial retrieval program. (See Section II.C.3.)

Star convention- A method used by many commands to specify a group of segments and/or directories using a common component name (a star name). (Components are separated by a period ".": master.ta).

Start_up.ec- An exec_com segment containing a set of rules that can be invoked automatically when th user logs in.

SysDaemon- See: Daemon.

User_dir_dir- The user directory directory, which contains all project directories. Its pathname is >udd, and all user segments and directories are subordinate to it.

User_id- Refers to a Person_id.Project_id pair.

WBsum.info- Info segment providing online ready reference for the WRDBIB system. (See also: Info.segment.) Include search path into your start_up.ec before use!

Working directory- See: Directory (working).

WRDBIB- An acronym for WRD bibliographic system.

WRDBIB data base- Compilation of citations and (subject) descriptors of WRD records processed by WRSIC: 1968 to date. The extracted WRD subset resides on Reston Multics and may be accessed by the Multi_trieve application program WRDBIB.

WRDBIB program- A named custom program created with Multi_trieve software. (An application program.) Custom features are a data dictionary that describes the WRDBIB input record format, and a selected WRDBIB input file which was used in the compilation process. (See also: Custom program.) The incorporated input file is searched if no other input file is specified during program execution.

WRDBIB system- A system of custom programs, dictionaries, input files, and response files--taylored to retrieve bibliographic citations and (subject) descriptors from the WRDBIB data base. Retrieval programs will retrieve on desired selection criteria and output data segments which may be reformatted by Report generation programs to create custom reports (in near USGS format), or to prepare various Index reports. An online ready reference segment, WBsum.info, is available for random access of information on WRDBIB files and procedures.

WRSIC- An acronym denoting the Water Resources Scientific Information Center. U.S. Geological Survey. Department of Interior.

APPENDIX_III

A WRDBIB RETRIEVAL AND REPORT GENERATION SESSION

IN TEN STEPS:

- Step_1: FORMULATE SEARCH STRATEGY
- Step_2: FORMULATE RETRIEVAL STATEMENT
DATA DICTIONARY
- Step_3: SELECT CUSTOM PROGRAM:
CHECK DATA DICTIONARY COMPILED WITH PROGRAM
- Step_4: ENTER A CUSTOM PROGRAM STATEMENT W/CONTROL ARGUMENTS

FIRST PROGRAM RUN:

- Step_5: EXECUTE INITIAL RETRIEVAL RUN
(Step 1 of Two-step Procedure)
- Step_5A: EXECUTE (OPTIONAL) REPORT GENERATION PROGRAM
(Step 2 of Two-step Procedure)
- Step_6: EXECUTE ALTERNATE RETRIEVAL & REPORT-GENERATION PROGRAM
(One-step Procedure)
- Step_7: EXECUTE (OPTIONAL) AUTHOR INDEX PROGRAM

SECOND PROGRAM RUN:

- Step_8: EXECUTE SECOND RETRIEVAL & REPORT GENERATION PROGRAM
(One-step Procedure.)
- Step_8A: EXECUTE ALTERNATE REPORT-GENERATION PROGRAM:
REFORMAT FINAL REPORT TO INCLUDE DESCRIPTORS
- Step_9: EXECUTE FINAL AUTHOR INDEX PROGRAM
- Step_10: CHECK WORKING DIRECTORY & LOGOUT

EXAMPLES: CUSTOM REPORT EXAMPLE
AUTHOR INDEX REPORT EXAMPLE

A WRDBIB RETRIEVAL AND REPORT GENERATION EXERCISE:

The following sequence will illustrate the progression of steps taken to provide a data base search and custom-formatted REPORTS in response to the query:

RETRIEVE ALL WRD REPORTS (1968-1979) DEALING WITH
STUDIES OF GROUNDWATER ORGANICS.

PROCEDURE:

Step 1: FORMULATE SEARCH STRATEGY. (See: Section I-4.)

Your search terms are:

- GROUNDWATER including all related terms;
- ORGANICS and its related terms.

NOTE: This retrieval will be carried out on the "descriptor" field. Since MULTI_TRIEVE does not provide "AND"-logic within one field, execute two retrieval runs by considering the probable frequency of occurrence of the above terms:

- "GROUNDWATER" occurs in about 45% of all the WRDBIB records:
The volume comprises some 3800 records!
- "ORGANICS" and its related terms occur less frequently.

Begin the retrieval with the term(s) used less frequently which are pertaining to the ORGANICS.

2. RETRIEVAL STATEMENT:

Step 2: FORMULATE RETRIEVAL STATEMENT:

(See: Section III.A.2. OVERVIEW: RETRIEVAL REQUEST STRUCTURE.)

2.1 Define "ORGANICS" terms:

```
-- all INSECTICIDES
-- all PESTICIDES          Common search term: "CIDE"
-- all FUNGICIDES

-- all ORGANIC COMPOUNDS ..... "ORGANIC"
-- all HYDROCARBONS ..... "HYDROCARB"
-- all DYE or DIES ..... "DYE"
```

2.2 Select retrieval variable from DATA DICTIONARY:

(See fig. III-1 for DATA DICTIONARY listing.)

```
-- Search on "descriptor, des" variable to match subject keywords.
-- Use "OR"-logic within the "descriptor" field to combine all
  related terms, as well as all variant spelling forms.
-- The RETRIEVAL STATEMENT for the first retrieval run reads:
```

```
des=pn"CIDE"ORGANIC"HYDROCARB"DYE" .*
```

```
-- Enter RETRIEVAL STATEMENT in response to PROGRAM prompt:
  ENTER MATCH CRITERIA FOR RECORD SELECTION.
```

2.3 Define "GROUNDWATER" terms:

```
-- GROUNDWATER or GROUND-WATER ..... "GROUNDWA"
                                           "GROUND-WA"
-- AQUIFER ..... "AQUIF"
-- WELLS ..... "WELL"
```

2.4 Select retrieval variable from DATA DICTIONARY. Proceed as in 2.2.

Use "OR"-logic to combine all variant forms of "descriptors". The RETRIEVAL STATEMENT for the second retrieval run reads: (See step 8.3.)

```
des=pn"GROUNDWA"GROUND-WA"AQUIF"WELL" .*
```

NOTE: The two consecutive program executions will, in effect, yield records retrieved according to the strategy: <ORGANICS> AND <GROUNDWATER> .

* All statement to the system end in a blank and a period on the same line, or with a period on line following statement.

2. RETRIEVAL STATEMENT: DATA DICTIONARY

Step 2: Continued:

DATA DICTIONARY:

The DATA DICTIONARY contains all data elements describing the WRDBIB data files and all input segments derived from it to be used in retrievals.

(See Section II.B. DATA DICTIONARY. Online read help WBSum.info unit: DICT.ec.info.)

RETRIEVAL NAME	PRINT NAME	START POS	FIELD LENGTH
wno	wrsic.no	1	8
acyr	acc.yr	1	2
acno	acc.no	4	5
aut	author	9	90
sso	source	99	120
tit	title	219	200
cit	citation	419	230
des	descriptor	649	380
pub	pub.yr	1029	4
idn	ident	1033	2

Figure III-1.--DATA DICTIONARY: "extdict" is associated with the PROGRAM, NOVpr.

NOTE: The DATA DICTIONARY does not have to define every character in the input record, only those the user is interested in. The variables can be in any order, overlap one another, or skip characters.

For online reday reference enter: help DICT.ec <-title>

Step 3: SELECT A CUSTOM PROGRAM AND COMPATIBLE INPUT/DATA FILES:
When selecting a WRDBIB PROGRAM, be sure that the DATA DICTIONARY used for its creation adequately describes the INPUT files you plan to search.

- 3.1 -- Select the INPUT/DATA file you wish to search. The INPUT file must be compatible with the DICTIONARY that has been compiled with your PROGRAM. (For listing procedure see APPENDIX I.)
Use list command: (Note: The star convention is allowed!)

```
ls auth*      for primary files;
ls *.dt       for previously retrieved
ls *.data     data segments;
```

- 3.2 -- Select your custom PROGRAM with its associate DATA DICTIONARY which defines the "Master" file: "auth6880".
(Ex.: "wrsdict" describes the old format.)

NOTE: To search the "Master" file we selected the recently compiled program: "AUTpr".
When executing retrievals from "Current" files (1978-1982) use: "NOVpr". This PROGRAM is compiled against the DATA DICTIONARY: "extdict". (See step_2: fig. III-1.)*

- 3.3 -- To check the PROGRAM DICTIONARY enter your <PROGRAM_NAME> and execute to print DICTIONARY!

- 3.4 -- Enter the RETRIEVAL AND REPORT GENERATION PROGRAM STATEMENT.
(See step_4.)

NOTE: For PROGRAM EXECUTION see steps 5,6 and 8.

* See COMPdict.info: Compiling a custom PROGRAM.

4. PROGRAM STATEMENT W/CONTROL ARGUMENTS:

Step 4: ENTER A CUSTOMIZED PROGRAM STATEMENT USING CONTROL ARGUMENTS.

- 4.1 TO EXECUTE A WRDBIB RETRIEVAL AND REPORT-GENERATION PROGRAM
enter a customized PROGRAM STATEMENT with CONTROL ARGUMENTS:

```
<PROGRAM_NAME> -rsp <path> -chg <change_list>
```

- Use "-response <path>" argument to link to a RESPONSE FILE which has been created during a preceding retrieval and/or report generation session. Such a RESPONSE file provides all the responses necessary to execute a given type of PROGRAM WRDBIB RESPONSE files: "FORM.response" and "newpr. response" include specifications for a custom-formatted REPORT as well as for required output files. (See fig.s III-3 and III-4 for listings.) Note the interactive features specified for your custom-formatted REPORT!
- Use "-change <change_list>" arguments to allow the following interactive changes of a given RESPONSE file:

```
-chg in ..... change INPUT file (in),
-chg mc ..... change MATCH criteria (mc),
-chg sc ..... change SORT (sc)
```

Use one of the following PROGRAM STATEMENTS:

```
AUTpr -rsp FORM -chg in,mc ..... retrieval and/or
NOVpr -rsp newpr -chg in,sc ..... report generation
NOVpr -rsp AUT -chg in ..... AUTHOR INDEX
```

(See: PROGRAM EXECUTION in steps 5 to 9.)

NOTE: The "-change <change_list>" arguments must be entered with the "-response <path>" argument which they modify.

- 4.2 SELECT RESPONSE ARGUMENT (RESPONSE FILE):
READ AND EDIT YOUR RESPONSE FILE: When selecting your "-response" argument (RESPONSE file) make sure that you know its specifications. You may check the file as follows:

- Use the "print,pr" command to print the RESPONSE file online.
- Call the text-editor: Read and edit your RESPONSE file.
(See fig. III-3.)
- Supply "-change_list" arguments in your PROGRAM STATEMENT to specify changes in your INPUT, MATCH, and/or SORT criteria interactively:

4. PROGRAM STATEMENT W/ CONTROL ARGUMENTS:

4.2 SELECT RESPONSE ARGUMENT Continued:

RESPONSE FILE FOR RETRIEVAL AND REPORT GENERATION.

```
qx
r FORM.response
l,$p
different input file:=no
any more files:=no
dictionary:=no
any numeric fields:=no
matching criteria:=all .
change criteria:=no
dump listing:=no
standard report:=no
own formatted report:=yes
brief mode:=yes
page heading report_line:=<%S,'enter title line'>
page heading report_line:=<68>DATE: <%DATE>
page heading report_line:=<68>PAGE: <%PCOUNT>
page heading report_line:=
page heading report_line:=.
detail report_line:=<%CR> <11><aut><48> <50><pub>
detail report_line:=<9><tit><69>
detail report_line:=<11><cit><70>
detail report_line:=<60><wno>
detail report_line:=.
any PAGE BREAK FORMATS:=no
any RECORD SPACE BREAKS:=no
any REPORT TOTAL LINES:=no
sort records:=yes
sort variable:=wno a .
print at terminal:=no
print at central site:=yes
copies:=1
save report print file:=yes
any other reports:=no
save retrieved record segment:=yes
another run:=no
q
```

Figure III-2.--RESPONSE FILE: "FORM.response" for custom REPORT generation.

4. PROGRAM STATEMENT W/CONTROL ARGUMENTS:

4.3 TO EXECUTE AN INDEX (REPORT-GENERATION) PROGRAM:

- Use the specially formulated RESPONSE file: "AUT.response"
(See listing in fig. III-3; PROGRAM EXECUTION in fig. III-6
and fig. III-10.)
- Enter one of the following PROGRAM STATEMENTS:

<PROGRAM_NAME> -rsp AUT -chg in

or: <PROGRAM_NAME> -rsp AUT -chg in,mc (to check MATCH criteria)

or: <PROGRAM_NAME> -rsp AUT -chg in,sc (to change SORT criteria)

4.4 EDIT RESPONSE FILE: "AUT.response". (See fig. III-3.)

The "AUT.response" file is designed to create an AUTHOR INDEX.

NOTE: Use the "-chg in" argument in your PROGRAM STATEMENT to enter desired INPUT file.

- Check your MATCH (mc) criteria: When reformatting data segments "all" records must be retrieved. Your RESPONSE file statement should read:

matching criteria:=all .*

- Check your SORT (sc) criteria: You may want to use the "-chg sc" argument to interactively alter your SORT criteria:

sort variable:=aut a

- The output data segment (ret_XXXXXX.data) is equal to your INPUT file. DO NOT STORE RETRIEVED DATA SEGMENT. Edit your response!

save retrieved record segment:=no

NOTE: If you did not edit the data segment out, use MULTICS systems' command to delete the data upon program execution: (See step_7.)
Enter: (See also step_10: DIRECTORY MANAGEMENT.)

dl ret_XXXXXX.data

-
- * End statements to the system in a blank and a period. Elements of the statement are separated by blanks.

4. PROGRAM STATEMENT W/CONTROLGARGUMENTS:

4.4 EDIT RESPONSE FILE : "AUT.response" continued:

To generate an INDEX REPORT use RESPONSE file "AUT.response". To read the file enter the "print, pr" command. (To edit the file use editor, qx or ted.)

```
: pr AUT.response
```

The system will print at the terminal:

```
different input file:=yes
input file:=auth82 .
any more files:=no
dictionary:=no
any numeric fields:=no
matching criteria:=all .
change criteria:=no
dump listing:=no
standard report:=no
own formatted report:=yes
brief mode:=yes
page heading report_line:=<%S,'Enter title line'>
page heading report_line:=<64>DATE: <%DATE>
page heading report_line:=<64>PAGE: <%PCOUNT>
page heading report_line:=<2>WRSICNo <9><15>AUTHOR <72>PUByr
page heading report_line:=
page heading report_line:=.
detail report_line:=<wno> <11><aut><70> <72><pub>
detail report_line:=
detail report_line:=.
any PAGE BREAK FORMATS:=no
any RECORD SPACE BREAKS:=no
any REPORT TOTAL LINES:=no
sort records:=yes
sort variable:=aut a .                <----- SORT statement
print at terminal:=no
print at central site:=yes
copies:=1
save report print file:=yes
any other reports:=no
save retrieved record segment:=no    <----- INPUT = OUTPUT
another run:=no
```

Figure III-3.--RESPONSE File: "AUT.response" creates AUTHOR INDEX.
The file is sorted alphabetically by "author, aut" in ascending sequence, "a": A to Z. (See figure III-12.)

5. PROGRAM EXECUTION: FIRST RETRIEVAL RUN:

Step 5: EXECUTE INITIAL RETRIEVAL PROGRAM (FIRST RUN).

STRATEGY: SEARCH ON "ORGANICS" COMPONENT.

(See MATCH (selection) criteria formulation in steps 2.2 and 2.4.)

NOTE:

Since this is a major RETRIEVAL PROGRAM involving a search of the complete "MASTER" file (7417 records), it is prudent to execute a two-step procedure: 1) a RETRIEVAL run to determine the output volume, and 2) a REPORT GENERATION run using the data segment retrieved during the retrieval run as INPUT file. (see step 5A.) The one-step RETRIEVAL and REPORT GENERATION procedure is shown in fig. III-5 below.

5.1 RETRIEVAL PROCEDURE: Enter selected PROGRAM. DO NOT USE CONTROL ARGUMENTS. Provide your own responses to system's prompts. (Follow procedure in fig. III-4.)

: AUTpr (System will print path of given INPUT file)

5.2 DO YOU WISH TO USE A DIFFERENT INPUT FILE? Respond "no" if you wish to use the given file and proceed. If you want a "DIFFERENT" file or "ADDITIONAL" files, enter "yes", and be ready to enter your INPUT files as prompted (see fig III-6.).

5.3 DO YOU WANT TO SEE THE DATA DICTIONARY? Enter "yes", if you want to check your DATA DICTIONARY at this point; otherwise enter "no" response to query.

5.4 ... NUMERIC FIELDS? Enter "no" response, if you do not wish to make any numeric comparisons.

5.5 ENTER MATCHING CRITERIA FOR RECORD SELECTION:
Enter your selection criteria as formulated in steps 2.2 and 2.4.

5.6 The system will perform the search and state the number of records read and the number of records retrieved.

5.7 Should you want a DUMP-LISTING of "N" records (N=1,2,3) at the terminal, respond with "yes" and supply number of records ("N") you want to see after next query.

5.8 Save retrieved record segment for future use as INPUT data for the second run. (See step_8.) Rename your data segment:

: rn ret_182145.data ORG.dt

NOTE: If you wish a custom REPORT at this stage, reformat data segment "ORG.dt" according to step_5A and step_7 (AUTHOR INDEX.)

5. PROGRAM EXECUTION: FIRST RETRIEVAL RUN

TWO-STEP PROGRAM EXECUTION: STEP_1-- RETRIEVAL EXAMPLE

```

:   AUTpr
:   YOUR CURRENT INPUT FILE IS >udd>Wrdbib>NTamberg>TEMP>auth6880
:   DO YOU WISH TO USE A DIFFERENT INPUT FILE?
:   no
:   DO YOU WANT TO SEARCH ADDITIONAL INPUT FILES WHICH CONFORM
:   TO THE DICTIONARY?
:   no
:   DO YOU WANT TO SEE THE DATA DICTIONARY?
: *  no
:   DO YOU HAVE ANY STRICTLY NUMERIC FIELDS IN YOUR DATA
:   THAT YOU WANT TREATED AS NUMERIC VARIABLES FOR COMPARISON PURPOSE?
:   no
:   ENTER MATCHING CRITERIA FOR RECORD SELECTION.
:   des=pn"CIDE"ORGANIC"HYDROCARB"DYE" .

```

NAME	CONDITION	VALUE	
des	pn	CIDE ORGANIC HYDROCARB DYE	<div style="display: inline-block; vertical-align: middle;"> <div style="border-left: 1px solid black; padding-left: 5px; margin-left: 5px;"> "OR"- Logic </div> </div>

```

DO YOU WISH TO CHANGE, ADD OR DELETE ANY OF THESE VALUES?
:   no
:   TOTAL NUMBER OF RECORDS READ = 7417
:   TOTAL NUMBER OF RECORDS SELECTED = 310
:   DO YOU WANT A SIMPLE DUMP LISTING OF SOME OF YOUR RECORDS?
:   no
:   DO YOU WANT THE DUMP PRINTED AT THE CENTRAL SITE?
:   no
:   DO YOU WISH TO CREATE A STANDARD REPORT USING THE SELECTED RECORDS?
:   no
:   DO YOU WISH TO CREATE YOUR OWN FORMATTED REPORT?
:   no
:   DO YOU WANT TO SAVE THE SEGMENT CONTAINING RECORDS JUST RETRIEVED?
:   yes
:   THE NAME OF THE SEGMENT SAVED IS ret_182145.data
:   DO YOU WISH TO MAKE ANOTHER RUN?
:   no
:   DO YOU WANT TO SAVE YOUR RESPONSES TO RUN THIS SESSION AGAIN?
:   no
:   END OF JOB (Level 2)
:   r 10:19 8    2459
:   :   rn ret_182145.data  ORG.dt          (rename your data segment!)
:   r 10:22 4    80

```

":" precedes user response.

* See figure III-1 if you wish to see the DATA DICTIONARY !

Figure III-4.--PRELIMINARY RETRIEVAL RUN TO DETERMINE OUTPUT VOLUME:
The retrieved data segment is saved for future use.

5A. PROGRAM EXECUTION: REPORT GENERATION

TWO-STEP PROGRAM EXECUTION: STEP 2-- REPORT GENERATION PROCEDURE.

Step 5A: EXECUTE OPTIONAL REPORT GENERATION PROGRAM.

Since this is a major RETRIEVAL PROGRAM involving the complete "Master" file the RETRIEVAL and REPORT GENERATION functions are performed in two steps: This step describes the REFORMATTING procedure. (See step 5 for RETRIEVAL procedure.)

NOTE: THIS STEP MAY BE OMITTED, IF NO INTERMEDIATE REPORT IS DESIRED.
(See REFORMATTING procedure in step 8A.)

5A.1 -- TO REFORMAT A DATA SEGMENT enter a PROGRAM STATEMENT with desired CONTROL ARGUMENTS. (See step 4. Editing RESPONSE file.) For program outline see step 6: Fig. III-5.

: NOVpr -rsp FORM -chg in,mc

5A.2 -- Enter the data segment retrieved in step 5. in response to the "-chg in" prompt: DO YOU WISH TO USE A DIFFERENT INPUT FILE?

: ORG.dt .

5A.3 -- Check your selection criteria in response to "-chg mc" prompts: ALL RECORDS WILL BE SELECTED. (If you read your RESPONSE file you probably do not need this step. When the "-chg mc" argument has not been entered this step is omitted.)

5A.4 -- The system will print out the number of records read: 310 records and the number of records retrieved: 310 records.

5A.5 -- REPORT GENERATION: Enter "Report Title" for your first (intermediate) REPORT in response to program prompt:
"Enter title line"
: ORGANICS REPORTS (First Run)

5A.6 -- The system will print out the labels of your output files. Rename them, for easier access! (See APPENDIX I.)

5A.7 -- When the program run has been completed delete your output segment; (Since all records have been retrieved this segment is identical with the INPUT data.)

NOTE: The user may want to generate an alphabetic or numeric AUTHOR INDEX to check on his initial retrieval: Use RESPONSE file "AUT.response" as response argument! (See step-7.)

6. RETRIEVAL & REPORT GENERATION PROGRAM:

ONE_STEP (ALTERNATE) PROGRAM EXECUTION: RETRIEVAL AND REPORT GENERATION

Step_6: EXECUTE ALTERNATE RETRIEVAL AND REPORT GENERATION PROGRAM.

Use the "one-step" procedure when searching shorter files, for example, "CURRENT" files. Combine step_5 (RETRIEVAL) and step_5A (REPORT GENERATION) into one program run. Enter the following PROGRAM STATEMENT:

AUTpr -rsp FORM -chg in,mc

The procedure is illustrated in fig. III-5.
See specifications of FORM.response in fig. III-2.

6. RETRIEVAL & REPORT GENERATION PROGRAM EXAMPLE:

STRATEGY: FIND ALL RECORDS CONTAINING THE TERM "ORGANICS" AND
RELATED TERMS IN THE DESCRIPTOR FIELD: USE "OR" LOGIC.

```

:   NOVpr  -rsp FORM  -chg in,mc          <----- PROGRAM STATEMENT
MULTI_TRIEVE RESPONSES READ FROM FILE
>user_dir_dir>Wrdbib>NTamberg>TEMP>FORM.response <--- RESPONSE_path
YOUR CURRENT INPUT FILE IS >user_dir_dir>Wrdbib>NTamberg>auth7980
DO YOU WISH TO USE A DIFFERENT INPUT FILE?
:   yes <----- -chg in
THE NEW INPUT FILE MUST BE COMPATIBLE WITH DICTIONARY DESCRIBING
THE OLD INPUT FILE.
PLEASE ENTER THE NAMES OF INPUT FILES.
THE NAMES MUST BE SEPARATED BY BLANKS.
THE LAST NAME MUST BE FOLLOWED BY A BLANK AND A PERIOD.
:   auth6880 . <----- new INPUT file
ANY MORE FILES TO SEARCH?
:   no
INPUT FILES: >user_dir_dir>Wrdbib>NTamberg>auth6880
ALL RECORDS WILL BE SELECTED.
DO YOU WISH TO CHANGE, AND OR DELETE ANY OF THESE VALUES?
:   yes
TO DELETE A VARIABLE ENTER A d AS THE VALUE, SUCH AS xx=d
TO ADD OR CHANGE A VARIABLE ENTER AS NORMAL INPUT
SUCH AS xx=eq....
ENTER MATCHING CRITERIA FOR RECORD SELECTION.
:   des=pn"CIDE"ORGANIC"HYDROCARB"DYE" . <----- -chg mc

      NAME          CONDITION          VALUE
      des           pn                CIDE
                                   ORGANIC
                                   HYDROCARB
                                   DYE
                                   ] "OR"-Logic
                                   ]
DO YOU WISH TO CHANGE OR DELETE ANY OF THESE VALUES?
:   no
TOTAL NUMBER OF RECORDS READ = 7406
TOTAL NUMBER OF RECORDS SELECTED = 310
* Enter title line                                REPORT GENERATION
:   ORGANICS IN HYDROLOGICAL STUDIES:  1968-1979
                                           SORT & OUTPUT FILES
THE NAME OF SAVED REPORT PRINT FILE IS  ret2530.report
THE NAME OF THE SEGMENT SAVED IS ret_182145.data
END OF JOB (Level 2)
r 18:25 36639 3404                                ("Ready" message)
:   rn ret_182145.data ORG.dt                    (Data segment renamed)
r 18:25 0.109 50                                ("Ready" message)

```

":" precedes user responses
* interactive prompt

Figure III-5.--FIRST RETRIEVAL SESSION: SEARCHING THE "MASTER" FILE.
Use an one-step retrieval and report generation program with your
Report output volume in mind.

7. PROGRAM EXECUTION PROCEDURE: AUTHOR INDEX

Step 7: EXECUTE AN OPTIONAL AUTHOR INDEX PROGRAM.

Use RESPONSE file "AUT.response" to create this special report.

7.1 -- Check your RESPONSE file "AUT.response": (See step_4.)

7.2 -- Enter the following custom PROGRAM STATEMENT: The "-response" argument will link you to "AUT.response"

```
      :      NOVpr  -rsp AUT  -chg in,mc  (mc should read:  =all .)
or    :      NOVpr  -rsp AUT  -chg in
or    :      NOVpr  -rsp AUT  -chg in,sc
```

7.3 -- Execute: Use "-chg in" prompts to enter a different INPUT file. Enter data segment retrieved during RETRIEVAL program execution according to either step_5 or step_6.

-- "MATCH CRITERIA" should state: ALL RECORDS WILL BE SELECTED. You may alter your selection criteria interactively, if you supplied the "-chg mc" argument with your PROGRAM!

-- Save only your new REPORT file: The AUTHOR INDEX. (Fig. III-6.) (Delete data segment; it is identical with your INPUT file!)

7. PROGRAM EXECUTION EXAMPLE: AUTHOR INDEX

GENERATE AN AUTHOR INDEX: Enter--

: NOVpr -rsp AUT -chg in,mc

MULTI TRIEVE RESPONSES READ FROM FILE

>udd>Wrdbib>NTamberg>TEMP>AUT.response

YOUR CURRENT INPUT FILE IS >udd>Wrdbib>NTamberg>TEMP>auth81

DO YOU WISH TO USE A DIFFERENT INPUT FILE?

: yes

THE NEW INPUT FILE MUST BE COMPATIBLE WITH THE DICTIONARY DESCRIBING THE OLD INPUT FILE.

PLEASE ENTER THE NAMES OF INPUT FILES.

THE NAMES MUST BE SEPARATED BY BLANKS.

THE LAST NAME MUST BE FOLLOWED BY A BLANK AND A PERIOD.

: ORG.dt . <----- -chg in
ANY MORE FILES TO SEARCH?

: no

INPUT FILES: >udd>Wrdbib>NTamberg>TEMP>ORG.dt <----- New INPUT File

ALL RECORDS WILL BE SELECTED.

DO YOU WISH TO CHANGE, AND OR DELETE ANY OF THESE VALUES?

: no <----- no -chg mc

TOTAL NUMBER OF RECORDS READ = 310

TOTAL NUMBER OF RECORDS RETRIEVED = 310

"enter title line"

: AUTHOR INDEX <----- REPORT Title

*

THE NAME OF SAVED PRINT FILE IS ret5011.report

END OF JOB (Level 2)

r 18:50 7.028 1278

": " precedes user responses

* SORT is specified by AUT.response: aut a . (alpha- by Author)

Figure III-6.--PROGRAM EXECUTION: CREATING AN AUTHOR INDEX
(REFORMATTING A DATA SEGMENT.)

NOTE: For INDEX REPORT format see fig. III-12 .

SECOND AND FINAL RETRIEVAL RUN.

RETRIEVAL STRATEGY: SEARCH "ORGANICS" DATA ON "GROUNDWATER" COMPONENT.

[ORGANICS COMPONENT] * [GROUNDWATER COMPONENT]

Step_8: EXECUTE SECOND RETRIEVAL & REPORT GENERATION
PROGRAM (One-step Procedure)

Step_8A: GENERATE FINAL REPORT TO INCLUDE DESCRIPTORS:

Step_9: GENERATE FINAL AUTHOR INDEX REPORT

Step_10: CHECK WORKING DIRECTORY & LOGOUT

CUSTOM REPORT EXAMPLE

AUTHOR INDEX REPORT EXAMPLE

8. PROGRAM EXECUTION PROCEDURE:

PROGRAM EXECUTION (SECOND RUN): RETRIEVAL AND REPORT GENERATION

Step_8: EXECUTE SECOND RETRIEVAL AND REPORT GENERATION PROGRAM: Use the one-step procedure. Search ORGANICS data segment for the "GROUNDWATER" component: (See step_2.) REPEAT the sequence given in steps 5,6,7 with the following changes:

8.1 -- Enter your second PROGRAM STATEMENT using control arguments. This will be a one-step RETRIEVAL and REPORT GENERATION PROGRAM:

: NOVpr -rsp FORM -chg in,mc

8.2 -- Your INPUT file (in) is the DATA segment retrieved in step 5. The first retrieval yielded 310 records. The renamed label is: ORG.dt . (See figs. III-4 and III-5.)

8.3 -- Your selection criteria (mc) are the GROUNDWATER terms formulated as RETRIEVAL STATEMENT in steps 2.3 and 2.4.:

: des=pn"GROUNDWA"GROUND_WA"GROUND-WA"AQUIF"WELL" .

8.4 -- Enter the desired REPORT TITLE (See figs. III-7 and III-9.)

8.5 -- Rename your saved data segment!

NOTE: If you wish to create an alternate REPORT including "descriptors" proceed according to the sequence outlined in step_8A.: REFORMAT-
TING procedure.

8. PROGRAM EXECUTION EXAMPLE:

ONE-STEP RETRIEVAL AND REPORT GENERATION PROGRAM:

```

| STRATEGY:  SEARCH RETRIEVED "ORGANICS" DATA SEGMENT FOR "GROUNDWATER"
| TERMS ACCORDING TO STRATEGY:  [ORGANICS] * [GROUNDWATER]
|-----|
:  NOVpr  -rsp FORM  -chg in,mc          <----- PROGRAM STATEMENT
MULTI TRIEVE RESPONSES READ FROM FILE
>user_dir_dir>Wrdbib>NTamberg>TEMP>FORM.response <----- RESPONSE_path
YOUR CURRENT INPUT FILE IS >user_dir_dir>Wrdbib>NTamberg>auth6880 <-INPUT
DO YOU WISH TO USE A DIFFERENT INPUT FILE?
:  yes
THE NEW INPUT FILE MUST BE COMPATIBLE WITH THE DICTIONARY DESCRIBING
THE OLD INPUT FILE.
PLEASE ENTER THE NAMES OF INPUT FILES.
THE NAMES MUST BE SEPARATED BY BLANKS.
THE LAST NAME MUST BE FOLLOWED BY A BLANK AND A PERIOD.
:  ORG.dt .          <----- -chg in
ANY MORE FILES TO SEARCH?
:  no
INPUT FILES: >user_dir_dir>Wrdbib>NTamberg>ORG.dt
ALL RECORDS WILL BE SELECTED.
DO YOU WISH TO CHANGE, AND OR DELETE ANY OF THESE VALUES?
:  yes
TO DELETE A VARIABLE ENTER A d AS THE VALUE, SUCH AS xx=d
TO ADD OR CHANGE A VARIABLE ENTER AS NORMAL INPUT
SUCH AS xx=eq....
ENTER MATCHING CRITERIA FOR RECORD SELECTION.
:  des=pn"GROUNDWA"GROUND_WA"GROUND-WA"AQUIF"WELL" . <----- -chg mc

      NAME                      CONDITION      VALUE
des                                pn      GROUNDWA
                                GROUND-WA
                                AQUIF
                                WELL
                                ] "OR"-Logic

DO YOU WISH TO CHANGE OR DELETE ANY OF THESE VALUES?
:  no
TOTAL NUMBER OF RECORDS READ = 310      <----- RETRIEVAL
TOTAL NUMBER OF RECORDS SELECTED = 71
* Enter title line                      <----- REPORT_GENERATION
:  GROUNDWATER ORGANICS:  REPORTS FOR 1968-1979
**
THE NAME OF SAVED REPORT PRINT FILE IS ret4326.report <--- OUTPUT files
THE NAME OF THE SEGMENT SAVED IS ret_184057.data <-----
END OF JOB (Level 2)
r 18:43 5.397 892                      (ready message)
:  rn ret_184057.data GWorg.dt          (data segment renamed)
r 18:44 0.075 42                        (ready message)

":" precedes user responses
*  interactive prompt
**  SORT criteria are specified in FORM.response:  "wno a." (See fig. III-2.)

```

Figure III-7.--SECOND RUN: ONE-STEP RETRIEVAL AND REPORT GENERATION.

8A. REPORT GENERATION: REFORMATTING PROCEDURE

Step_8A: EXECUTE AN ALTERNATE REPORT GENERATION PROGRAM (Procedure):

Should you wish to create the final REPORT with "descriptors", execute a REPORT GENERATION program using the customized "newpr.response" file as CONTROL ARGUMENT. (See fig. III-8.). This file provides option to interactively specify the printing of an additional variable ("descriptors, des") in your custom REPORT. (See custom REPORT with descriptors in figure III-11.)

Enter--

: NOVpr -rsp newpr -chg in,mc (See fig. III-9.)

8A.1 -- Enter data segment, GWorg.dt, as your INPUT file

8A.2 -- Check for statement: ALL RECORDS WILL BE SELECTED.
If the system states other selection criteria, delete as indicated and enter
: all .

8A.3 -- Enter REPORT title

8A.4 -- Enter your response to "Enter add. print variable 'des'/'idn'"
: des (system will supply descriptors in print REPORT.)

If you enter 'idn' -- the system will print a blank line!

8A.5 -- SORT sequence: There is no statement unless the "-chg sc" argument was entered in the PROGRAM STATEMENT. RESPONSE file "newpr.response" specifies an alphabetic SORT by "author", in ascending (a) sequence--from A to Z. The SORT format is,
: aut a .

(See: Fig. III-9 . ALTERNATE REPORT GENERATION: REFORMATTING PROCEDURE.
Fig. III-11. Example of custom REPORT format.)

NOTE: The interactive "Add print variable..." feature in RESPONSE file "newpr.response" lends itself to the execution of original RETRIEVAL AND REPORT GENERATION PROGRAMS using "Current" files (less than 2000 records.) If your retrieval volume is not large specify: 'des' "descriptors" in your PRINT REPORT. For large output specify 'idn' (a blank line).

See: DATA DICTIONARY "extdict" for definitions of data elements.
(Use "print, pr" command or the "help DICT.ec" command!)

8A. REPORT GENERATION: REFORMATTING PROCEDURE

RESPONSE FILE "newpr.response":

Use RESPONSE file "newpr.response" as "-response" argument to generate a custom REPORT with descriptors. (See fig. III-8 below.)

NOTE: The "newpr.response" file includes two interactive options:

- <%D, string">: Allows to add a print variable from the DICTIONARY "des" = "descriptors", to your print REPORT. "idn" = adds a blank line!
- <%S,"string">: Allows to enter a suitable REPORT title.

```
different input file:=no
any more files:=no
dictionary:=no
any numeric fields:=no
matching criteria:=all .
change criteria:=no
dump listing:=no
standard report:=no
own formatted report:=yes
brief mode:=yes
page heading report_line:=<%S,"Enter title line"> <--- REPORT title prompt
page heading report_line:=<68>DATE: <%DATE>
page heading report_line:=<68>PAGE: <%PCOUNT>
page heading report_line:=
page heading report_line:=.
detail report_line:=<%CR><9> <10><aut><58> <60><pub>
detail report_line:=<11><tit><70>
detail report_line:=<13><cit><68>
detail report_line:=<11><%D,"Enter add. print variable: 'des','idn'"><68>
                                |----- "descriptor, des" prompt
detail report_line:=<61><wno>
detail report_line:=.
any PAGE BREAK FORMATS:=no
any RECORD SPACE BREAKS:=no
any REPORT TOTAL LINES:=no
sort records:=yes
sort variable:=aut a .
print at terminal:=no
print at central site:=yes
copies:=1
save report print file:=yes
any other reports:=no
save retrieved record segment:=yes
another run:=no
```

Figure III-8.--WRDBIB RESPONSE FILE: "newpr.response". Provides option to add print variable "descriptors" from Data Dictionary to custom Report.

8A. REPORT GENERATION W/DESCRIPTORS: EXAMPLE

REFORMAT FINAL REPORT TO INCLUDE DESCRIPTORS:

- Use "-response newpr" argument to include descriptors;
- "-change in" argument to change the INPUT file.
- Enter data segment retrieved on second retrieval as INPUT file.
- ALL RECORDS WILL BE SELECTED. (See "-chg mc" prompt!)

Enter PROGRAM STATEMENT: (Note: User response follows intial ":")

```
: NOVpr -rsp newpr -chg in,mc <----- PROGRAM STATEMENT
MULTI_TRIEVE RESPONSES READ FROM FILE
>user_dir_dir>Wrdbib>NTamberg>TEMP>newpr.response <----- RESPONSE path
YOUR CURRENT INPUT FILE IS
>user_dir_dir>Wrdbib>NTamberg>TEMP>auth81 <----- INPUT file
DO YOU WISH TO USE A DIFFERENT INPUT FILE?
: yes
THE NEW INPUT FILE MUST BE COMPATIBLE WITH THE DICTIONARY
DESCRIBING THE OLD INPUT FILE.
PLEASE ENTER THE NAMES OF INPUT FILES.
THE NAMES MUST BE SEPARATED BY BLANKS.
THE LAST NAME MUST BE FOLLOWED BY A BLANK AND A PERIOD.
: GWorg.dt . <----- -chg in
ANY MORE FILES TO SEARCH?
: no
INPUT FILES: >user_dir_dir>Wrdbib>NTamberg>TEMP>GWorg.dt <----- new INPUT

ALL RECORDS WILL BE SELECTED. <----- old MATCH criteria
DO YOU WISH TO CHANGE, AND OR DELETE ANY OF THESE VALUES?
: no <----- no -chg mc

TOTAL NUMBER OF RECORDS READ = 71
TOTAL NUMBER OF RECORDS SELECTED = 71
```

/* Report format is specified by the newpr.response file. */

Enter title line

```
: GROUNDWATER ORGANICS: REPORTS FOR 1968-1979
Enter add print variable 'des' or 'idn'
: des
```

/* SORT criteria are specified as by "newpr.response": aut a . */

```
THE NAME OF SAVED REPORT PRINT FILE IS ret4326.report
THE NAME OF THE SEGMENT SAVED IS ret_184057.data
END OF JOB (Level 2)
```

```
r 18:43 5.397 892 ("Ready" message)
: dl ret_184057.data (Data segment deleted)
r 18:44 0.075 42 ("Ready" message)
```

Figure III-9.--ALTERNATE REPORT GENERATION: REFORMATTING PROCEDURE.
Using "add print variable" option provided by "newpr.response"
file to specify "descriptors" in final REPORT.

9. PROGRAM EXECUTION PROCEDURE: AUTHOR INDEX

Step_9. EXECUTE FINAL AUTHOR INDEX PROGRAM (Procedure).

Enter PROGRAM STATEMENT to generate an AUTHOR INDEX for the second retrieval:

 : NOVpr -rsp AUT -chg in
or : NOVpr -rsp AUT -chg in,sc (see above: step 7.)

9.1 -- Your INPUT file is the data segment created during the second
 retrieval process: Gworg.dt (renamed)

9.2 -- Change your "MATCH CRITERIA" to "all ." (this is to reformat
 all (71) records retrieved during the second retrieval run.)
 Read and, if necessary, edit your RESPONSE file or add the
 "-chg mc" argument to your PROGRAM STATEMENT. (See step_8A.)

9.3 -- Enter your REPORT title: AUTHOR INDEX for..... (Fig. III-10.)

(For PROGRAM EXECUTION see fig. III-10 .)

NOTE: REPORTS depicted in figures III-11 and III-12 are your desired RESULTS!

9. PROGRAM EXECUTION EXAMPLE: AUTHOR INDEX

INDEX PROGRAM EXECUTION EXAMPLE:

REPORT GENERATION program uses RESPONSE file "AUT.response" to create an AUTHOR INDEX to custom REPORT. (See fig. III-11.)

```
: NOVpr -rsp AUT -chg in          (Note: ":" precedes user response)
MULTI TRIEVE RESPONSES READ FROM FILE
>udd>Wrdbib>NTamberg>TEMP>AUT.response
YOUR CURRENT INPUT FILE IS >udd>Wrdbib>NTamberg>auth81
```

DO YOU WISH TO USE A DIFFERENT INPUT FILE?

```
: yes
THE NEW INPUT FILE MUST BE COMPATIBLE WITH THE DICTIONARY DESCRIBING THE
OLD INPUT FILE.
PLEASE ENTER THE NAMES OF INPUT FILES.
THE NAMES MUST BE SEPARATED BY BLANKS.
THE LAST NAME MUST BE FOLLOWED BY A BLANK AND A PERIOD.
: GWorg.dt . <----- -chg in
ANY MORE FILES TO SEARCH?
: no
INPUT FILES: >udd>Wrdbib>NTamberg>TEMP>GWorg.dt
```

TOTAL NUMBER OF RECORDS READ = 71

RETRIEVAL

TOTAL NUMBER OF RECORDS RETRIEVED = 71

"Enter title line"

REPORT

```
: AUTHOR INDEX
```

GENERATION

THE NAME OF SAVED PRINT FILE IS ret5071.report*

END OF JOB (Level 2)

r 18:50 7.028 1278

* The data segment is equal to the INPUT segment and has not been saved.

Figure III-10.--PROGRAM EXECUTION: CREATING AN AUTHOR INDEX
(Reformatting a previously retrieved data segment.)

Step_10. CHECK "WORKING DIRECTORY":

-- List the latest N=6 entries in your "Working Directory":

```
: ls -ft 6                                (ls -ft N, where N=1,2,3....)
```

-- Rename files you wish to store:

```
: rn <path1> <path2>
: rn retXXXX.report GWorg.report      (rename your Report file)
: rn ret_XXXXXX.data GWorg.dt         (rename your data segment)
```

-- Delete (dl <path>) data segments which are no longer needed:

```
: dl <path_1 path_2 ... path_N>        (delete 1 to N segments)
: dl *.data                            (System will delete all segments
                                       with labels ending in suffix .data)
```

NOTE: The "star convention" allows you to address all segments in your Working Directory using the common name component ".data". The star stands for any name preceding the common suffix! For the various uses of the star convention see the Multics Manual.

-- Deprint reports:

```
: dp <path_1 path_2 ...>
: dp -q 4 <path_1>                    (Deprint long reports in queue 4!)
: dp -q 4 -cp 2 <path_1>              (Deprint 2 copies in queue 4!)
: dp -dl -q 4 <path_1>                (Deprint report in queue 4 and
```

-- Check cost information (resource units, ru_) month to date:

```
: ru
or : ru -long
```

The system will print cost information for all transactions since the monthly closing date; "ru -long" will provide cumulation for the FY. (Note: You must be the project administrator to request "ru" information.)

-- logout

The system will confirm your logout and supply cost information for the current session.

EXAMPLE: CUSTOM REPORT WITH DESCRIPTORS:

GROUNDWATER ORGANICS (Update)

DATE: 09/14/82

PAGE: 1

- 1 HULL, R. W.; DYSART, J.E. ; AND MANN, W. B., IV; 1981
QUALITY OF SURFACE WATER IN THE SUWANNEE RIVER BASIN,
FLORIDA, AUGUST 1968 THROUGH DECEMBER 1977,
AVAILABLE FROM THE NATIONAL TECHNICAL INFORMATION
SERVICE, SPRINGFIELD, VA 22161 AS PB81-206591, IN PAPER
COPY, IN MICROFICHE. GEOLOGICAL SURVEY WATER-RESOURCES
INVESTIGATIONS 80-110, 1981. 97 P, 9 FIG, 8 TAB, 21
REF.
*WATER QUALITY, *STREAMS, *SURFACE-GROUNDWATER RELATIONS,
WATER ANALYSIS, SPRINGS, SITES, DATA COLLECTIONS,
SAMPLING, TRACE ELEMENTS, WATER PROPERTIES, NUTRIENTS,
ORGANIC MATTER, WETLANDS, WASTE WATER, *FLORIDA,
*SUWANNEE RIVER BASIN.
81-02992
- 2 MATTRAW, H. C., JR.; AND ELDER, J. F.; 1980
NUTRIENT YIELD OF THE APALACHICOLA RIVER FLOOD PLAIN,
FLORIDA: RIVER-QUALITY ASSESSMENT PLAN,
AVAILABLE FROM THE NATIONAL TECHNICAL INFORMATION
SERVICE, SPRINGFIELD, VA 22161 AS PB81-103590, IN PAPER
COPY, IN MICROFICHE. GEOLOGICAL SURVEY WATER-RESOURCES
INVESTIGATIONS 80-51, 1980. 21 P, 3 FIG, 1 TAB, 29 REF.
*NUTRIENTS, *RIVERS, *FLOOD PLAINS, *WETLANDS, DETRITUS,
RIVER FLOW, SAMPLING, MEASUREMENT, VEGETATION, TREES,
DISTRIBUTION PATTERNS, DECOMPOSING ORGANIC MATTER,
SURFACE-GROUNDWATER RELATIONSHIPS, TRACE ELEMENTS,
PESTICIDES, *FLORIDA, REMOTE SENSING, *APALACHICOLA
RIVER(FL), *RIVER QUALITY.
81-00350
- 3 RIMA, D. R.; 1979
SUSCEPTIBILITY OF THE MEMPHIS WATER SUPPLY TO CONTAMINATION
FROM THE PESTICIDE WASTE DISPOSAL SITE IN NORTHEASTERN
HARDEMAN COUNTY, TENNESSEE,
GEOLOGICAL SURVEY OPEN-FILE REPORT 79-750, 1979. 5 P, 1
FIG, 3 REF.
*WATER POLLUTION, *PESTICIDES, *WASTE DUMPS, *WATER
SUPPLY, *TENNESSEE, WASTE DISPOSAL, LEACHATE, GROUNDWATER
MOVEMENT, PATH OF POLLUTANTS, WATER POLLUTION SOURCES,
*HARDEMAN COUNTY(TN), MEMPHIS(TN).
81-01192

Figure III-11.--EDITED GROUND-WATER ORGANICS REPORT WITH DESCRIPTORS.

EXAMPLE: AUTHOR INDEX REPORT:

INPUT FILES: >user_dir_dir>Wrdbib>NTamberg>TEMP>GWorg.dt

AUTHOR INDEX (Update)

DATE: 09/14/82

PAGE: 1

WRSICNo	AUTHOR	PUByr
81-02992	HULL, R. W.; DYSART, J.E. ; AND MANN, W. B., IV;	1981
81-04322	KAMMERER, P. A., JR.;	1981
81-00350	MATTEW, H. C., JR.; AND ELDER, J. F.;	1980
81-01192	RIMA, D. R.;	1979
81-00154	SIMMONS, C. E.; AND ALDRIDGE, M. C.;	1980

end of report

Figure III-12.--AUTHOR INDEX FOR GROUND-WATER ORGANICS REPORT.
(In alphabetical sort sequence.)
