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EDITSPEC: SYSTEM MANUAL VOLUME VII OPERATION AND
MAINTENANCE PROCEDURES(U) CONSTRUCTION ENGINEERING
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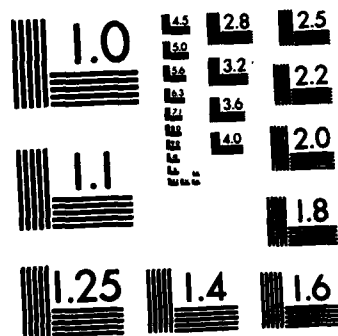
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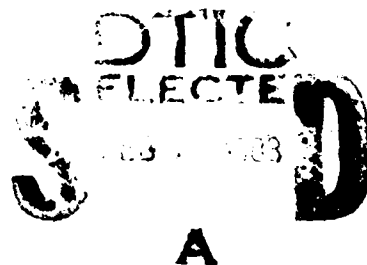
EDITSPEC SYSTEM MANUAL

VOLUME 7: Operation and Maintenance Procedures

by

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July 1979



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ABSTRACT

This volume provides the operators and maintainers with an overview of their responsibilities. The first chapter presents the general operational structure of the EDITSPEC system. The second chapter contains the computer system operation guidelines. The last chapter describes the general maintenance requirements.



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CHAPTER 1

EDITSPEC OPERATIONAL STRUCTURE

Data Structure

All data within the EDITSPEC system is stored within a logical data element called a table. The table concept and description is given in Volume III: Table Handler and Table Descriptions.

Data applied system wide are stored in tables labeled "system tables" (Figure 1). One system table is known as the document directory and contains information about each document in the system.

A document is actually a logical collection of many tables. The first three words of the table name contain the actual document name. The last word of the table name contains a unique table identifier. For example, all text for a document is stored in the "TEXT" table. The text for a document named "documentone" would be found in the table named "documentone text."

Construction Specification Document Classification

There are three major types of construction specifications that are applied within the Corps (Figure 2). The Corps of Engineers maintains a set of guide specifications for field use. A number of district offices within the Corps maintain a set of guide specifications that have been modified for a particular geographic area. One set of construction specifications must be prepared for each project constructed by the Corps of Engineers.

The district office specifications are normally generated from the Corps guide specifications. The project specifications are normally generated from the office and/or Corps guide specifications.

Each document type contains one master specification list that contains the document names for every document in the document group. The document names are given in the order normally printed.

The Corps and office guide specifications are accessed quite often and should be placed on the fastest storage medium available on the computer system. The project specifications are not accessed as often and should be placed on temporary storage devices unless the costs for permanent and temporary are similar and permanent space is available.

The actual storage of the documents related to the same project can be accomplished by one of two methods. The first places all documents in the same physical file or dataset. This has the advantage of having all documents on the project in the same dataset. The primary disadvantage is that only one user at a time can edit the dataset. Normal office operations require that several users edit different portions of the project specification at the same time.

The second method provides one or more physical datasets or files to each user. Since a user can work on only one project at a time, no access to the documents in the users physical dataset or file will be refused. This is the preferred method for system operation within any office.

The document names reflect the document classification and the generic sir name for the document. The first four characters devote the classification, i.e., IOCE, DIST, PROJ. The last eight characters denote the sir name, i.e., CE220.01, CE220.02.

Direct Access Dataset (File) Structure

There are two basic classifications of data sets (Figure 3). The first is known as the "Current Data Base". The Current Data Base contains the current or up-to-date version of all information. The Current Data Base data sets all have the prefix "A1" before the data set name. The second classification is known as the "Back-up". Back-up commands contain a chronological list of all commands successfully executed since the last complete back-up of the data base or data set. Back-up command data sets are prefixed with "B1" before the data set name.

The Current Data Base data set and back-up command data sets must be in the current control language. The Back-up Data Base is usually stored off-line until required for a restoration of a data set.

Each data set is composed of a variable number of tables or files. There are two files in each dataset that are used for dataset overhead maintenance (Figure 4). The remainder of the tables contain actual EDITSPEC data. All system tables are contained on one permanently mounted dataset known as the system dataset. All tables related to the same document are stored on the same dataset. The document backup commands are stored on a different data set.

Computer Configuration

This computer system has been designed to operate on most medium and large scale computer systems. The general computer configuration is shown in Figure 5. The characteristics of each item shown is presented below.

Main Frame Computer

The basic characteristics are defined in the Computer Services contract in Appendix B of Volume IV.

Input/Output Terminals

The basic characteristics are defined in the Computer Services contract in Appendix B of Volume IV.

Tape Drives

A minimum of three tape drives are required in order to operate the backup system properly. A fourth tape drive with different capabilities of tape production than the first three may be necessary when connecting to a new computer.

Permanent Storage Devices

The basic considerations for design of the permanent storage utilization are as follows:

(1) Continuous high volume access to the system tables should require that no other EDITSPEC data be kept on the same physical device and that access by other non-EDITSPEC computer programs to this device be minimized.

(2) Continuous high volume access to the Corps guide specifications should require that no other EDITSPEC data be kept on the same physical device and that access by other non-EDITSPEC computer program to this device be minimized.

(3) High volume access to the office specifications require that they be kept on permanent storage devices.

Temporary Storage Devices

The large volumes of project documents and the limited access to each document should require that temporary disk storage should be applied. Office security and integrity require that two offices do not share the same physical disk medium. The maximum number of projects open on one disk and the total number of users accessing the system at one time will determine the number of disk drives required. Reference the computer services contract Appendix B, Volume V, for details.

Core Storage

The EDITSPEC system can be configured to operate under many system designs.

Each vendor should design the operations environment to utilize resources to the best advantage to produce the lowest cost on the computer hardware. Contracts for computer services will be given to the lowest cost vendor providing the level of service required.

CHAPTER 2

COMPUTER SYSTEM OPERATION

User Capabilities

The typical EDITSPEC user should have access to only the EDITSPEC system. All other capabilities should be prohibited to the normal users at Corps offices. One user at each office must have the ability to define standard cataloged procedures and list data set statistics.

Attention/Interrupt Key

The EDITSPEC user must not be given the capability of abnormally exiting from EDITSPEC. Data base information about each dataset is stored within the users program common and must be written to permanent storage before the program is cancelled by the EDITSPEC user, system operator, or the computer system itself.

When the ATTENTION/INTERRUPT key is hit, the operating system should transfer to the FORTRAN SUBROUTINE DKXIT. This will require a special assembler language macro to be established. A trace of all subroutine status with statement numbers should be printed so that the system analysis will know exactly where the system was stopped.

System/Operator Job Canceling

The computer system and/or the operator should not be allowed to stop an EDITSPEC programs without a call to the assembly language macro written for the above section. Termination without such a call will cause the data base to be inconsistent.

Communications Interrupt

Any abnormal disconnect of the communications lines should call the assembler macro written above before terminating the job.

Storage Device Requests

Procedures for requesting and relinquishing such devices are vendor dependent and are described in Appendix A.

Question and Answer Service

The Corps of Engineers operates a "HOT LINE" to answer all user questions and to report problems with the computer system. The HOT LINE is staffed with personnel proficient in the EDITSPEC system. Computer system analysis personnel are available to correct malfunctions within the EDITSPEC system and Data Base.

Hours of Operation

The basic hours of operation would be from 7 a.m. Eastern Standard time to 6 p.m. Pacific Standard time. This would be a 14 hour day and would require two shift operation. An on-call answering service should be maintained to cover overtime workloads until 9 p.m. PST and on Saturdays.

Computer system analysis personnel are required to be available on call 24 hours per day to allow quick recovery from failures of EDITSPEC and/or the operating system.

Minimum Staffing

Two trained full-time operators and two trained substitutes are required to answer the HOT LINE telephone. The operator on duty is expected to receive and answer calls less than 25% of the day.

Four trained computer systems designer/analysis personnel should be available to adequately cover the recovery from system failures. It is expected that the average usage over the year would be .25 manyears total.

Reporting Procedures

The hot line operator will complete one report for each problem received. The operator will file the original in the "completed" file if the operator answered all of the callers questions. If not, the operator will file in the "action" file the last copy and route the remaining form to the action office.

The action office will respond to each request as quickly as possible. The action taken will be recorded on the form. The action office will keep one copy and return the form to the hot line operator.

The hot line operator will contact the user, if required, and file the original in the "completed" file. The copy in the "action" file will be destroyed.

Number _____

EDITSPEC HOT LINE REPORT

Date: _____ Time: _____ Operator: _____

User Calling: _____ Agency: _____

Telephone No: () - _____

Question: _____

Action: _____ Operator _____ Spec writer _____ Programmer _____

Answered by: _____ Date: _____ Time: _____

Answer: _____

User Called Back By: _____ Date: _____ Time: _____

_____ not required

Project Manager

There is one project manager for the entire EDITSPEC system. This person is a computer specialist that understands the computer operating system and can define command procedures for local offices using EDITSPEC. The project manager may appoint local office managers to assist in performing the function defined in Volume 6: Project Managers Procedures.

CHAPTER 3

MAINTENANCE

There are two types of maintenance:

1. Scheduled
2. Unscheduled

Scheduled maintenance includes periodic backups of portions of the data base and periodic revisions to the computer code. Unscheduled maintenance includes recovery from system and code failures as well as data base restoration due to the failures.

Scheduled Maintenance

Computer Code

Approved enhancements to the computer code and operating system should be scheduled to provide a logical and smooth transition into the production code.

Data Base

Periodic backup of the edited files must be performed to insure that the users will not lose previous work. The BACKUP/RESTORE/TAPECOMPRESS commands are given in Appendix B.

Unscheduled Maintenance

System Failure

Problems with communications networks, computer processors and peripherals, and EDITSPEC code may cause a system failure. Recovery from the failure must be as rapid as possible.

Data Base Restoration

During normal processing portions of the data base reside in program common. When a system failure occurs this portion of the data base is lost and possible inconsistencies may occur.

Recovery procedures for regenerations the files are in the RESTORE commands in Appendix B. Procedures for looking at individual files are given in Appendix C.

APPENDIX A: Storage Device Requests

APPENDIX B: Backup System Commands

BACKUP
BACK

PURPOSE

This system command allows the EDITSPEC maintainers to create a backup of all datasets, documents or system tables edited since the last backup was performed.

GENERAL FORM

.BACK_ *primary lun; secondary lun; tape label; system-only switch.*

where	<i>primary lun</i>	is a one to two character logical unit number of the tape for the primary document and system tables.
	<i>secondary lun</i>	is a one to two character logical unit number of the tape for the backup document and system tables.
	<i>tape label</i>	is a 1 to 12 character alphanumeric name unique to this backup which is used as a name for both the primary and secondary tapes.
	<i>system-only switch</i>	is either a 0 or 1 depending on whether or not entire datasets or just system tables are to be backed up.

BACKUP
BACK

FIELD OPTIONS

FIELD	OPTIONS	DEFAULT
1. <i>primary lun</i>	positive number of two digits or less	required
2. <i>secondary lun</i>	positive number of two digits or less	required
3. <i>tape label</i>	from 1 to 12 alpha- numeric characters	required
4. <i>system-only switch</i>	0:everything is to be backed up 1:only system tables are to be backed up	0:everything is to be backed up.

SPECIAL NOTES

.BACK may not be executed when other users are logged in.

EXECUTION PROCEDURES

Three tables are maintained on the system backup dataset. They are:

ISBUP: A table containing the names of all documents, datasets, and system tables which need to be backed up.

ISBUC: A table containing pertinent information about all documents, datasets, and system tables that have been backed up. (For example, the date and time when the backup occurred, the name of the tapes used, etc.).

ISBUT: A table containing pertinent information about all tapes that have been used for backups. (For example,

BACKUP
BACK

which files are good or bad, which documents are on the tape, etc.).

Processing of document datasets: (see figure 1)

For every dataset there is a corresponding backup dataset. The primary dataset name starts with "A1", while the backup dataset name starts with "B1". Every document on a primary dataset has a backup table on the corresponding backup dataset. This backup table contains the list of commands needed to bring this document up to date if it has to be restored. When a document is backed up, its backup table is copied to the secondary tape and then deleted from disk.

A backup dataset also includes a file called "1000". This is a list of commands needed to bring the primary dataset as a whole up to date. It is saved and deleted when the entire dataset is backed up.

Processing of system dataset: (see figure 2)

There is a backup system dataset (B1SYSTEM) corresponding to the primary system dataset (A1SYSTEM). Every system table on A1SYSTEM has a corresponding backup table on B1SYSTEM. These tables are processed in the same manner as the document tables discussed previously. (There is also a backup table for the entire primary system dataset.)

Tape structure:

A backup tape has one of two structures. Either the entire tape is one file, or the tape is divided into many files with one document, dataset, or system table per file. The distinction is made via reference to the global variable MULFIL in common block /BACKC/. MULFIL is 1 for multi-file tapes (the type with many files), and 0 for single file tapes (the type with everything in one file). The global variable NUNITS in common block /BACKC/ contains the maximum number of documents, datasets, or system tables that may be backed up to one tape. A document, dataset, or system table on a tape has the same structure it would have if dumped with the .DSCN command.

The backup of ISBUP, ISBUC, and ISBUT:

These three tables are dumped to the unit number contained in the global variable STAPE in common block /BACKC/. ISBUP is dumped before backups. ISBUC and ISBUT are dumped after backups. An entry in ISBUP is deleted after it is backed up. ISBUC and ISBUT are updated as a backup occurs. The format of STAPE appears in figure 3.

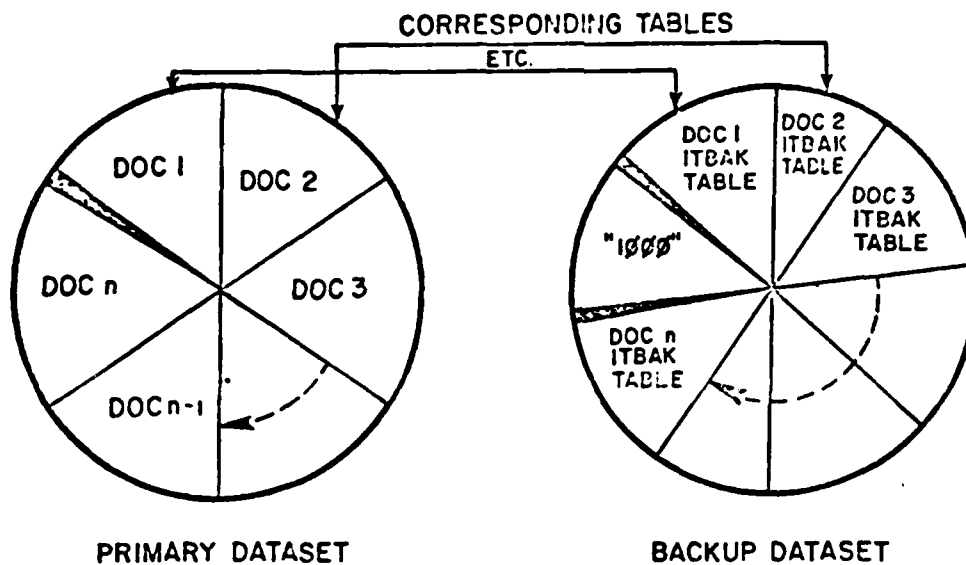


FIGURE 1: DOCUMENT DATASET STRUCTURE

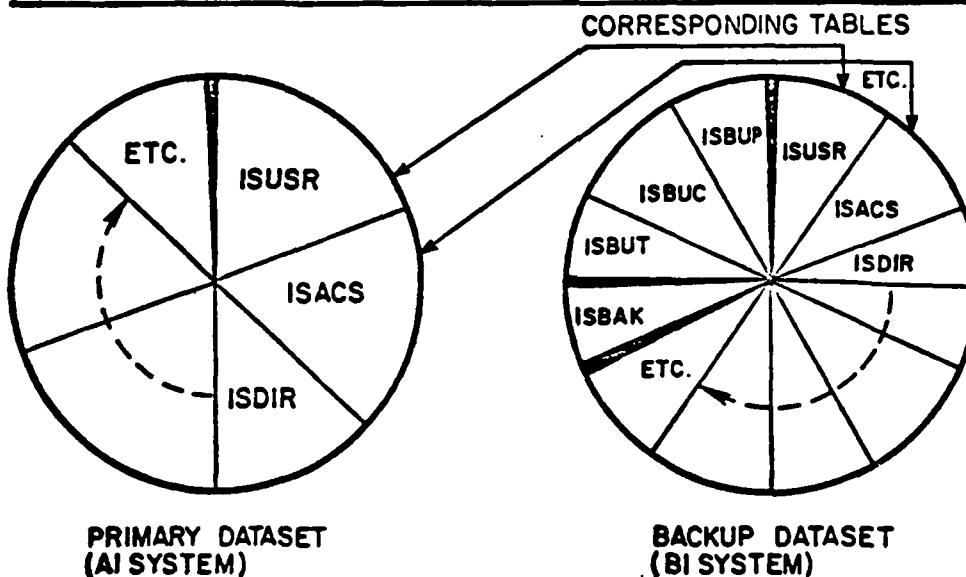


FIGURE 2: SYSTEM DATASET STRUCTURE

$\langle r \rangle$ is record length

	name
3 i skinX	

S	is	status	l-good:s=deleted

DATE		80 COLUMN KEY PUNCH TRANSCRIPT LAYOUT SHEET		SHEET		OF		SHEETS																																																																																																																																																							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80																																																																																
1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50		51		52		53		54		55		56		57		58		59		60		61		62		63		64		65		66		67		68		69		70		71		72		73		74		75		76		77		78		79		80	
1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50		51		52		53		54		55		56		57		58		59		60		61		62		63		64		65		66		67		68		69		70		71		72		73		74		75		76		77		78		79		80	
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1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50		51		52		53		54		55		56		57		58		59		60		61		62		63		64		65																															

CERL Form 128 *zero or more occurrences
20 April 1975

BACKUP
BACK

Operation of the .BACK command:

The .BACK command first makes sure the user is authorized. It then prints ISBUP, ISBUC, and ISBUT on paper and dumps ISBUP to STAPE. If the ISBUP table is empty, the command terminates. If there are entries in the ISBUP table, processing continues. An ISBUT entry is created if the provided tape label is free for use. The ISBUP table is scanned, ignoring names that are not system names if the system-only switch equals 1. The command processor makes sure one .BACK command does not back up the same document or system table twice. The appropriate tables are then copied from disk to the primary and secondary tapes. Information is printed, the entry is deleted from ISBUP, and processing continues with the next entry in ISBUP.

When ISBUC becomes empty or when NUNITS entries have been backed up, the command terminates.

COMMAND VARIATIONS

Var. #1. .BACK <i>primary lun; secondary lun; tape label; system-only switch.</i>
--

Example #1.

Text before: a backup has not been done since some things have been updated.

Command: .BACK 10;11; (tape 256);1.

The system will dump all system tables that should be backed up to the tape on unit 10. Backup tables will be dumped to the secondary tape, on unit 11. ISBUP, ISBUC, and ISBUT will be dumped to the special tape, on unit STAPE. The tapes on units 10 and 11 will be named "tape 256".

Text after: ISBUP will be empty, ISBUC and ISBUT will be updated and dumped, and the system tables will have been backed up.

Example #2.

Text before: a backup has not been done since some things have been updated.

Command: .BACK 14;15;(tape XYZ);0.

BACKUP
BACK

The system will dump the primary tables of everything that should be backed up to the tape on unit 14. The associated backup tables are dumped to unit 15. The name of both tapes will be "tape XYZ". ISBUP, ISBUC, and ISBUT are handled as in example #1.

Text after: ISBUP will be empty, ISBUC and ISBUT will be updated and dumped, and the documents, datasets, and system table will have been backed up.

Var. #2. .BACK *primary lun; secondary lun; tape label.*

Example #1.

Text before: same as Var. 1, Example 2.

Command: .BACK 14;15;(tape xyz).

The effect is the same as in Var. #1, Example 2.

Text after: same as Var. #1, Example 2.

MESSAGES - All messages are self-explanatory

BACKUP
BACK

Initial Dataset Definition Requirements:

<u>unit number 22</u>	must have unlabeled output tape to hold ISBUP, ISBUC, ISBUT. (This unit number may be changed by changing STAPE in /BACKC/.)
<u>B1SYSTEM</u>	must be defined, in addition to A1SYSTEM.
<u>B1xxxxxx</u>	must be defined for every dataset of the form A1xxxxxx that has been defined.
<u>2 unlabeled tapes</u>	must be defined as logical unit numbers which are used in the .BACK command to back up documents, datasets, etc.
<u>libraries BAKUP and CNVRT</u>	must be loaded with the EDITSPEC system <u>in front</u> of the rest of EDITSPEC.

Backup/Restore System Example

Normal EDITSPEC Processing (Figure 1)

During normal EDITSPEC processing, all data is written to the disk containing the full document (i.e., all tables). If commands are successfully executed, the commands are placed on the backup disk.

First Document Backup (Figure 2)

During the backup of the document the first time, the full document is written to tape with a "ZNEW" command as the first record and a "ZXXX" command as the last record. The commands in the backup file are destroyed and a new empty backup file created.

Second (Third) Document Backup (Figure 3)

During the backup of the document the second (third) time, the full document is written to tape with a "ZNEW" command as the first record and a "ZXXX" command as the last record. The commands in the backup file are written to tape. The commands on disk are destroyed and a new empty file created.

Normal Document Backup (Figure 4)

During the normal backup of the document, the full document from the second to the last backup is deleted. If commands have been saved, they are also deleted for this second to the last backup. The full document is written to tape with a "ZNEW" command as the first record and a "ZXXX" command as the last record. The commands in the backup file are written to tape. The file is then destroyed and a new empty backup file created.

Restoring from the Latest Backup (Figure 5)

The current document on disk is destroyed. The restoration system is called to read the latest full document backup tape and restores the document on disk. A transfer command is added to the disk backup file. The current backup command file is executed to bring the document up to the last statement executed. The last command is printed but not executed. The transfer command is then removed from the disk file.

Restoring from the Second Oldest Backup (Figure 6)

The current document on disk is destroyed. The restoration system is called to read the second oldest full document backup tape and restores the document on disk. A transfer command "ZDDA" is added to the end of the disk backup file. The latest backup of the commands is placed before the current commands on disk. The commands are executed from the disk backup file. The last command is printed but not executed. The transfer command is then removed from the disk file. The commands added to the disk from tape are also removed from the backup disk. The document and the backup file are as they were before execution of the last command.

Restoring from the Oldest Backup (Figure 7)

[Program control shown in brackets]

The current document on the disk is destroyed [subroutine RESTOR, BAKUPO]. The restoration system is called to read the oldest full document backup tape and restores the document on disk [ZNEW subroutine].

The second from the last backup file for commands is copied from tape to the beginning of the disk backup file [subroutine BAKUPO]. The latest backup file for commands is also copied from tape after the older file. A transfer command "ZDDA" is added in place of the last successfully executed command in the file. The commands are then executed to bring the document to the current status. The tape backup commands previously added are now removed as is the transfer command at the end of the file [subroutine BAKUPO].

The document and the backup files are as they were before the last command was issued.

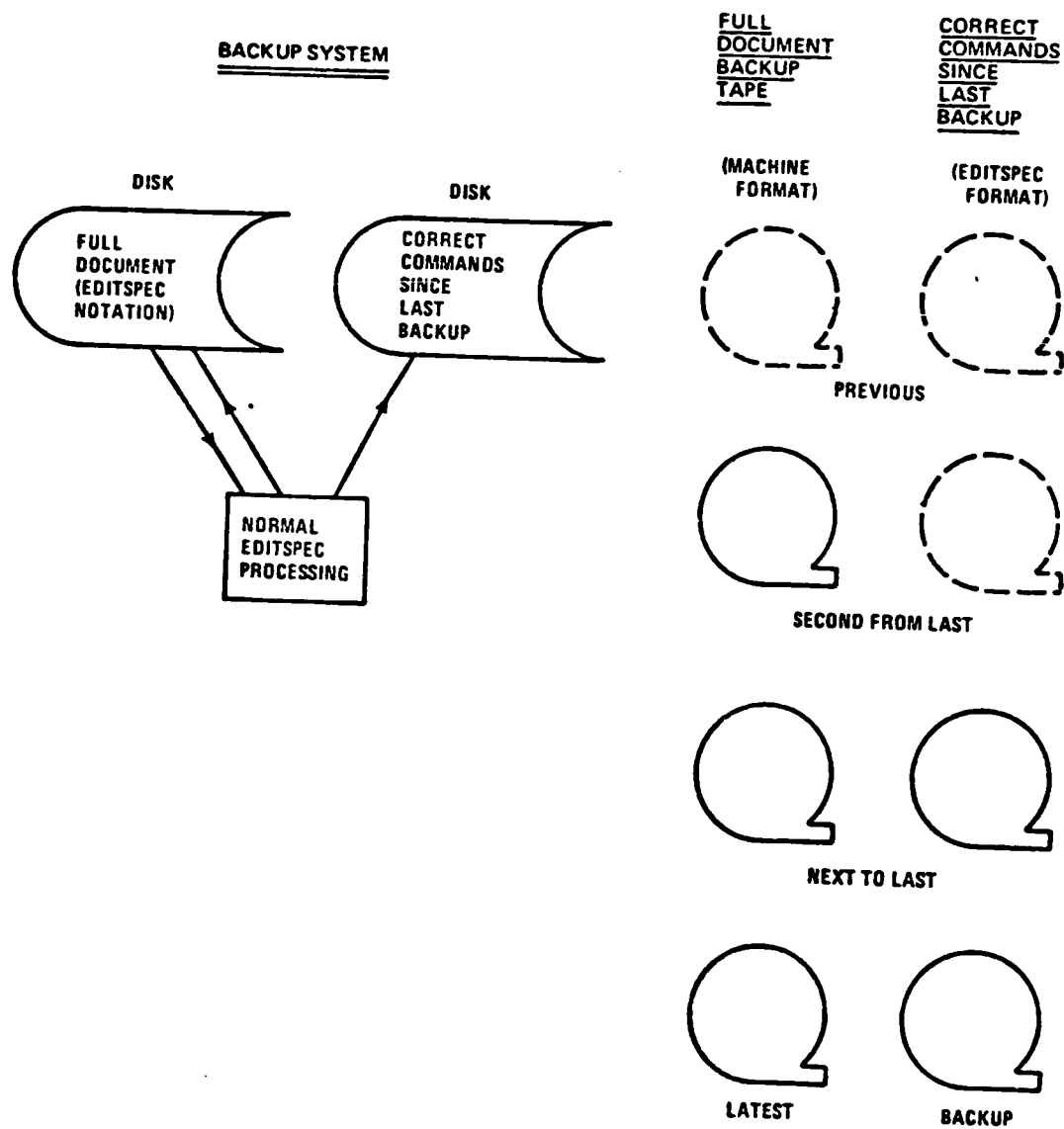


Figure 1—Normal EDITSPEC PROCESSING

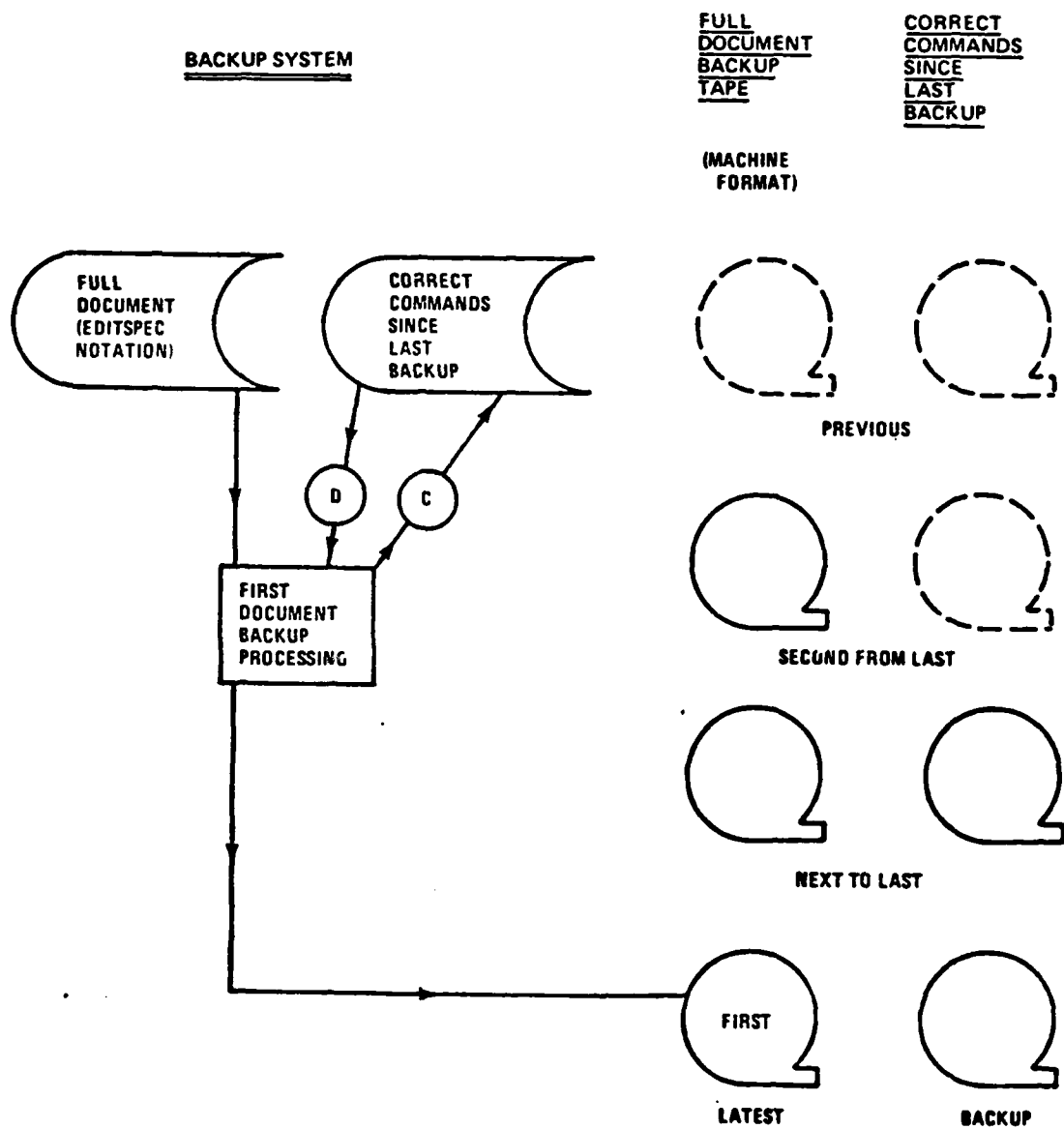


Figure 2—First Document Backup

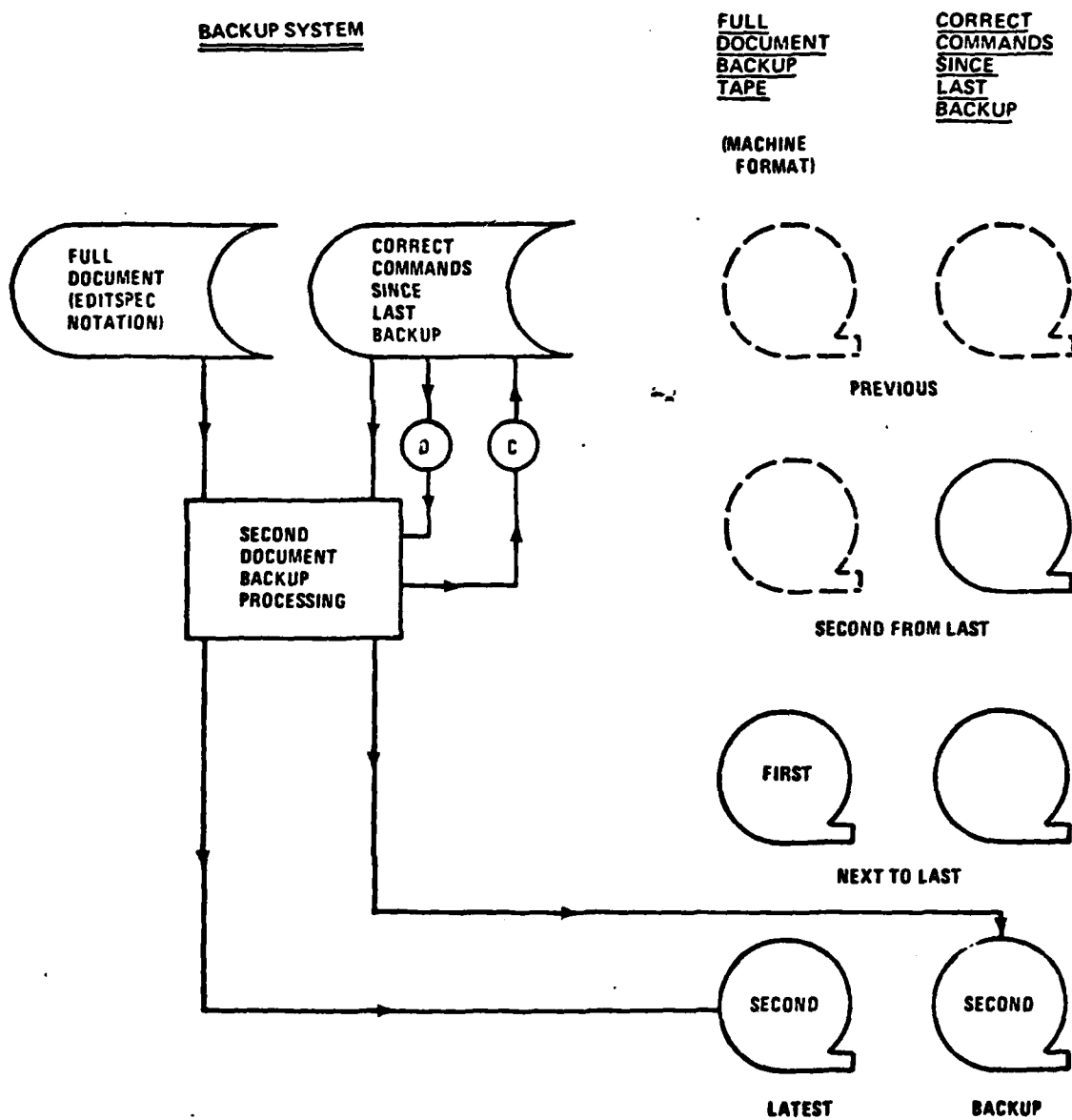


Figure 3—SECOND (third) DOCUMENTS BACKUP

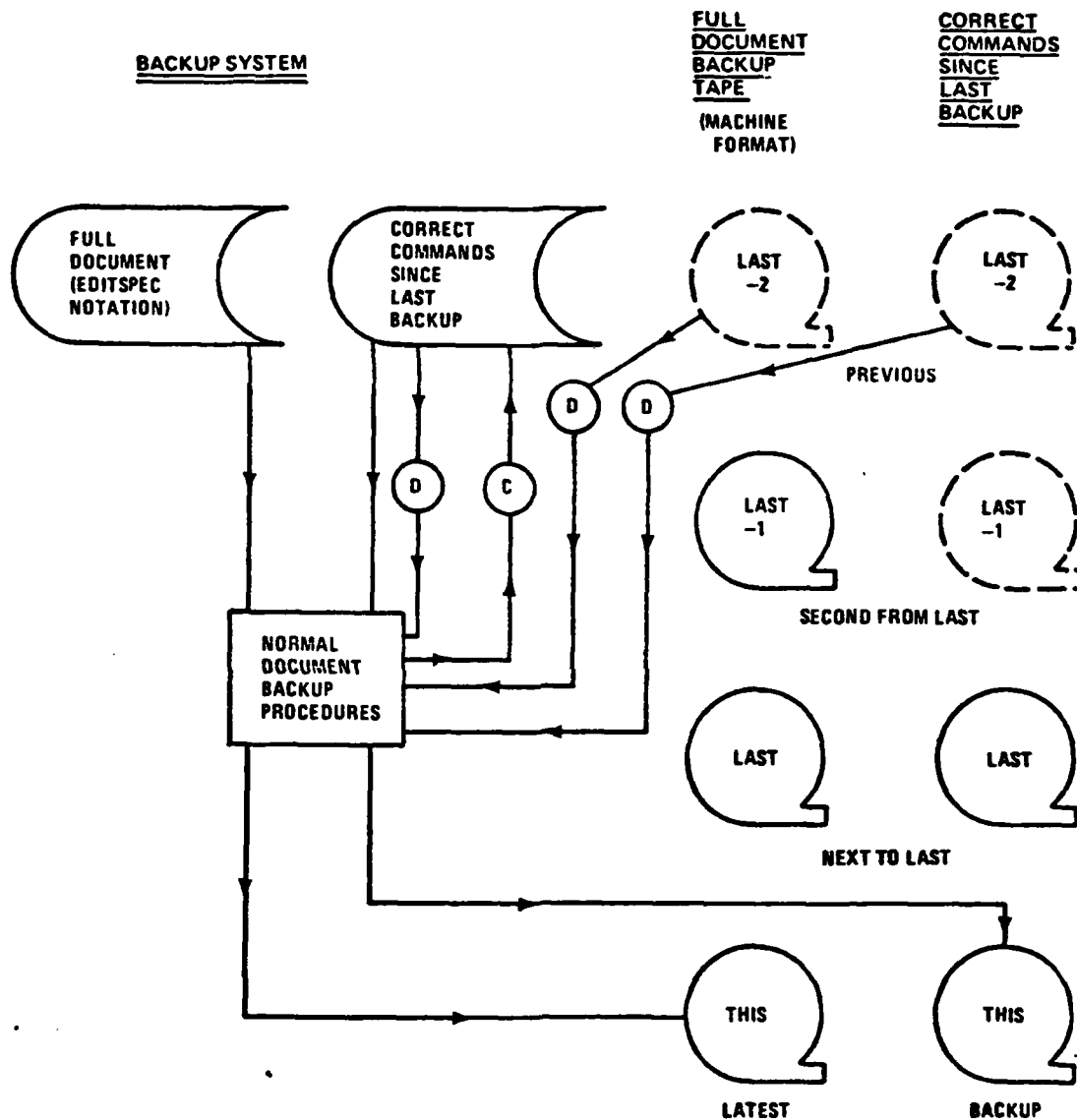


Figure 4—Normal Document Backup

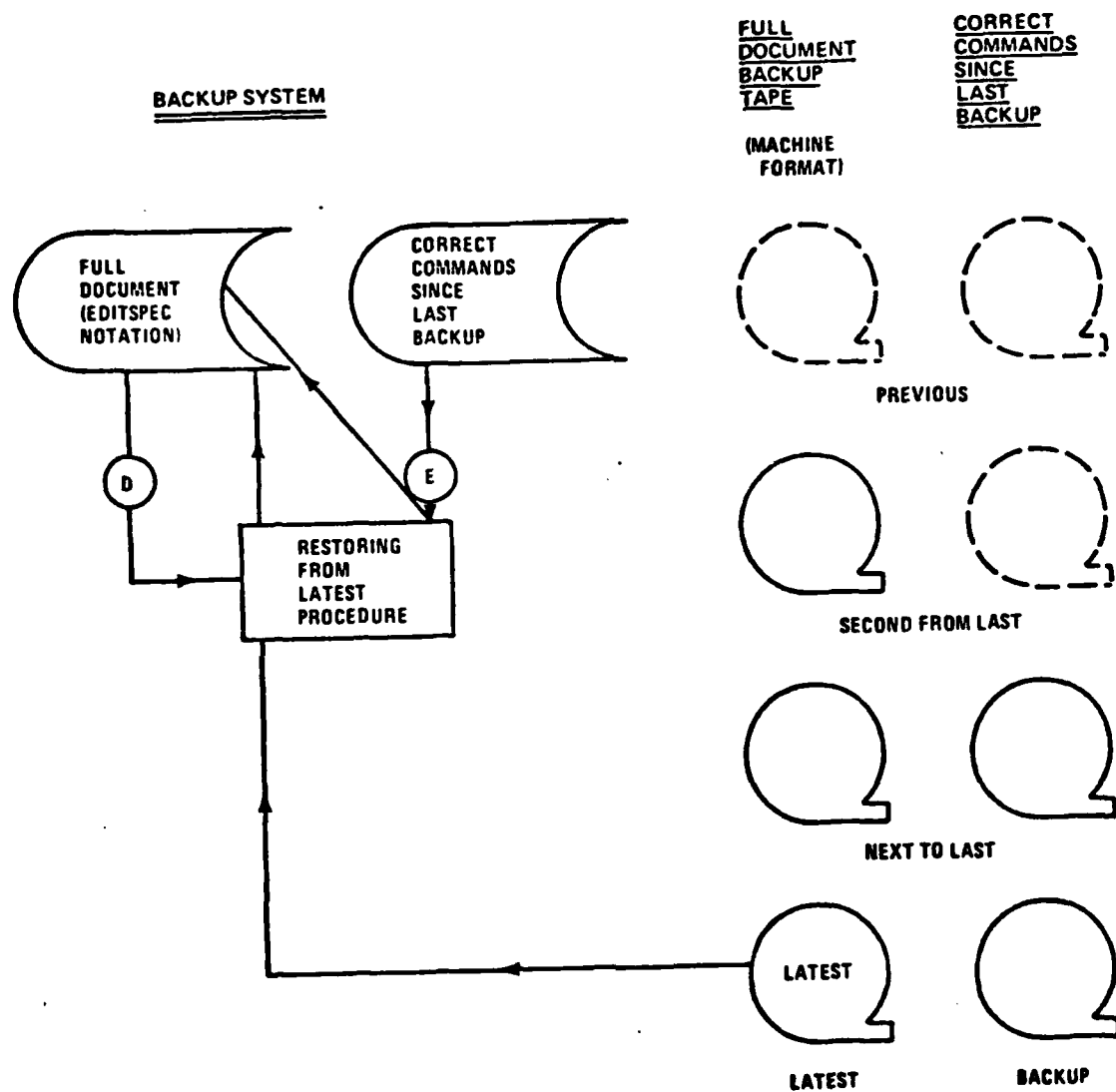


Figure 5—LATEST BACKUP RESTORATION

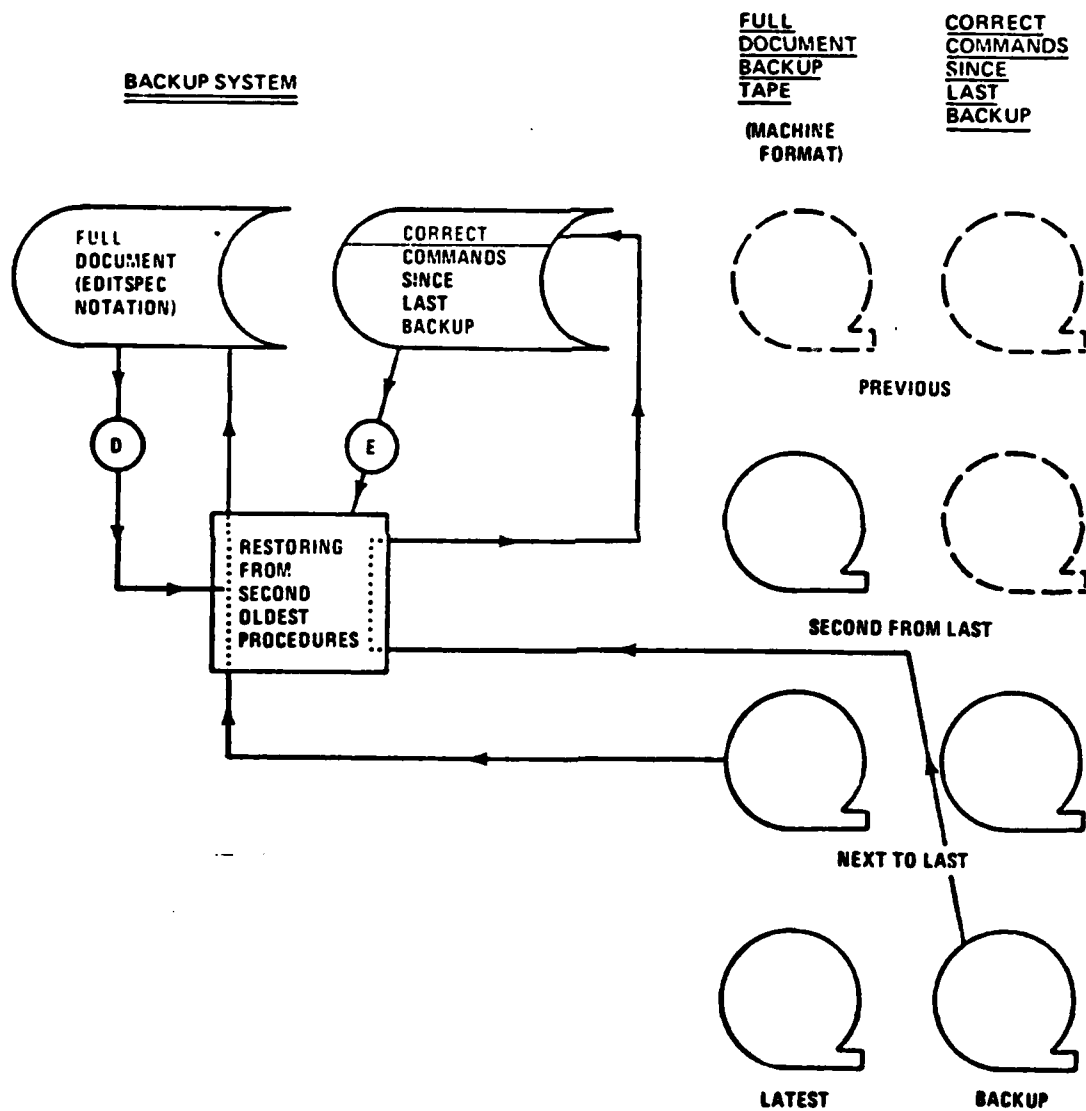


Figure 6—SECOND OLDEST BACKUP RESTORATION

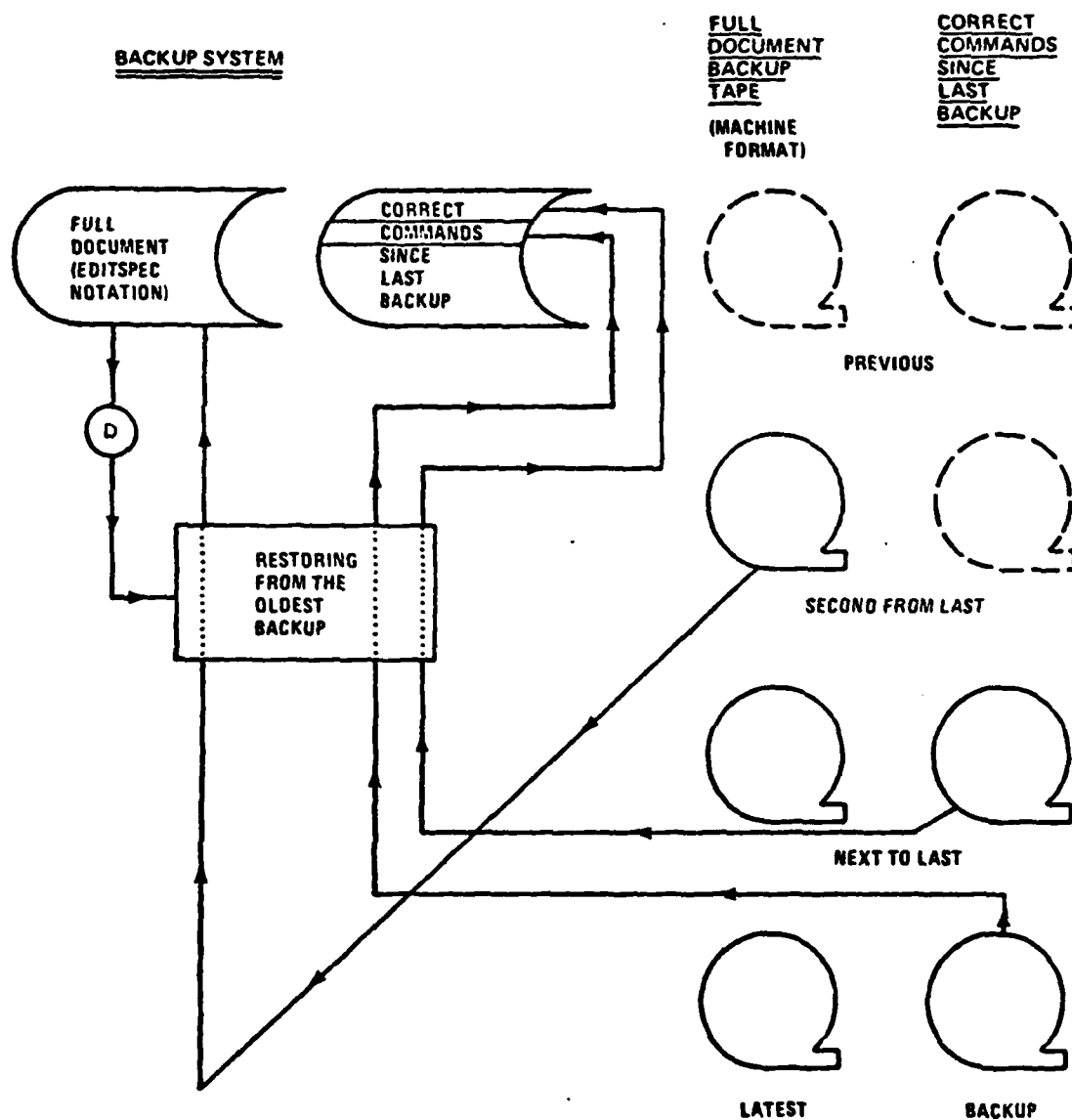


Figure 7—Restoration from the OLDEST BACKUP

APPENDIX C: File Restoration and Procedures

RESTOR
REST

PURPOSE

This system command allows the system maintainer to restore a document, dataset, or system table that was backed up with the .BACK command.

GENERAL FORM

.REST *dataset name; lun-list; name-list; backup-number; type.*

where:	<i>dataset name</i>	is a one to six character alphanumeric string for the name of an existing dataset to be restored.	
	<i>lun-list</i>	is a list of one to five unit numbers. The unit numbers are the backup tapes which must be read to restore the dataset. They will be read in the order that they are listed.	X
	<i>name-list</i>	is a list of one to five names of documents and/or system tables to be restored from one tape file.	
	<i>backup-number</i>	is a one-digit integer indicating which backup tape to start the restoration from.	
	<i>type</i>	is a one-digit integer indicating the type of restoration.	

FIELD OPTIONS

FIELD	OPTIONS	DEFAULT
1. <i>dataset name</i>	one to six character alphanumeric string for the name of an existing dataset.	"SYSTEM"

RESTOR
REST

FIELD	OPTIONS	DEFAULT
2. <i>lwi-list</i>	is a list of one to five integers, each less than eight characters.	10,11
3. <i>name-list</i>	is a list of one to five valid document/system-table names	empty list
4. <i>backup-number</i>	0:most recent backup 1:next to last backup 2:second to last backup	0
5. <i>type</i>	0:specified documents only 1:entire dataset 2:specified system-tables/ system dataset only 3:ISBUP, ISBUC, and ISBUT tables only 4:look up names in ISBUC table and print information.	0

SPECIAL NOTES

- 1) User must be authorized to issue the .REST command.
- 2) The names in the name-list must be backed up to the same set of tapes.
3. If the tapes have multiple-files, only one document/system-table name may appear in the name-list.

EXECUTION PROCEDURE

Read this section of the .BACK command for an overview of the backup processing.

RESTOR
REST

The restore command makes sure the user is authorized. Processing then depends on the *type* parameter.

If *type* = 4, the dataset name and all the names in the *name-list* parameter are looked up in ISBUC and the appropriate entries are printed out. This information includes tape labels, when last backup was done, etc. *Backup-number* is decremented and this process continues until backup-number reaches zero.

If *type* = 3, ISBUP, ISBUC and ISBUT are deleted and re-read from STAPE.

If *type* = 0, 1, or 2, documents, datasets or system-tables are deleted in preparation for restoration. If *type* = 0, all documents in *name-list* are deleted from *dataset-name*. If *type* = 1, all documents in *dataset-name* are deleted. If *type* = 2 and there are no system-tables in *name-list*, all system tables on A1SYSTEM are deleted. If *type* = 2 and there are system-tables in *name-list*, only those system tables are deleted. Input is then directed to the first unit number in *lun-list*, and *restor* then terminates. Note: *type* = 2 must go with the SYSTEM dataset and system tables, and *type* = 0,1 must not go with SYSTEM dataset and system tables. These conditions are errors.

When the redirection is complete, routine BAKUPO gets control. Hereafter, control will always return to BAKUPO during this run. BAKUPO continues redirection to the rest of the numbers in the *lun-list* and then to the appropriate backup (B1) dataset for complete updating. The last command in the B1 dataset is over-written and redirection occurs. When this is done, this processing repeats itself for the rest of the documents or system-tables in *name-list*. The tapes are rewound and repositioned, but the same ones are used.

COMMAND VARIATIONS

Var. #1. .REST <i>dataset-name</i> ;; <i>name-list</i> ; <i>backup-number</i> ; <i>type</i>

Example #1.

Text before: DOC1, DOC2 and DCMNTS have been backed up twice previously.

RESTOR
REST

Command: .REST (DCMNTS);;(DOC1), (DOC2);1;4.

DCMNTS, DOC1 and DOC2 are looked up in ISBUC and information is printed out pertaining to the next to last backup. This is repeated for the most recent backup.

Text after: The maintainer can now restore DCMNTS, DOC1 or DOC2 because he has the tape labels, file numbers, etc.

Var. #2. .REST_;;;;type

Example #1.

Text before: ISBUP, ISBUC and ISBUT were written to STAPE when the last backup was done.

Command: .REST;;;;3.

ISBUP, ISBUC and ISBUT are restored from STAPE.

Text after: ISBUP, ISBUC and ISBUT are now restored.

Var. #3. .REST_;;*lun-list; name-list; backup-number; type*

Example #1.

Text before: The footer format system table has been backed up three times previously.

Command: .REST_;;14,15,16; (FOF SYSTEM TABLE);2;2

The footer format system table is read from unit 14, and backup tables are executed from units 15 and 16. The appropriate table on B1SYSTEM is executed next.

Text after: The footer format system table is restored on the system dataset.

RESTOR
REST

Var. #4. .REST *dataset-name*;;*backup-number*; *type*

Example #1.

Text before: The SIT dataset has been backed up twice before.

Command: .REST (SIT);;;1;1.

The entire SIT dataset is restored from units 10 and 11.
The "1000" file on B1SIT is executed next.

Text after: The next to last backup of dataset SIT has been
used to restore SIT.

Var. #5. .REST *dataset-name*;; *name-list*

Example #1.

Text before: DOC3, DOC4 and DOC5 have been backed up previously.

Command: .REST (DCMNTS);;(DOC3), (DOC4), (DOC5).

DOC3 is restored from unit 10 to dataset DCMNTS. The appropriate backup table is executed from B1DCMNTS. This is repeated for DOC4 and DOC5.

Text after: DOC3, DOC4, and DOC5 are now restored on dataset DCMNTS.

MESSAGES

All messages are self-explanatory.

TAPE COMPRESS
TCMP

PURPOSE

This system command allows the maintainer to merge existing backup tapes to three new tapes, omitting data records which are no longer needed for backup purposes.

GENERAL FORM

.TCMP *old backup tape unit number list; new tape unit number list;
old tape name list; new tape name list; data select switch.*

where

*old backup tape
unit number list*

is a list of one or more logical unit numbers for the devices on which the old backup tapes are mounted.

*new tape unit
number list*

is a list of three logical unit numbers of the devices on which the new tapes are mounted.

*old tape name
list*

is a list of 1-12 character tape names which correspond to the tapes in the logical unit number list. There must be one tape name for each unit number given. And the name of the new tape is the name of the first tape on this list.

*new tape
name list*

is a list of three tape names that correspond to the tapes in the new tape unit number list.

TAPE COMPRESS
TCMP

*data select
switch*

is zero for copying tapes
with primary document and
system tables and one for
copying backup document
and system tables.

FIELD OPTIONS

FIELD	OPTIONS	DEFAULT
1. <i>old backup tape unit number list</i>	a list of one or more one or two digit integers separated by commas	none
2. <i>new tape unit number list</i>	a list of three one or two digit numbers	none
3. <i>old tape name list</i>	a list of one or more 1-12 character tape names in delimiters and separated by commas.	none
4. <i>new tape name list</i>	a list of three 1-12 character tape names in delimiters and separated by commas.	
5. <i>data select switch</i>	0 - tape contains primary document and system tables. 1 - tape contains backup document and system tables.	0 - tape contains primary document and system tables.

SPECIAL NOTES

EXECUTION PROCEDURE

For each tape on the list, the system checks to see which of the records on the tape should be copied to the new tape. These records are copied to the output tapes as follows: for a given data set in the input, if the first tape does not already contain a backup for this data set, then it is copied to the first tape. Otherwise, if there is also a backup for it on the second tape, then it is put on the third tape; if not, it is copied to the second tape.

COMMAND VARIATIONS

Var. #1. *.TCMP_old backup tape unit number list; new tape unit number; old tape name list; new tape name list; data select switch.*

Example #1.

Text before:

Assume "backup1", "backup2", ..., "backup7" contain primary document and system tables and are mounted and assigned logical unit numbers 17, 18, ... 23. Also assume that there are blank tapes named "new1", "new2", "new3", mounted and assigned logical unit numbers 25, 26.

Command: .TCMP 17, 18, 19, 20, 21, 22, 23; 25, 26, 27;
(backup1), (backup2), (backup3), (backup4),
(backup5), (backup6), (backup7); (new1), (new2),
(new3); 0.

or

.TCMP 17, 18, 19, 20, 21, 22, 23; 25, 26, 27;
(backup1), (backup2), (backup3), (backup4),
(backup5), (backup6), (backup7); (new1), (new2),
(new3).

Text after:

The good records from each tape are copied to the new tapes, and the ISBUC and ISBUT tables for the new tapes are constructed to reflect the status of these tapes.

TAPE COMPRESS
TCMP

Example #2.

Text before:

The assumptions are the same as above, except that the tapes backup1 - backup7 contain backup document and system tables.

Command: .TCMP 17, 18, 19, 20, 21, 22, 23; 25, 26, 27;
 (backup1), (backup2), (backup3), (backup4),
 (backup5), (backup6), (backup7); (new1), (new2),
 (new3); 1.

Text after:

The good records from the old tapes are again copied to the new tapes, and the ISBUC and ISBUT tables for the new tapes are constructed to reflect the status of them.

MESSAGES: All messages are self-explanatory.

APPENDIX D: Monitoring and Debugging

COMMAND MONITORING
COMM

PURPOSE

This system command allows a supervisor to save the resources used during the execution of all commands.

GENERAL FORM

.COMM switch.

where *switch*

is a zero or a one to
indicate the not saving
or saving of resources.

FIELD OPTIONS

FIELD	OPTIONS	DEFAULT
1. <i>switch</i>	a - zero (0) to indicate not saving the resources used. b - one (1) to indicate saving the resources.	zero - not saving resources

SPECIAL NOTES

The dataset "A1MONITR" must be defined in the users JCL. The EDITSPEC system contains a monitoring function that records command usage information. The application of this function is controlled by the variable MONITR located in /USAGEC/ common. If MONITR is set to zero (0), no monitoring will be performed. If set to one, monitoring will be conducted for every command. If monitoring has been specified, the subroutine

COMMAND MONITORING COMM

CMMND will call subroutine CMMNTR to perform the record keeping. CMMNTR will store the following information in a pack-point file named 1,0,0,0 in dataset A1MONITR:

1. Command Number:ISUB:I10
2. Status Switch:CMDOK:L10
3. Month Day Year: I10
4. Time: :I10
5. Resources Used: :I10 (As required)

Command usage reports can be obtained by applying the ".LIST MONI." command. This command will sequentially list all commands and all the statistics.

EXECUTION PROCEDURE

The system will check to insure the user is a supervisor and will set the variable MONITR as required.

COMMAND VARIATIONS

Var. #1. .COMM switch.

Example #1.

Text before: MONITR = 0

Command: .comm 1.

The MONITR variable will be reset to 1 by the program.

Text after: MONITR=1

MESSAGES - All messages self-explanatory

DEBUG
DEBU
DE

PURPOSE

This system and edit command allows the maintainer to obtain information to locate problems in the code.

GENERAL FORM

.DEBU number.
.DE number.

where *number*

is a number
between 0 and
8 indicating the
amount of output
required.

FIELD OPTIONS

FIELD	OPTIONS		DEFAULT
1. <i>number</i>	Value	Data Handler	Editspec
	0	0 = off	0 = off
	1	0 = off	1 = calls only
	2	0 = off	2 = detailed
	3	1 = calls only	0 = off
	4	1 = calls only	1 = calls only
	5	1 = calls only	2 = detailed
	6	2 = detailed	0 = off
	7	2 = detailed	1 = calls only
	8	2 = detailed	2 = detailed

DEBUG
DEBU
DE

SPECIAL NOTES - None

EXECUTION PROCEDURES

The system will set the data handler trace switch and the debug switch to the correct values.

COMMAND VARIATIONS - None

MESSAGES - None

REPORT DOCUMENTATION PAGE		1. REPORT NO. DOD/DF-83/002i	2.	3. Recipient's Accession No. AD-A24 211
4. Title and Subtitle EDITSPEC: System Manual, Volume VII: Operation and Maintenance Procedures			5. Report Date July 1979	
7. Author(s) Edgar S. Neely, Jr.			6.	
9. Performing Organization Name and Address Department of the Army Construction Engineering Research Laboratory P.O. Box 4005 Champaign, IL 61820			8. Performing Organization Rept. No.	
12. Sponsoring Organization Name and Address (same)			10. Project/Task/Work Unit No. 4A762731AT41/T1/009	
			11. Contract(C) or Grant(G) No. (C) (G)	
			13. Type of Report & Period Covered	
			14.	
15. Supplementary Notes For magnetic tapes, see				
16. Abstract (Limit: 200 words) The EDITSPEC System is an automated system designed to produce construction specifications from Corps of Engineers Guide Specifications. The System uses one central computer and a communications network to provide remote terminal access by Corps offices, nationwide to a central data base. This volume provides the operators and maintainers with an overview of their responsibilities. The first chapter presents the general operational structure of the EDITSPEC system. The second chapter contains the computer system operation guidelines. The last chapter describes the general maintenance requirements. <i>The appendices include material on backup system commands and file restoration procedures.</i>				
17. Document Analysis a. Descriptors Construction Specifications Guide Specifications Military Construction b. Identifiers/Open-Ended Terms c. COSATI Field/Group				
18. Availability Statement:		19. Security Class (This Report) UNCLASSIFIED		21. No. of Pages
		20. Security Class (This Page) UNCLASSIFIED		22. Price

25
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