

AD-A124 205

EDITSPEC SYSTEM MANUAL VOLUME I SYSTEM OVERVIEW(U)
CONSTRUCTION ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN
IL E S NEELY FEB 82 DOD/DF-83/002C

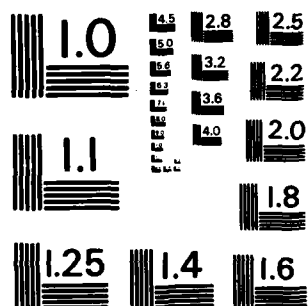
1/1

UNCLASSIFIED

F/Q 9/2

NL

END
DATE
FILMED
3 83
DTIC



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

ADA 124205

EDITSPEC SYSTEM MANUAL
VOLUME 1: SYSTEM OVERVIEW

by

E. S. Neely

February 1982

DTIC
ELECT
S FEB 8 1983
A

Department of the Army
CONSTRUCTION ENGINEERING RESEARCH LABORATORY
P.O. Box 4005
Champaign, Illinois 61820

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U.S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

This document has been approved
for public release and sale; its
distribution is unlimited.

DTIC FILE COPY

83 02 08 137

ABSTRACT

This volume provides computer programmers with an overview of the EDITSPEC computer system. The system structure is presented in Chapter 1. Basic system execution programs are described in Chapter 2. Chapter 3 describes the backup and restoration procedures, while Chapter 4 contains the data conversion procedure.



Accession For	
NTIS GRA&I	☒
DTIC TAB	☐
Unannounced	☐
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A	

FOREWORD

This investigation was performed for the Directorate of Military Construction, Office of the Chief of Engineers (OCE), under Project 4A762731AT41, "Design, Construction, and Operation and Maintenance Technology for Military Facilities"; Task T1, "Development of Automated Procedures for Military Construction"; Work Unit 009, "Computer-Based Specifications." The applicable QCR is 1.10.001. The OCE Technical Monitor was William Darnell.

The computer programs were written by Edgar Neely, Hans Wegener, Jayant Krishnaswamy, Anthony Wei, Shahid Siddiqi, Charles Wan, Arthur Davida, and several Multi-Systems, Inc., Cambridge, MA, staff members.

The study was performed by the Computer Aided Engineering and Architectural Design System Team (Ms. Janet Spoonamore, Chief), Facility Systems Division (Mr. E. A. Lotz, Chief), U.S. Army Construction Engineering Research Laboratory (CERL).

COL L. J. Circeo, Jr., is Commander and Director of CERL, and Dr. L. R. Shaffer is Technical Director.

PREFACE TO ALL EDITSPEC SYSTEM REPORTS

The purpose of the EDITSPEC system reports is to provide complete documentation to all personnel that must be involved with the EDITSPEC system. Such personnel include managers, specification writers, typists, computer systems analysts and computer programmers. Each personnel group requires different documentation. The reports required and the order of reading are shown in the table below.

PERSONNEL REPORTS	MANA- GERS	SPEC WRITERS	TYPISTS	SYSTEM ANALYST	PROGRAM- MER
1. Const. Spec. Prep within EDITSPEC system	1	1	1	1	1
2. Preparing a Guide Spec for EDITSPEC		4			
3. TRAINING COURSE MANUALS					
a. instructor					
b. introduction	2	2	2	2	2
c. specwriter		3		3	
d. internal commands		3			
e. Edit commands		4			
f. system commands		5			
4. USERS MANUAL		Reference	2	2	2
5. SYSTEM OVER- VIEW			3	3	
6. SYSTEM DESIGN CONCEPTS			4	4	
7. TABLE HANDLER				5	5
8. DATA HANDLER				6	6
9. CONVERSION and EXTENSION			2	7	
10. Project Managers Procedures				3	
11. Operation & Maintenance Procedures			9		

CONTENTS

	<u>Page</u>
ABSTRACT	ii
FOREWORD	iii
1 STRUCTURE.....	1
2 BASIC SYSTEM EXECUTION PROGRAMS.....	2
Root Segment	
System Segment	
Edit Segment	
Print Segment	
3 SYSTEM BACKUP AND RESTORATION PROGRAMS.....	5
Introduction	
Saving All Correctly Executed Commands	
Periodic Data Backup	
Data Restoration	
4 SYSTEM DATA CONVERSION PROGRAMS.....	8

1 STRUCTURE

The reader should have a thorough understanding of the EDITSPEC User's Manual before reading this volume.

The EDITSPEC computer system is designed to operate as basic subsystems (Figure 1), which have been designed to be as machine-independent as possible and yet minimize the life-cycle cost of the system. The subsystems have been developed to operate under the standard compilers supported by all medium-sized computer systems.

A machine-independent scientific and engineering data handler has been developed to manipulate machine-dependent direct access storage and to provide application programs with machine-independent calling sequences. This subsystem will minimize program conversion problems when a new computer must be applied. The data handler, which is described in Volume IV, allows application programs to work with files or tables.

A machine-independent table handler has been implemented to allow application programs to access tables efficiently. The table handler and the tables used within the EDITSPEC system are defined in Volume III. The table handler programs apply the data handler application programs. The EDITSPEC computer programs apply both the data and the table handler application programs.

The EDITSPEC programs are logically divided into three structural groups as shown in Figure 2. The BASIC SYSTEM EXECUTION programs perform the normal day-to-day functions required to support the user; the SYSTEM BACKUP and RESTORATION programs perform periodic backups for portions of the system and provide data base restoration functions when the DATA CONVERSION programs provide functional assistance in converting the data base from one computer to another. The following chapters discuss each of the three divisions.

2 BASIC SYSTEM EXECUTION PROGRAMS

The BASIC SYSTEM programs are logically divided into the following four segments as shown in Figure 3.

Root Segment

The ROOT segment contains all programs of a general nature that are used to initialize the system and to process all commands, as well as programs used frequently by all segments. It can be logically separated into five program groups as shown in Figure 4. The SYSTEM CONTROL PROGRAM, called EDTSP, controls the flow of processing. The four high-level SYSTEM INITIALIZATION PROGRAMS are: SINIT, DKNIT, EINIT, and LOGOP. There is one high-level COMMAND ANALYSIS PROGRAM, called CMMND, and one high-level SYSTEM CLEANUP PROGRAM, called DKXIT. The BASIC APPLICATION PROGRAMS are listed in Table 1 and subroutine CMMND.

System Segment

The SYSTEM segment, which contains all programs required to process system commands, can be logically separated into four program groups as shown in Figure 5 and described in the user's manual. All high-level systems programs are called from the CMMND program.

Edit Segment

The EDIT segment, which contains all programs required to process the normal document editing functions, can be logically separated into seven program groups as shown in Figure 6 and described in the user's manual. All high-level programs are called from the CMMND program.

Print Segment

The PRINT segment, which contains all programs required to process the internal commands and to produce a final document, can be logically separated into five program groups as shown in Figure 7. The internal command programs are described in the user's manual. The two high-level programs for this segment are PRINT as in log and PPRO. The high-level programs for print initialization are PRINT1 and PAGEIN, and the high-level programs for text retrieval are GTLIN and SCOPY. PAGES controls the page layout and PGHDR controls the page printing.

REPORT DOCUMENTATION PAGE	1. REPORT NO. DOD/DF-83/002c	2.	3. Recipient's Accession No. AD-A124 205
4. Title and Subtitle EDITSPEC; System Manual, Volume 1: System Overview			5. Report Date February 1982
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. 10. Project/Task/Work Unit No. 4A762731AT41/T1/009 11. Contract(C) or Grant(G) No. (C) (G)
12. Sponsoring Organization Name and Address (same)			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 computer programmers with an overview of the EDITSPEC computer system. The system structure is presented in Chapter 1. Basic system execution programs are described in Chapter 2. Chapter 3 describes the backup and restoration procedures, while Chapter 4 contains the data conversion procedure.			
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

Table 1
Basic Application Programs
ISUB COMMAND ROUTINE

NO.					
1	.ACCE	ACCES	101	.AA	AAFTR
2	.ACCO	ACCNT	102	.AB	ABEER
3	.CANC	CANCE	103	.AU	AUDIT
4	.DOCU	LEVEL	104	.BL	BLOCK
5	.DELE	DELET	105	.BN	BPAGN
6	.EDIT	EDIT	106	.FC	FLGCH
7	.FOOT	FOOT	107	.CH	CHANG
8	.GENE	GENE	108	.CO	COPY
9	.HEAD	HEAD	109	.CR	COPYR
10	.LOGON	LOGON	110	.CT	COPYT
11	.LOGOF	LOGOF	111	.CF	COPYF
12	.LIST	LIST	112	.EN	ENTER
13	.MESS	MESS	113	.ER	ERASE
14	.MERG	MERGE	114	.EX	EXECT
15	.MONI	MONI	115	.FL	FLAG
16	.NEW	NEW	116	.FC	FLGCH
17	.PASS	PASS	117	.IX	INDES
18	.PGNF	NOFOR	118	.IN	INPUT
19	.PARA	PARFM	119	.IT	INSRT
20	.PRNE	PNOFM	120	.LC	LOGIC
21	.PPRO	PPRO	121	.LT	INCRL
22	.RACC	RACCE	122	.LT	LSTRL
23	.REPO	REPO	123	.LO	LOCAT
24	.RENA	RENAM	124	.MC	MYCYC
25	.SUPE	SUPER	125	.MO	MOVE
26	.SPEC	SPEC	126	.PT	PRNDX
27	.TABL	TABEM	127	.PT	PRTOC
28	.USER	USER	128	.PR	PRINT
29	.UDMF	UDMF	129	.PU	PULL
30	.UPDA	UPDA	130	.RL	RLOGC
31	.DEBU	DEBOG	131	.RC	RCOPY
32	.EXEC	EXECS	132	.RR	RREFS
33	.ASLE	ASLEEP	133	.RN	SEQUN
34	.TEST	TEST	134	.SC	SCHNG
35	.AWAK	AWAKE	135	.STOP	STORE
36	.DSCN	DSCN	136	.TC	TCONT
37	.SPAC	SPACE	137	.TS	TEXTS
38	.BACK	BACKUP	138	.UB	UNBLK
39	.REST	RESTOR	139	.DE	DEBOG
40	.KIND	KIND	140	.MONI	MONI
41	.KDOC	KDOC	141	.DK	KDOC
42	.KAL	AKAD	142	.KL	KAL
43	.KEYW	KEYW	143	.ZO	ZZ
44	.NKEY	NKEY	144	ZT	ZZ
45	.CLEA	CLEAR	145	.ZR	ZZ

46	.COPY	COPY	146	.ZS	ZZ
47	.KEYS	KEYS NEELY	147	.ZL	ZZ
48	.DSCR	DSCR	148	.ZM	ZZ
49	.DSDE	DSDE	149	.ZN	ZZ
50	.SUBM	SUBM	150	.GS	GS
51	.ZNEW	ZNEW	151	.WO	WRKCPY
52	.ZU	ZUPDA	152	.SE	SETCYC
53	.ZG	ZGENE	153	.CL	CL
54	.GUID	GUID	154	.TR	TROW
55	.DOCC	DOCC	155	.SW	SWSUBR
56	.COMM	COMM	156	.RW	RWSUBR
57	.CREA	CREATOR CHANGE	157	.PO	POSUBR
58	.ZUSR	ZUSER	158	.DU	DUSUBR
59	.ZACC	ZACCNT	159	.NN	NOTICE
60	.ZKND	ZKIND	201	.ZDDA	BAKUPO
61	.DATA	GSDSN	202	.ZDDB	BAKUP1
62	.DBAC	DOCUMENT BACUP	203	.ZDSA	BAKUP2
63	.ARCH	ARCH	204	.ZDSB	BAKUP3
64	.CARD	CARD	205	.ZSDA	BAKUP4
65	.NOTI	NOTIFY	206	.ZSDB	BAKUP5
66	.SIZE	SIZE	207	.ZSSA	BAKUP6
67	.PSCN	PSCNSR	208	.ZSSB	BAKUP7
68	.CSID	CSIDSR	209	.TCMP	TAPCMP
69	.APRO	APROSR			
70	.RRPR	RRPRSR			
71	.RPRI	RPRI SR			

3 SYSTEM BACKUP AND RESTORATION PROGRAMS

Introduction

The EDITSPEC system provides functions that permit the recreation of any document, system table, and/or dataset to the state immediately before the data was inadvertently destroyed.

The EDITSPEC system provides three different backups for each system table and document. The time interval between backups will be called a period. EDITSPEC saves the last three backup periods. The documents can be recreated from any one of the three backups. This provides a triple backup system to hopefully provide a fail-safe system. Three logical functions must be performed:

1. Saving all correctly executed commands, except for list and print commands, executed since the last backup was made.
2. Periodically saving the data on a backup device.
3. Restoration of the data after a functional fatal error.

Each of the three functions are discussed in the remaining sections of this chapter.

Saving All Correctly Executed Commands

The EDITSPEC system has been designed to function correctly with and without the backup system. The logical variable BAKUP located in /SYSTEM/common is set to BAKUP is set to .TRUE. if the backup system is to be applied. The .BACK. command in the users manual should be referenced for a detailed description of backup files.

Dataset Naming Conventions

Each dataset is known to EDITSPEC by a one to six-character alphanumeric name.

All the backup datasets are prefixed with B1, as opposed to primary datasets which are prefixed with A1.

The predefined job control language, if applied, must contain the A1 and B1 datasets.

A1 datasets contain current data itself, and B1 datasets contain list of all correctly executed commands since the last system backup was done.

Normal Command Backup Procedures

After the processing of each command, the routine CMMND checks the variable CMDOK in /PARSC/ common to determine if the command worked properly and changed the data base in any manner. If the determination was positive routine, BKSAV is called to save the command in the correct backup files.

Backing Up System Commands

Each system command is stored in a backup file related to the data file being modified. Three data files: USER, DIRECTORY, and ACCOUNTS are interdependent and are backed up only in the USER file. All other commands relate to only one file.

The EDITSPEC system provides duplicate backup facilities for the entire system dataset. All commands changing any system file are also stored in a system dataset backup file.

Backing Up Document Commands

There are two categories of backup commands for each document. The first category consists of all commands that successfully modified the document data during the normal editing of the document by the user. The second category consists of all commands that have been issued to reference this document by other documents (i.e., a copy no-move command issued by a project document to a guide document).

When the document is created, the creator of the document can decide to backup all successfully executed commands that will be issued during future edits.

The creator has no control over the saving of the reference commands. These commands are automatically saved by the system to protect the other documents and ensure system integrity.

The EDITSPEC system provides duplicate backup facilities for the entire document dataset. All commands changing any document on the dataset are also stored in a document dataset backup file.

Periodic Data Backup

The EDITSPEC system will periodically backup the datasets (on files) to permit restoration when data is destroyed. The system datasets will be backed up twice daily. Datasets containing documents will be backed up daily if edited and requested by the creator of the documents.

After the periodic backup is performed, all correctly executed commands that have been saved on the permanent disk are destroyed.

Data Restoration

System tables and datasets will always be restored to the last correct command before the data destruction.

Document tables and datasets will be restored to the last backup performed and then extended to the last correct command if the user has saved the commands.

The EDITSPEC system saves the last one to three days of editing as backup for each document and system file. When a new day of editing is performed, the previous third day of editing on the backup is destroyed, the previous second from the last day becomes the new third day, the previous first day becomes the new second day, and the latest day becomes the new first day.

4 SYSTEM DATA CONVERSION PROGRAMS

When the EDITSPEC system is moved from one computer system to another, programs and data must be transferred efficiently. The system data conversion programs described in Appendix C and the conversion manual and shown in Figure 8 perform two logical functions: (1) the data output programs produce magnetic tapes from the current data base, and (2) the data input programs produce a new direct access data base from the tapes.

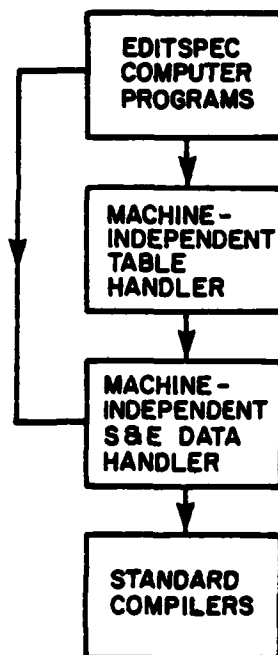


FIGURE 1 EDITSPEC SUBSYSTEMS

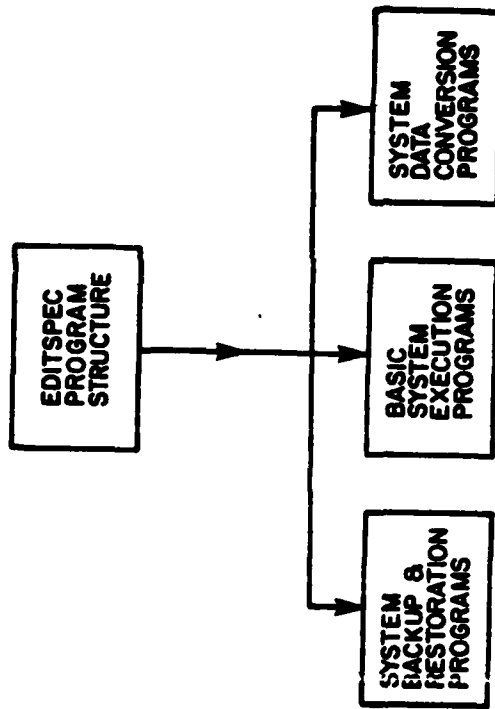


FIGURE 2 EDITSPEC PROGRAM STRUCTURE

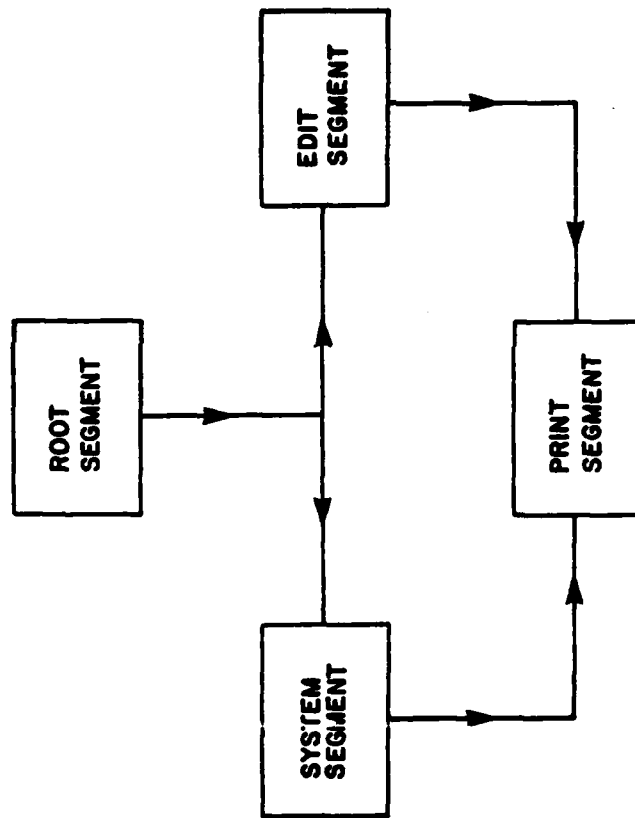


FIGURE 3 BASIC SYSTEM PROGRAM STRUCTURE

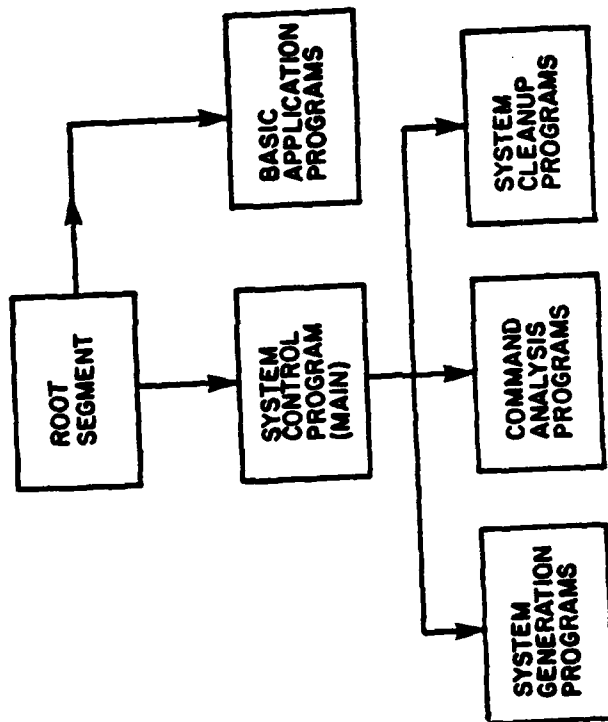


FIGURE 4 ROOT SEGMENT STRUCTURE (MAIN PROGRAM)

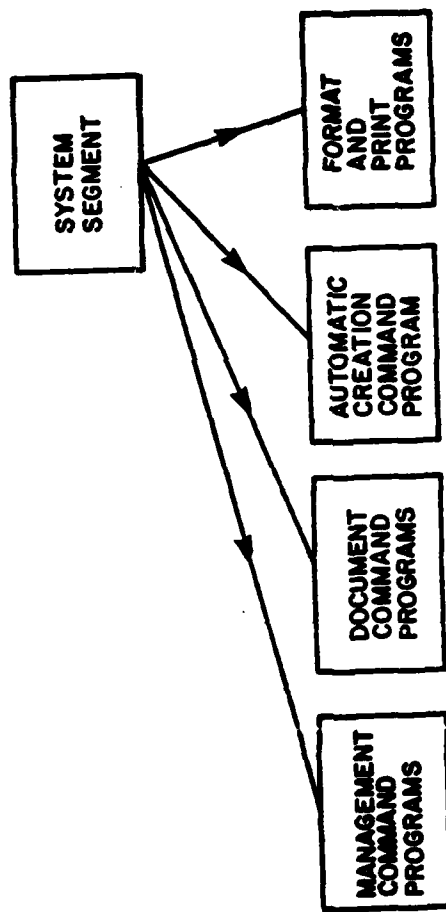


FIGURE 5 SYSTEM SEGMENT STRUCTURE

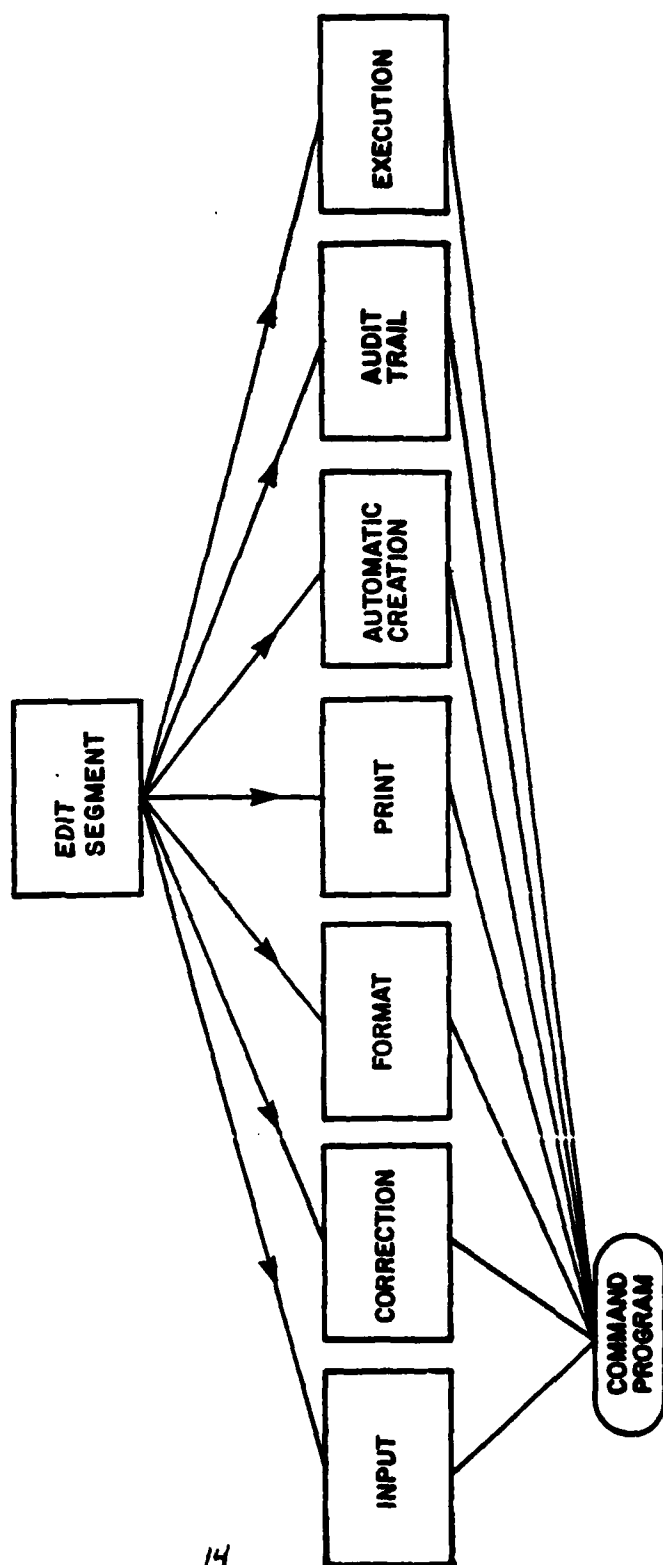


FIGURE 6 EDIT SEGMENT STRUCTURE

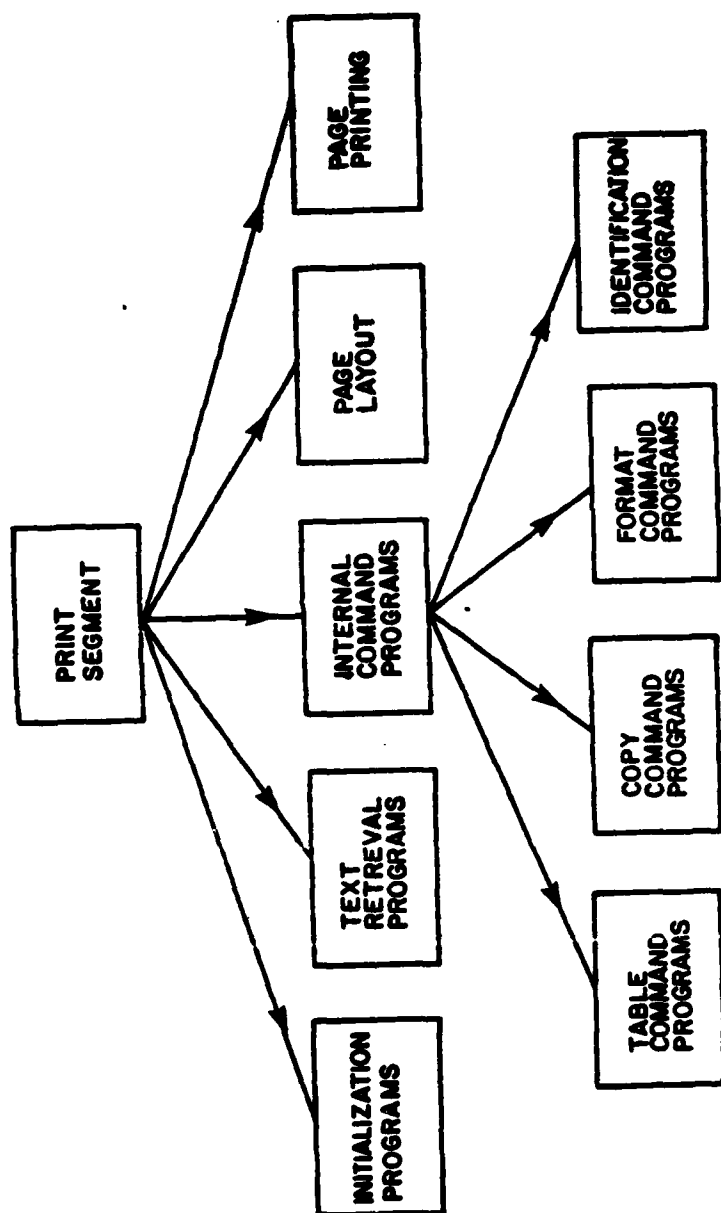


FIGURE 7 PRINT SEGMENT STRUCTURE

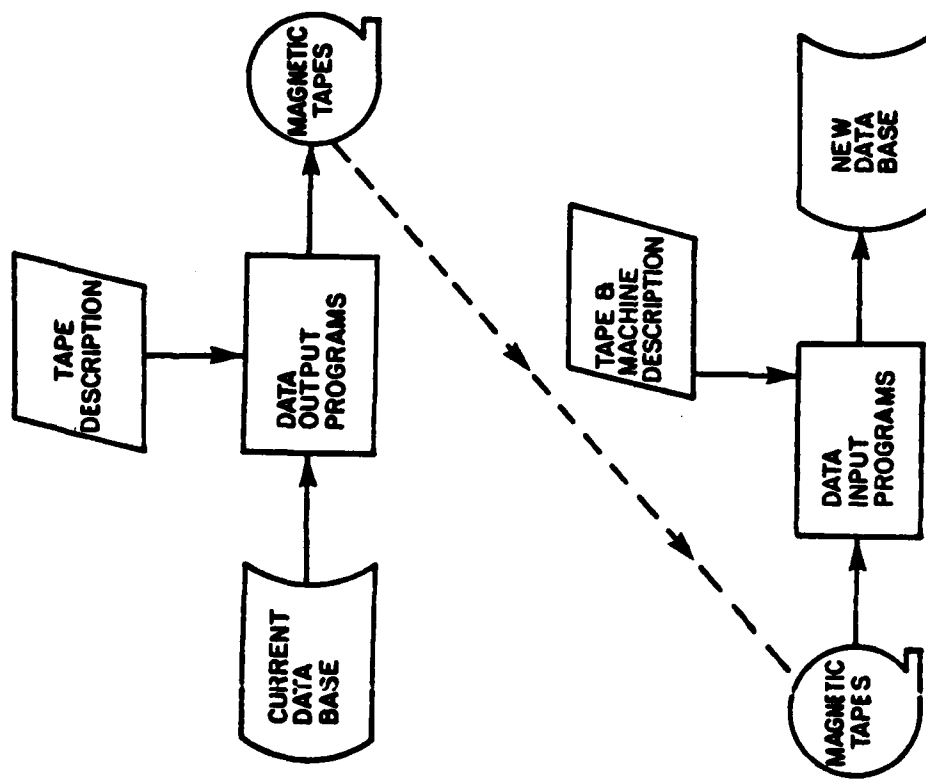


FIGURE 8 DATA CONVERSION

APPENDIX A: EDITSPEC FUNCTIONS AND SUBROUTINES

6 7	Number	Subroutine Name	Function
14 15 16 17 18 19 20 21	/ 1.	AAFTTR	ADDS TEXT AT THE END OF A TEXT LINE, EITHER BY MEANS OF A TEXT STRING GIVEN IN THE COMMAND AND/OR BY SPECIFYING A LINE NUMBER WHOSE TEXT IS TO BE ADDED AT THE END OF THE SAID LINE. WHEN BOTH A STRING AND A LINE NUMBER ARE GIVEN THEN THE STRING IS FIRST ADDED TO THE END THEN THE LINE AFTER THAT. THE ADDED LINE IS THEN DELETED FROM ITS ORIGINAL PLACE.
23 24 25 26 27 28	/ 2.	ABEFTTR	ADDS TEXT AT THE BEGINNING OF A TEXT LINE BY MEANS OF EITHER A TEXT STRING OR ANOTHER LINE IN THE TEXT TABLE OR BOTH. WHEN BOTH ARE GIVEN FIRST THE TEXT STRING IS ADDED AT THE BEGINNING OF THE SAID LINE THEN THE OTHER LINE. THE ADDED LINE IS THEN ERASED FROM ITS ORIGINAL PLACE.
30	/ 3.	ACCESS	TO ADD OR REMOVE USER ACCESS TO DOCUMENTS OR ACCOUNTS
32	/ 4.	ACCIN	INTERPRET THE INPUT STREAM FOR THE ACCES AND RACCE COMMANDS.
34 35	/ 5.	ACCNT	TO ADD, CHANGE, OR DELETE ACCOUNT NUMBERS WHEN AN 'AN' COMMAND IS INPUT.
37	/ 6.	AN2A1	TO CONVERT FROM (AN) FORMAT TO (A1) FORMAT; (N=NCU).
39	/ 7.	ASLEEP	
41 42 43	/ 8.	ASSEM	THIS PROGRAM ASSEMBLES PARAMETERS FOR SUBROUTINES LOCAT, CHANG, ERASE, BLOCK, UNBLOCK, INDEX FROM A STRING PASSED TO IT.
45	/ 9.	AUDIT	SETS THE AUDIT TRAIL SWITCH TO 'ON'.
47	/10.	AUDUP	TO UPDATE THE AUDIT TRAIL ACCORDING TO PASSED TYPE
49	/11.	BADCM	TO PRINT AN ERROR MESSAGE IN EVENT OF ILLEGAL COMMAND.
51	/12.	BKSAV	SAVE COMMAND ON BACKUP DATASET.
53	/13.	BLANK	THIS SUBROUTINE CALCULATES NUMBERS OF LEADING AND TRAILING
5	/		

10 11	/	Subroutine Name	Function
54 55 56	/		BLANKS IN CHARACTER STRING USTR. ONE CHARACTER PER WORD, AND STORES THEM IN LBLNK AND LSBLN RESPECTIVELY. NBYTE IS THE NUMBER OF CHARACTERS IN USTR
58	/14.	BLINC	PAD A WORD WITH INTERNAL BLANK CHARACTERS
60	/15.	BLNKP	BLANK PAD A WORD
62 63	/16. /	BLOCK	PROCESS COMMAND .BL, I.E., INSERT *B* AND *BE* TO A LIST OF LINE NUMBER PAIRS.
65 66 67 68 69	/17. / / / /	BPAGN	THIS SUBROUTINE TAKES CARE OF COMMAND BN. IT CHECKS IF THE FORMAT IS ALREADY IN COMMON AREA (INPAGE). IF NOT THE INITIALIZED FORMAT WILL BE READ FROM DISK. THEN THE SUBROUTINE INTFM IS CALLED TO RESET THE PAGE NUMBER.
71 72 73 74 75	/18. / / / /	BPARN	THIS SUBROUTINE TAKES CARE OF EDIT COMMAND BP. IT CHECKS IF THE FORMAT IS ALREADY IN COMMON AREA (INPNFC). IF NOT, THE INITIALIZED FORMAT WILL BE READ FROM DISK. THEN THE SUBROUTINE INTFM IS CALLED TO RESET THE PARAGRAPH NUMBER.
77	/19.	BREAK	PROCESS THE .BC COMMAND IN EDITSPEC
79	/20.	CADIN	INTERPRET THE INPUT STRING FOR ACCOUNT OR SUPER COMMAND.
81	/21.	CANCE	TO REMOVE UP TO TWENTY USERS FROM THE EDITSPEC SYSTEM.
2 83	/22.	CDINT	
85	/23.	CFILL	PUT FORMAT SPACE FILLER INTO LINES ARRAY
87	/24.	CHANG	
89	/25.	CHIFT	SHIFT CHARACTERS TO EITHER THE LEFT OR THE RIGHT OR
5	/		

10 11	/ <u>Number</u>	<u>Subroutine Name</u>	<u>Function</u>
90	/		TO PAD WITH A SPECIFIED CHARACTER
92	/26.	CLOCK	THIS RETURNS A MEASURE OF CPU-TIME FOR THE CURRENT TASK.
94	/27.	CMMND	TO INTERPRET COMMANDS AND CALL THE APPROPRIATE SUBROUTINES
96	/28.	COMO	TO COPY OR MOVE TEXT FROM ONE LOCATION TO ANOTHER
98	/29.	CONV	CONVERTS A STRING OF MACHINE INTERNALLY REPRESENTED
99	/		CHARACTERS INTO THE EDITSPEC REPRESENTATION (USING
100	/		' ' AS THE INDICATOR THAT THE NEXT CHARACTER IS A
101	/		CAPITAL.)
103	/30.	CONV1	CONVERTS A STRING OF MACHINE INTERNALLY REPRESENTED
104	/		CHARACTERS INTO THE EDITSPEC REPRESENTATION
106	/31.	CONV2	CONVERTS A STRING OF MACHINE INTERNALLY REPRESENTED
107	/		CHARACTERS INTO THE EDITSPEC REPRESENTATION
109	/32.	COPIN	TO DETERMINE THE INPUT VALUES FOR COPY AND MOVE COMMANDS.
111	/33.	COPY	TO COPY OR MOVE TEXT FROM ONE LOCATION TO ANOTHER
113	/34.	COPYF	THIS ROUTINE SYNTAX CHECKS THE .CF COMMAND AND IF SYNTAX OK
114	/		IT COPIES OVER FROM THE OTHER DOC INTO THE CURRENT DOC
115	/		THE SPECIFIED FLAGS (OR IN A COMMON VARIATION ALL THE
116	/		FLAGS)
118	/35.	COPYR	TO REMOVE A *CO OR *CT
120	/36.	COPYT	MAIN DRIVER FOR .CT - COPY TABLE COMMAND
122	/37.	CPROC	
124	/38.	CPRON	THIS ROUTINE CHECKS THE SYNTAX OF NESTED INTERNAL
125	/		COMMANDS STORED IN COMMAND BUFFER(CMBUF) AND PROCESSES
126	/		THEM IF THEY ARE SYNTACTICALLY CORRECT.
128	/39.	CT	MAIN DRIVER FOR *CT - COPY TABLE FUNCTION

10 11	/	Subroutine Number Name	Function
130	/40.	DCDEC	
132	/41.	DCHK	TO CHECK OUT EXTERNAL-REFERENCE TABLE FOR .DELE.
134	/42.	DEAUD	THIS SUBROUTINE DELETES OLD CYCLES IN AUDIT TRAIL TABLE.
135	/		BEGINNING WITH ICYCL
137	/43.	DEB	
139	/44.	DEBOG	TO CHANGE THE DEBUG PARAMETER.
141	/45.	DECOD	INTERPRET A COMMAND AND CALL THE PROPER SUBROUTINE
143	/46.	DEL	THIS SUBROUTINE 'DELETES' ALL CURRENT LINES BETWEEN TWO
144	/		GIVEN LINES, I.E. SETS ON THE SIGN BIT AND CHANGES
145	/		THE CYCLE NUMBER. ALSO IT WRITES ON THE DISK A
146	/		RECORD WITH NUMBERS OF THESE LINES.
148	/47.	DELCD	
150	/48.	DELET	TO DELETE A DOCUMENT.
152	/49.	DINIT	
154	/50.	DJUST	

10 11	/ Number	Subroutine Name	Function
156	/51.	DLCOP	TO DELETE LINE CONTAINING *CO OR *CT.
158	/52.	DLIN	TO DELETE A LINE FROM THE TEXT-TABLE.
160	/53.	DRTER	ERASE AN ENTRY FROM DRT-TABLE.
162	/54.	DRTIN	TO ENTER A BACK-REFERENCE INTO DRT-TABLE.
164 165	/55. /	EDAUT	THIS SUBROUTINE RESTORED THE TEXT, LINE NUMBER TABLE, AUDIT TRAIL TABLE AS THEY WERE BEFORE CYCLE ICYCL.
167	/56.	EDIT	TO SET UP A DOCUMENT FOR EDITING COMMANDS.
169	/57.	EDTSPC	MAIN PROGRAM. CALLS VARIOUS ROUTINES.
171 172	/58. /	ED2MC	TO CONVERT A STRING FROM EDITSPEC FORMAT TO MACHINE (A1) FORMAT.
174	/59.	EINIT	EDITSPEC INITIALIZATION.
176 177 178 179 180	/59. / / / /	EN	THIS ROUTINE ENTERS ONE LINE OF TEXT INTO AN EXISTING DOCUMENT IF LNST=0 THEN IT INSERTS THE LINE AT THE END OF THE DOCUMENT. IF LNST 0 THEN IT INSERTS AT THE GIVEN LINE NUMBER OR IT TELLS THE USER THAT A LINE WITH THAT NUMBER ALREADY EXISTS
182 183 184 185 186 187	/60. / / / / /	ENTER	ENTERS ONE LINE OF TEXT INTO A DOCUMENT BY FIRST: CHECKING THAT THE CORRECT PARAMETERS WERE PASSED BY THE USER. THESE PARAMETERS ARE:THE LINE NUMBER, TEXT SEGMENT ID AND THE TEXT LINE ITSELF. SECOND: WE CALL THE EN SUBROUTINE WHICH ACTUALLY LOADS THE LINE
189 190 191 192 193	/61. / / / /	ERASE	THIS SUBROUTINE 'ERASES' THE CHARACTER STRING (CHS) FROM VARIOUS SECTIONS OF THE TEXT, WHICH ARE DEFINED EITHER BY MEANS OF TEXT SEGMENTS OR BY NUMBERS OF STARTING AND ENDING LINES. IT ALSO STORES THE NUMBERS OF LINES WHICH ARE ERASED.
195	/62.	EXECS	TO EXECUTE COMMANDS FROM A DOCUMENT (IN SYSTEM MODE).
197 198	/63. /	EXECT	TO EXECUTE COMMANDS FROM CURRENT DOCUMENT (IN EDIT MODE).

10 11	/ Number	Subroutine Name	Function
200 201	/64. /	EX2IN	CONVERTS ONE CHARACTER AT A TIME FROM MACHINE INTERNAL CODE TO EDITSPEC INTERNAL CODE
203 204	/65. /	FCNT	TO PICK UP ANY NUMERIC PART OF THE JUSTIFICATION OR *SL COMMANDS - ALSO LOCATE END OF STRING
206	/66.	FDAC	TO FIND DOCUMENT ACCESS CODE.
208	/67.	FDIT	TO SET UP A SECONDARY EDIT DOCUMENT.
210	/68.	FDSBK	TO GET DATASET NUMBER FROM DATASET NAME (BACKUP - NOT MAIN)
212	/69.	FDSMN	TO GET DATA SET NUMBER FROM DATASET NAME (MAIN - NOT MAIN ^{BACKUP})
214 215 216	/70. / /	FLAG	THIS ROUTINE PROCESSES THE .FL CMD AND IF THE SYNTAX IS CORRECT, ENTERS THE GIVEN FLAG ID AND THE CHOICE AND DESCRIPTION CHARACTER STRINGS IN THE FLAG TABLE
218	/71.	FLGCH	THIS ROUTINE PROCESSES .FC COMMAND

~~220 /72. FLSE6~~

222	/73.	FNDLN	TO FIND THE RECID OF A LINE NUMBER IN A DOCUMENT.
224	/74.	FOOT	

226	/75.	FORM	
-----	------	------	--

10 11	/	Subroutine	
	<u>Number</u>	<u>Name</u>	<u>Function</u>
228	/76.	FSTOR	TO TERMINATE ACCESS TO A SECONDARY DOCUMENT. .
230	/77.	GENE	
232	/78.	GETRC	
234	/79.	GTCMD	TO GET A SINGLE COMMAND STRING AT A TIME.
236	/80.	GTLIN	
238	/81.	HEAD	
240	/82.	HDFTF	
242	/83.	ICOPB	
244	/84.	IDCK	TO CHECK FOR THE EXISTENCE OF A 12-CHARACTER ID IN A TABLE.
246	/85.	IDGET	THIS SUBROUTINE FINDS THE LOGICAL RECORD ID FOR THE GIVEN

10 11	/ <u>Number</u>	Subroutine <u>Name</u>	<u>Function</u>
247 248	/		LINE. FROM THE LINE NUMBER TABLE (LNT). IT SETS IDST=0 IF THERE IS NO SUCH LINE IN LNT.
250	/86.	IDINP	TO INTERPRET THE INPUT STRING FOR THE USER AND CANCEL COMMANDS.
252	/88.	IMASK	
254	/87.	INCRL	
256 257 258 259 260 261 262 263	/88. / / / / / / /	INDEX	ADDS A ' *IX INDEX ID;' BEFORE A SPECIFIED STRING IN THE TEXT IN ALL AREAS SPECIFIED. IT ALSO ADDS A '*' THE STRING. THE AREAS ARE GIVEN AS LINE NUMBERS, PAIRS OF LINE NUMBERS OR TEXT SEGMENT ID'S. DURING THE PRINT ROUTINE ,THE PAGE NUMBERS THAT INCLUDE THE STRING WILL BE ADDED TO THE INDEX TABLE NUMBER 'INDEX ID',INDEX ID IS A 1 DIGIT INTEGER BETWEEN 1-9. THE DEFAULT VALUE FOR INDEX ID IS 1.
265	/89.	INITL	
267 268 269 270 271 272 273 274 275 276 277	/90. / / / / / / / / / /	INPUT	THIS SUBROUTINE IS CALLED BY EDIT. IT READS DATA AND SEPARATES TEXT AND COMMANDS. FOR THAT IT CALLS SUBROUTINE CONV, WHICH RECOGNIZES COMMAND'S STRINGS. INPUT STORES TEXT IN TEXTFILE, COMMANDS IN COMMAND TABLE. EACH COMMAND FORMS ONE RECORD IN THIS TABLE. THE LAST CHARACTER IN EACH COMMAND IS A PERIOD. A COMMAND IS STORED IN PACKED FORM WITHOUT TRAILING BLANKS. TEXT LINES ARE STORED WITH TWO TRAILING BLANKS AFTER A PERIOD, ONE TRAILING BLANK AFTER ANY OTHER CHARACTER. TEXT IS STORED IN PACKED FORM. ONE OTHER RESTRICTION APPLIES - A PERIOD CANNOT BE IN THE FIRST COLUMN SINCE A PERIOD IN THE FIRST COLUMN OF THE TEXT

10	/	Subroutine	
11	Number	Name	Function
278	/		INDICATES A COMMAND LINE. ALL COMMAND LINES ARE EXPECTED
279	/		TO LEAVE A PERIOD IN THE FIRST COLUMN, INCLUDING CONTIN-
280	/		UATION COMMAND LINES.
281	/		INPUT GENERATES A LINE NUMBER FOR EACH LINE OF THE TEXT.
282	/		THIS LINE NUMBER IS STORED AS THE FIRST WORD IN EACH TEXT
283	/		LINE RECORD. THE LINE NUMBER AND CORRESPONDING RECORD ID
284	/		ARE STORED IN THE LINE NUMBER TABLE. INPUT ALSO GENERATES
285	/		A LINE NUMBER FOR EACH COMMAND AND STORES THESE LINE NUMBERS
286	/		AND CORRESPONDING RECORD IDS IN THE COMMAND LINE NUMBER
287	/		TABLE.
288	/		INPUT USES TABLE NAMES (IN COMMON) AS INFORMATION WHICH HAS
289	/		BEEN ESTABLISHED BEFORE.
290	/		THE ONLY DATA INPUT REQUIRED ^D IS THE TABLE NAMES IN COMMON.
292	/91.	INSRT	INSERTS A GIVEN TEXT STRING IN SPECIFIED AREAS
293	/		OF THE TEXT AFTER A CERTAIN GIVEN STRING. IF THE
294	/		STRING AFTER WHICH THE NEW STRING IS TO BE CONCATENATED
295	/		IS NOT GIVEN THEN THE INSERTION STRING IS ADDED
296	/		AT THE END OF EACH SPECIFIED AREA. THE AREA CAN BE
297	/		SPECIFIED BY THE USER AS A GROUP OF LINE NUMBERS,
298	/		LINE NUMBER PAIRS OR TEXT SEGMENT ID'S OR ALL THREE
299	/		TOGETHER. IF THE AREA IS NOT GIVEN, THE INSERTION
300	/		STRING IS ADDED AT THE END OF THE LAST LINE OF THE
301	/		DOCUMENT.
303	/92.	INTER	THIS ROUTINE COPIES A NUMERIC STRING FROM (STRNG) AND
304	/		PLACES IT INTO THE (DIGIT) ARRAY. THE (DIGIT) ARRAY IS
305	/		THEN CONVERTED INTO A NUMBER.
307	/93.	INTFM	THIS SUBROUTINE INITIALIZES A PAGE OR PARAGRAPH
308	/		NUMBERING FORMAT ACCORDING TO THE COMMAND IN STRNG
309	/		(SEE COMMON /PARSC/.) THE COMMAND MAY BE .BN, *BN,
310	/		.BP OR *BP.
312	/94.	INTGR	THIS ROUTINE FORMS THE ACTUAL NUMBER FOR THE STRING ^{AND}
313	/		TRANSLATES THE EDITSPEC INTERNAL REPRESENTATION OF
314	/		NUMERICAL CHARACTERS INTO THE MACHINE INTERNAL
315	/		REPRESENTATION OF THE ACTUAL NUMERICAL VALUE BEING
316	/		REPRESENTED.
318	/95.	INUS4	TO INSERT A TYPE 4 RECORD INTO THE USER TABLE.
319	/		(TYPE 4 RECORD IS MESSAGES TO USER).
320	/		SENDER OF MESSAGE IS LOGGED-ON-USER.

10 11	/	Subroutine Number	Subroutine Name	Function
----------	---	----------------------	--------------------	----------

321 /
322 /

REC'D (FIRST ARGUMENT) IS ENTRY IN USR-TABLE
OF RECEIVERS TYPE 1 DATA RECORD. E

324 /96. IN2EX

326 /97. JCOPY

328 /98. JIND

330 /99. JLNFL TO BUILD UP THE PRINT LINE IMAGE FOR A TABLE ROW

332 X00. JNEXT TO RETURN A SEQUENTIAL LIST FROM AN ABBREVIATED LIST

334 X01. JNUM TEST CHARACTER STREAM AND RETURN NUMBER VALUE

336 X02. KLOCT TEST LINES FOR THE PRESENCE OF ANY UNDERLINES

338 X03. LALPH

340 X04. LARAB

342 X05. LAUDG

5 /

10 11	/ Number	Subroutine Name	Function
344	Y06.	LAUDO	
346	Y07.	LAUDT	TO LIST THE AUDIT TRAIL TABLE - TEXT.
348	Y08.	LBICD	TO SCAN STRING AND BREAK IT INTO SEGMENTS OF LENGTH
349	/		SGLEN TERMINATING WITH THE LAST BLANK
351	Y09.	LCHAR	THIS PROGRAM IS USED BY SUBROUTINE ASSEM WHEN A
352	/		LOCATION OF THE REPLACEMENT STRING IS GIVEN BY THE
353	/		LAST THREE OR MORE CHARACTERS AND THE NUMBER OF THE
354	/		FIRST LINE
356	Y10.	LCHECK	
358	Y11.	LCONT	
360	Y12.	LDHAR	THIS PROGRAM IS CALLED BY ASSEM ROUTINE. IT IS CALLED
361	/		WHENEVER THE STRING TO BE HANDLED IS GIVEN IN EITHER
362	/		OF THE FOLLOWING THREE FORMS:
363	/		(ALPHA)**(ALPHA): IN THIS CASE THE WHOLE STRING
364	/		IS COPIED INTO STRNG BEFORE RETURNING.
365	/		ITST IS SET TO 0 INDICATING THIS CASE TO SEARC.
366	/		**(ALPHA): ITST IS SET TO 1 INDICATING THIS SITUATION
367	/		TO SEARC .
368	/		(ALPHA)**: ITST IS SET TO 2.
370	/		ICNT WILL BE SET TO THE INDEX INTO ISLN WHERE THE
371	/		FIRST occurrence OF THE STRING WAS FOUND.
373	Y13.	LDOCU	<i>occurrence</i>

10 11	/ <u>Number</u>	Subroutine <u>Name</u>	<u>Function</u>
375	I14.	LERCD	LIST EXTERNAL REFERENCE (COPY TEXT) TABLE.
377	I15.	LERCT	
379	I16.	LERLC	
381	I17.	LERSN	
383	I18.	LFHAR	
385	I19.	LFLAG	
387	I20.	LIACO	
389	I21.	LICHR	

10	/	Subroutine	
11	<u>Number</u>	<u>Name</u>	<u>Function</u>

391	I22.	LICUS	
-----	------	-------	--

393	I23.	LIDIR	
-----	------	-------	--

395	I24.	LIDOC	
-----	------	-------	--

397	I25.	LIDTA	
-----	------	-------	--

399	I26.	LIFOT	
-----	------	-------	--

401	I27.	LIHAD	
-----	------	-------	--

403	I28.	LIMIT	
-----	------	-------	--

405	I29.	LINDE	
-----	------	-------	--

5	/		
---	---	--	--

10	/	Subroutine	
11	Number	Name	Function

407	Y30.	LINNO	
-----	------	-------	--

409	Y31.	LIPARA	
-----	------	--------	--

411	Y32.	LIPGF	THIS SUBROUTINE LISTS THE PAGE NUMBERING FORMAT TABLE.
-----	------	-------	--

413	Y33.	LIPNF	THIS SUBROUTINE LISTS THE PARAGRAPH NUMBERING FORMAT
414	/		TABLE.

416	Y34.	LIPRJ	
-----	------	-------	--

418	Y35.	LIST	THIS SUBROUTINE TAKES CARE OF THE SYSTEM COMMAND .LIST.
419	/		THIS SYSTEM COMMAND ALLOWS THE CERTIFIED USER TO LIST
420	/		INFORMATION LOCATED IN THE SYSTEM TABLES.
421	/		THIS SUBROUTINE WILL TRANSFER CONTROL TO AN APPROPRIATE
422	/		SUBROUTINE ACCORDING TO THE PARAMETER SPECIFIED IN THE
423	/		COMMAND:

425	/	<u>PARAMETER</u>	<u>SUBROUTINE NAME</u>
428	/	ACCO	LIACO
429	/	CHAR	LICHR
430	/	CUSR	LICUS
431	/	DATA	LIDTA
432	/	DIRE	LIDIF
433	/	DOCU	LIDOC
434	/	FOOT	LIFOT
435	/	HEAD	LIHAD
436	/	PARF	LIPAR
437	/	PGFM	LIPGF
438	/	PNFM	LIPNF

5	/		
---	---	--	--

10 11	/ <u>Number</u>	<u>Subroutine Name</u>	<u>Function</u>
439	/		PROJ
440	/		TABL
441	/		USER
444	136.	LITBL	LIPRJ LITBL LIUSR
446	137.	LIUSR	
448	138.	LIOGI	
450	139.	LNCLN	TO CHECK THE EXTERNAL BLANK CHARACTERS BETWEEN
451	/		CHARACTER STRINGS TO INSURE THAT THE PROPER SPACING
452	/		IS PRINTED.
454	140.	LNINC	
456	141.	LNCIM	
458	142.	LNXFR	

10 /	11 /	Subroutine	Function
	Number	Name	
460	143.	LOCAC	THIS ROUTINE ACCEPTS INTERNAL STRING (INSTR) AND UNPACKS THEN TO ECI INTERNAL FORM STARTING FROM LOCATION LSTRT. IT ALSO PARSES THE NESTED INTERNAL COMMANDS AND PUTS THEM INTO COMMAND BUFFER (CMBUF) AND STACK FOR LATER PROCESSING.
461	/		
462	/		
463	/		
464	/		
466	144.	LOCAH	THIS ROUTINE ACCEPTS INTERNAL STRING (INSTR) AND UNPACKS THEM TO ECI INTERNAL FORM STARTING FROM LOCATION LSTRT. IT ALSO PARSES THE NESTED INTERNAL COMMANDS AND PUTS THEM INTO COMMAND BUFFER (CMBUF) AND STACK FOR LATER PROCESSING.
467	/		
468	/		
469	/		
470	/		
472	145.	LOCAT	THIS SUBROUTINE SEARCHES THE OCCURENCES OF THE CHAR STRING (CHS) WHICH IS PLACED IN ARRAY TSID. FOUR CHARACTERS PER WORD. IN THE ENDING LINES OR BY THE TEXT SEGMENTS ID. ARRAY ISLN CONSISTS OF THE STARTING LINES NUMBERS, ARRAY IELN - ENDING LINES NUMBERS, ARRAY TSID - TEXT SEGMENTS ID. NLIFO IS THE COMMON DIMENSION OF ISLN AND IELN, NTEFO IS THE DIMENSION OF TSID, NCHAR IS A NUMBER OF CHARACTER IN CHS. THE OUTPUT OF THIS SUBROUTINE ARE TWO ARRAYS, WHICH WILL BE PRINTED AND WILL INDICATE ALL OCCURENCES OF THE CHS BY LISTING THE STARTING LINE NUMBER, THE NUMBER OF THE FIRST CHARACTER OF CHS IN THE STARTING LINE, THE LAST LINE NUMBER, THE NUMBER OF THE LAST CHARACTER OF CHS IN THE LAST LINE FOR EACH OCCURENCE. LIST OF VARIABLES ISLN - ARRAY, CONSISTING OF THE STARTING LINES NUMBERS FOR THE TEXT LOCATIONS
473	/		
474	/		
475	/		
476	/		
477	/		
478	/		
479	/		
480	/		
481	/		
482	/		
483	/		
484	/		
485	/		
486	/		
488	146.	LOGMS	TO WRITE OUT MESSAGE FROM THE ARRAY DR4USR.
490	147.	LOGOF	LOGS A USER OFF EDITSPEC SYSTEM
492	148.	LOGON	LOGS A USER ONTO THE EDITSPEC SYSTEM. IF THIS IS THE FIRST USER EVER, CREATE SYSTEM TABLES, AND ENTER USER-ID AND ACCOUNT-NUMBER INTO USR-TABLE, ACS-TABLE IF USR-TABLE ENTRY EXISTS, PRINT OUT ANY MESSAGES IN IT. IN ANY CASE, SET LOGGD = ID OF ENTRY IN USR-TABLE.
493	/		
494	/		
495	/		
496	/		
498	149.	LOGOP	TO PRINT EDITSPEC HEADING
500	150.	LPULL	

10 11	/ <u>Number</u>	<u>Subroutine Name</u>	<u>Function</u>
502	151.	LROMA	
504	152.	LSACC	PRINT THE ACCOUNTS TABLE
506	153.	LSAUD	
508	154.	LSCAN	
510	155.	LSCOM	LIST THE COMMAND TABLE
512	156.	LSDOC	PRINT THE SYSTEM DOCUMENT DIRECTORY
514	157.	LSLEU	
516	158.	LSLGC	PRINT THE LOGIC CONDITIONS TABLE
517	159.	LSCIN	
519	160.	LSPNF	
521	161.	LSSAP	PRINT THE SUPERVISORS TABLE
523	162.	LSSEG	
525	163.	LSTBL	THIS ROUTINE CALLS THE DOCUMENT TABLE LISTING

10 11	/	Subroutine Name	Function
526	/		ROUTINES. THERE ARE 15 SUCH ROUTINES EACH RESPONSIBLE
527	/		TO LIST ONE DOCUMENT TABLE.
528	/		TRANSFER OF CONTROL IS DONE BY CHECKING THE TABLE
529	/		NAME GIVEN BY THE USER.
531	X64.	LSTXT	PRINT THE TEXT TABLE
533	X65.	LSUSR	TO LIST ALL INFORMATION IN THE SYSTEM USER TABLE.
535	X66.	LTEX	TO LIST THE TEXT TABLE WITH UPPER CASE LETTERS
536	/		REPRESENTED AS THE CENT SIGN AND THE LOWER CASE
537	/		LETTER.
539	X67.	LTPD	
541	X68.	MAIN	
543	X69.	MARGN	
545	X70.	MATCH	TO DEFINE ISUB (COMMAND CODE).
(547)	X71.	MCMP	TO COMPARE A STRING WITH AN 'ALL' MASK.
549	X72.	MCZED	TO CONVERT A STRING IN MACHINE FORMAT (A1) TO EDITSPEC
550	/		FORMAT.
552	X73.	MERGE	

10 11	/ Number	Subroutine Name	Function
554 555	174. /	MESS	THIS SUBROUTINE TAKES CARE OF THE COMMAND .MESS. IT CHECKS THE RECEIVER ID LIST AND SEND MESSAGE TO THEM.
557	175.	MONI	
559	176.	MOVE	TO MOVE TEXT FROM ON LOCATION TO ANOTHER.
561 562	177. /	NAMIN	TO INTERPRET THE INPUT STREAM FOR COMMANDS REQUIRING JUST ONE FIELD, OF 12 CHARACTERS.
564	178.	NCMP	<i>To compare 2 strings</i>
566	179.	NEW	TO CREATE A NEW DOCUMENT.
568	180.	NFLDS	
570 571	181. /	NLOCT	^R TO LOCATE THE FIRST OCCURENCE OF CHARACTER 'CHAR' AFTER CHARACTER 'L1' IN UNPACKED ARRAY 'CHART'
573	182.	NOFOR	THIS SUBROUTINE TAKES CARE OF THE SYSTEM COMMAND .PGNF.
575	183.	NO2IC	<i>TO CONVERT A BINARY NUMBER TO A CHARACTER</i> SUBROUTINE NO2IC(NUMBR,CHARS,NCHAR)
577 578	184. /	NWDSF	RETURN THE NUMBER OF FULL WORDS REQUIRED TO HOLD 'N' CHARACTERS
580 581 582 583	185. / / /	PACK	PACK NUM CHARACTERS INTO THE STRING DEST. STARTING WITH CHARACTER L2 OF DEST. THE CHARACTERS ARE TAKEN FROM THE LEAST SIGNIFICANT CHARACTER OF THE ELEMENTS OF THE ARRAY SOURC, STARTING WITH STANDARD UNIT L1.
585	186.	PARAG	

5 /

10 11	/ <u>Number</u>	<u>Subroutine Name</u>	<u>Function</u>
587	187.	PARAN	
589	188.	PARFM	TO PROCESS THE PARAGRAPH FORMAT COMMAND (PF)
591	189.	PASS	TO CHANGE THE USER PASSWORD.
593	190.	PGHDR	
595	191.	PGPRT	
597	192.	PLUEL	
599	193.	PMCHK	
601	194.	PNOFM	THIS SUBROUTINE TAKES CARE OF THE SYSTEM COMMAND .PRNF.
603	195.	PPRO	

10 11	/ <u>Number</u>	<u>Subroutine Name</u>	<u>Function</u>
605	196.	PRMON	
607	197.	PRNDX	
609	198.	PRTOC	
611 612	199. /	PSTRP	REMOVE ANY LEADING OR TRAILING BLANKS FROM CHARS. RECOMPUTE LEN.
614	200.	PULL	PROCESS THE .PU COMMAND HAND.
616	201.	RACCE	
618	202.	RCINS	
620	203.	RCDEL	

10	/	Subroutine	
11	Number	Name	Function

622	204.	RCNVR	
-----	------	-------	--

624	205.	RCNV2	
-----	------	-------	--

626	206.	RCOPY	
-----	------	-------	--

628	207.	RDLIN	TO GET A LINE OF COMMAND TEXT IF GCODE IS 1
629	/		AND TO BACKSPACE IF GCODE IS ZERO, SO THAT A
630	/		SUBSEQUENT RDLIN(1) WOULD RETURN THE SAME LINE
631	/		RETURNED PREVIOUSLY.

633	208.	READ	TO READ A LINE.
-----	------	------	-----------------

635	209.	READE	TO OBTAIN A COMMAND LINE DURING .EX. COMMAND.
-----	------	-------	---

637	210.	READI	
-----	------	-------	--

639	211.	READS	TO OBTAIN A COMMAND LINE DURING .EXEC. COMMAND.
-----	------	-------	---

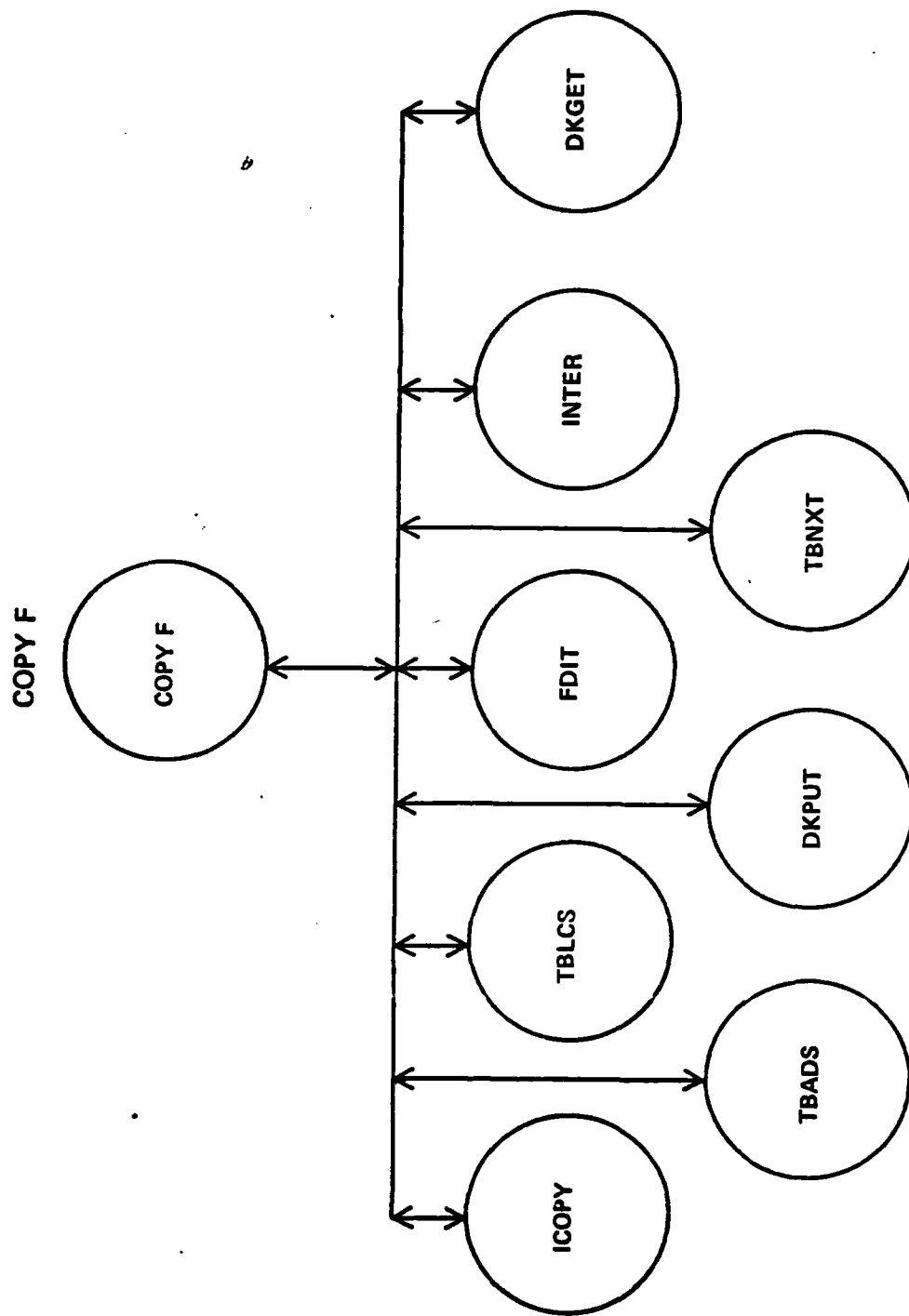
641	212.	REAUP	THIS SUBROUTINE RETRIEVES CERTAIN LINES FROM A PREVIOUS CYCLE
-----	------	-------	---

643	213.	RENAM	TO RENAME A DOCUMENT AND ALL REFERENCES TO IT
-----	------	-------	---

645	214.	REPO	
-----	------	------	--

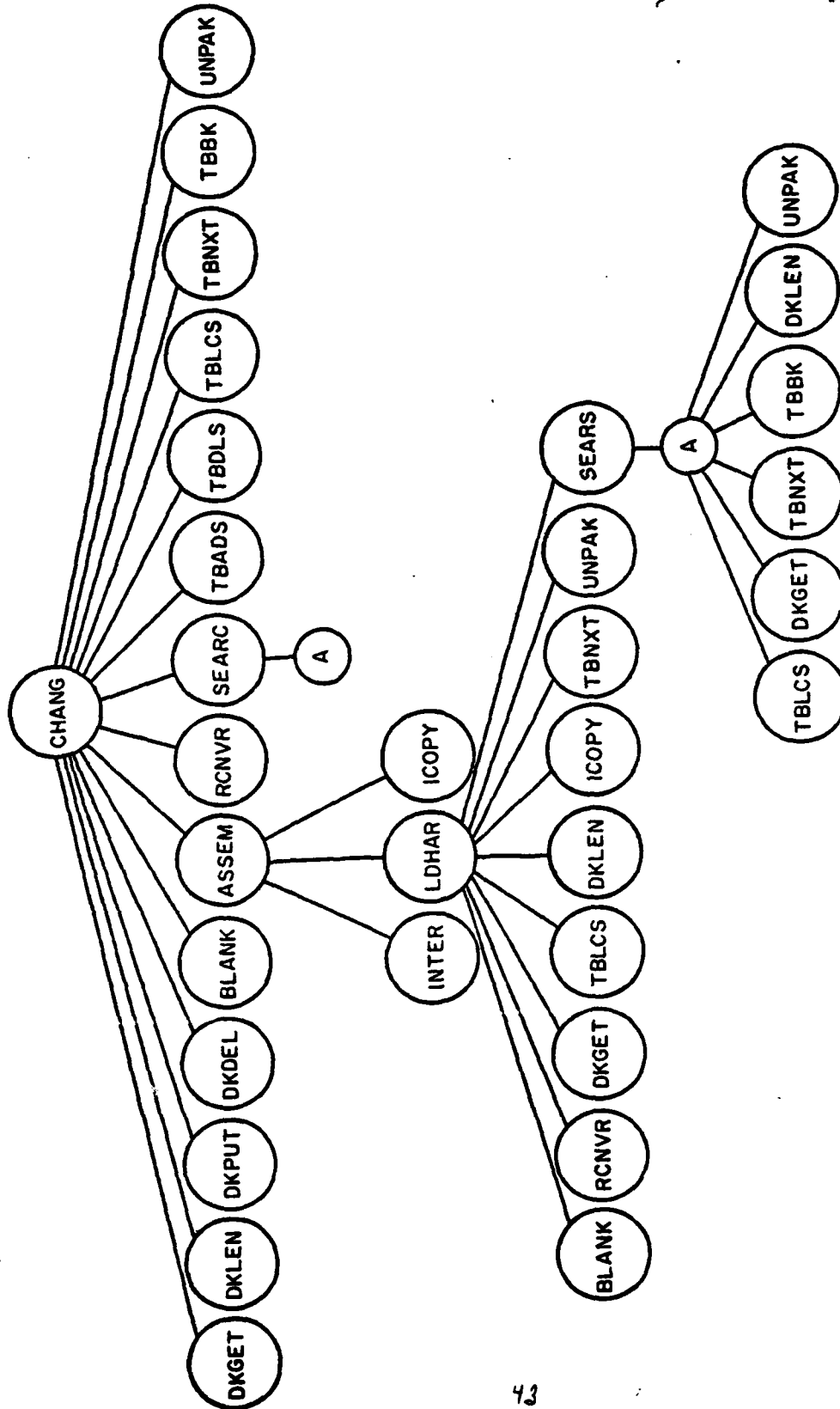
APPENDIX B: SYSTEM BACKUP FUNCTIONS AND SUBROUTINES

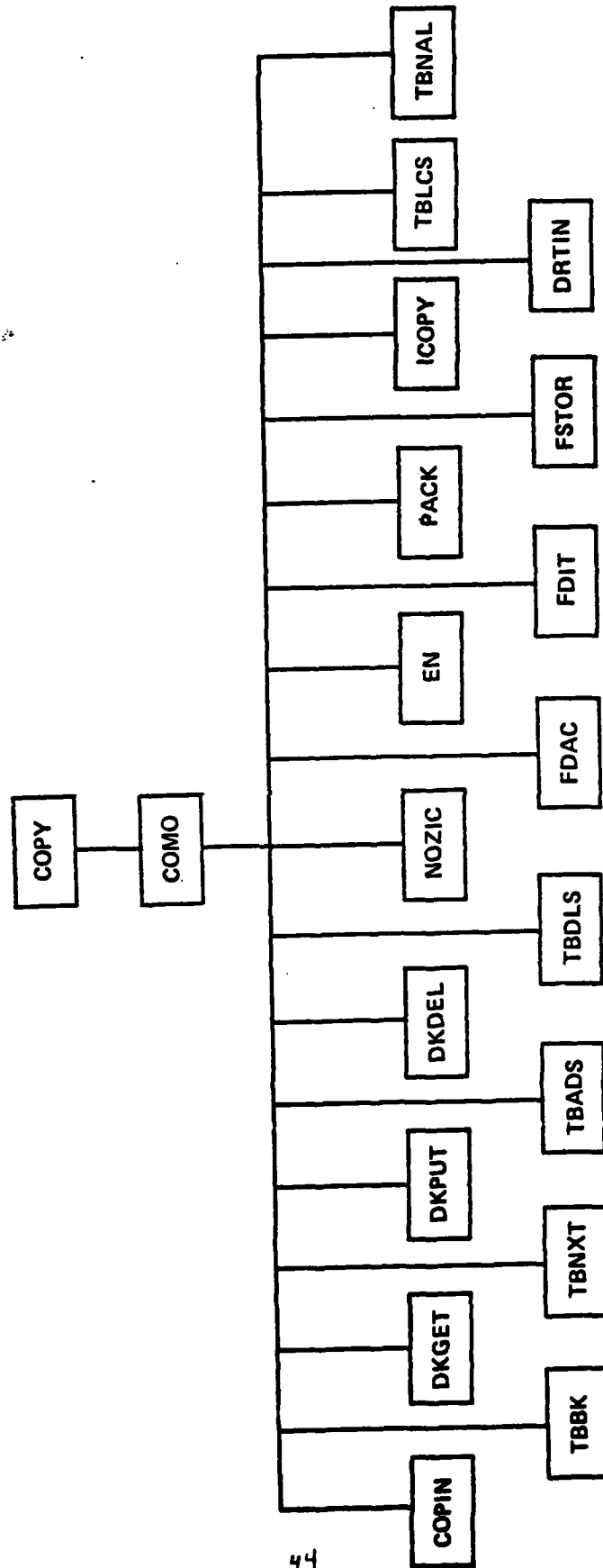
APPENDIX C: DATA CONVERSION FUNCTIONS AND SUBROUTINES



COMMAND . CF .

Figure Command .CF. Sheet 1 of 1

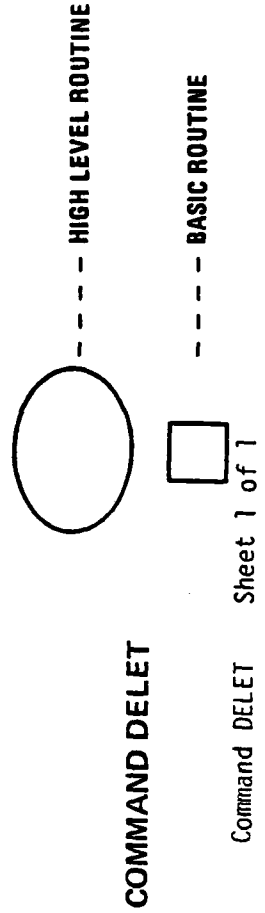
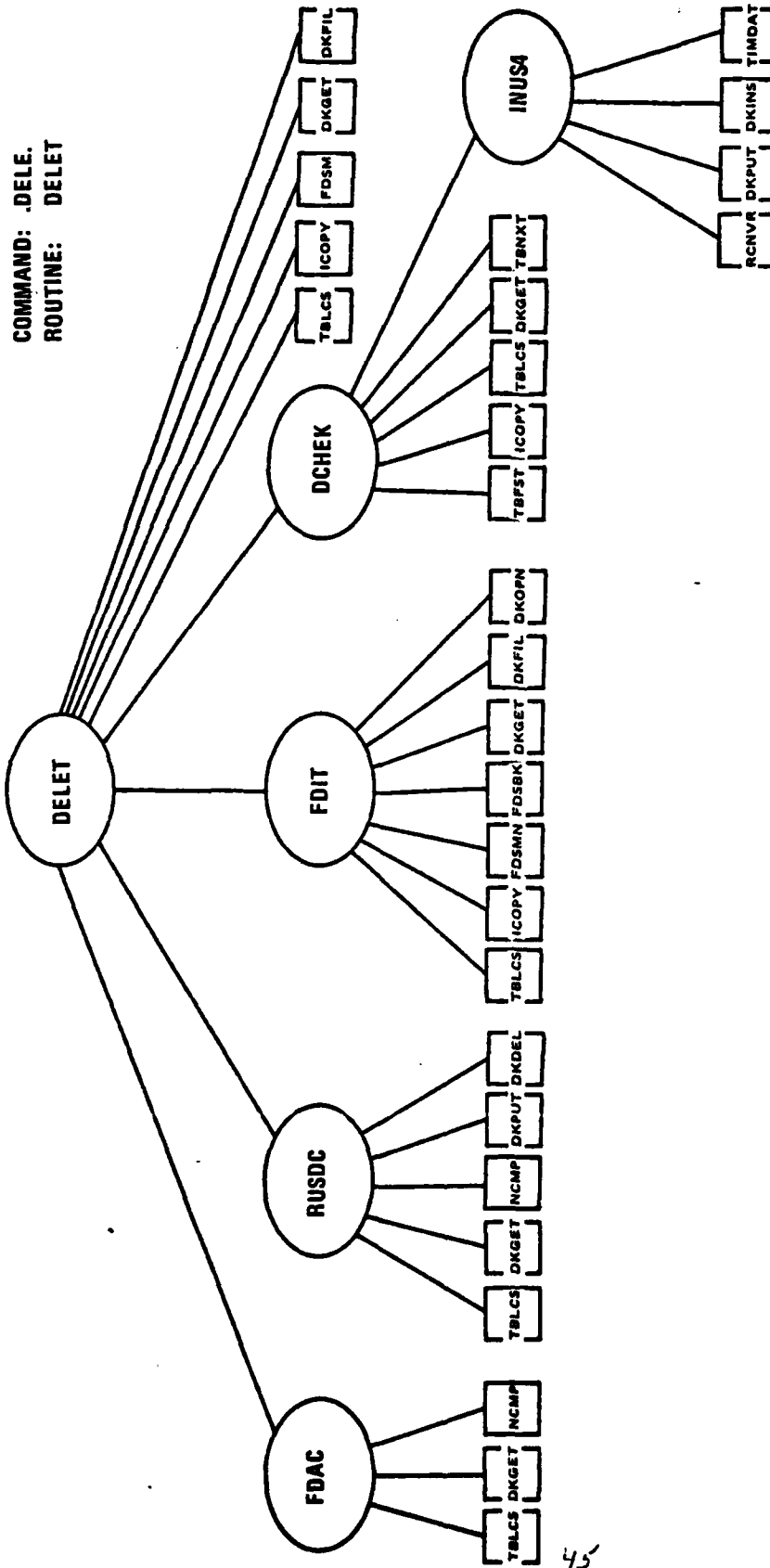


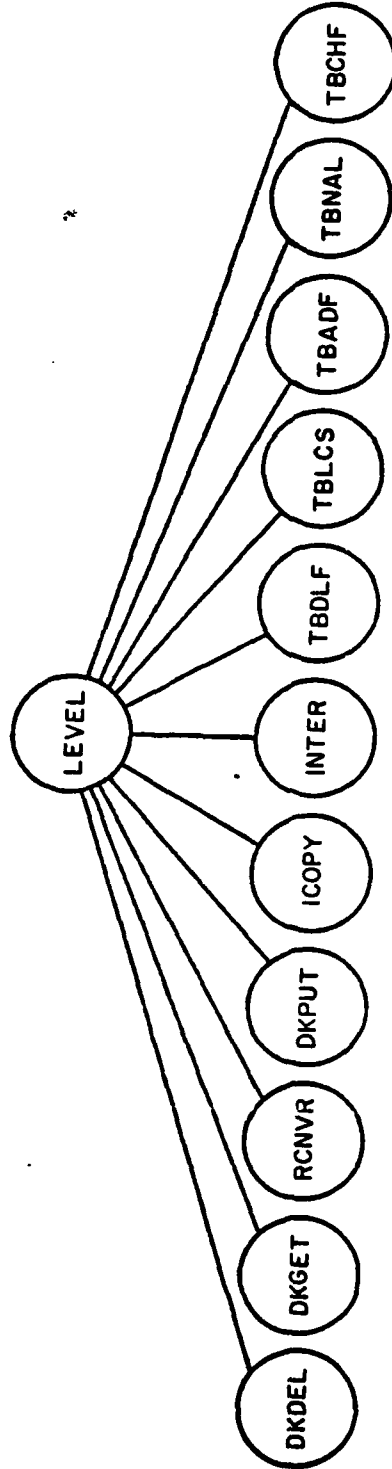


COMMAND . COPY .

Figure Command .COPY.

SUBROUTINE FLOW DIAGRAM





SUBROUTINE FLOW DIAGRAM

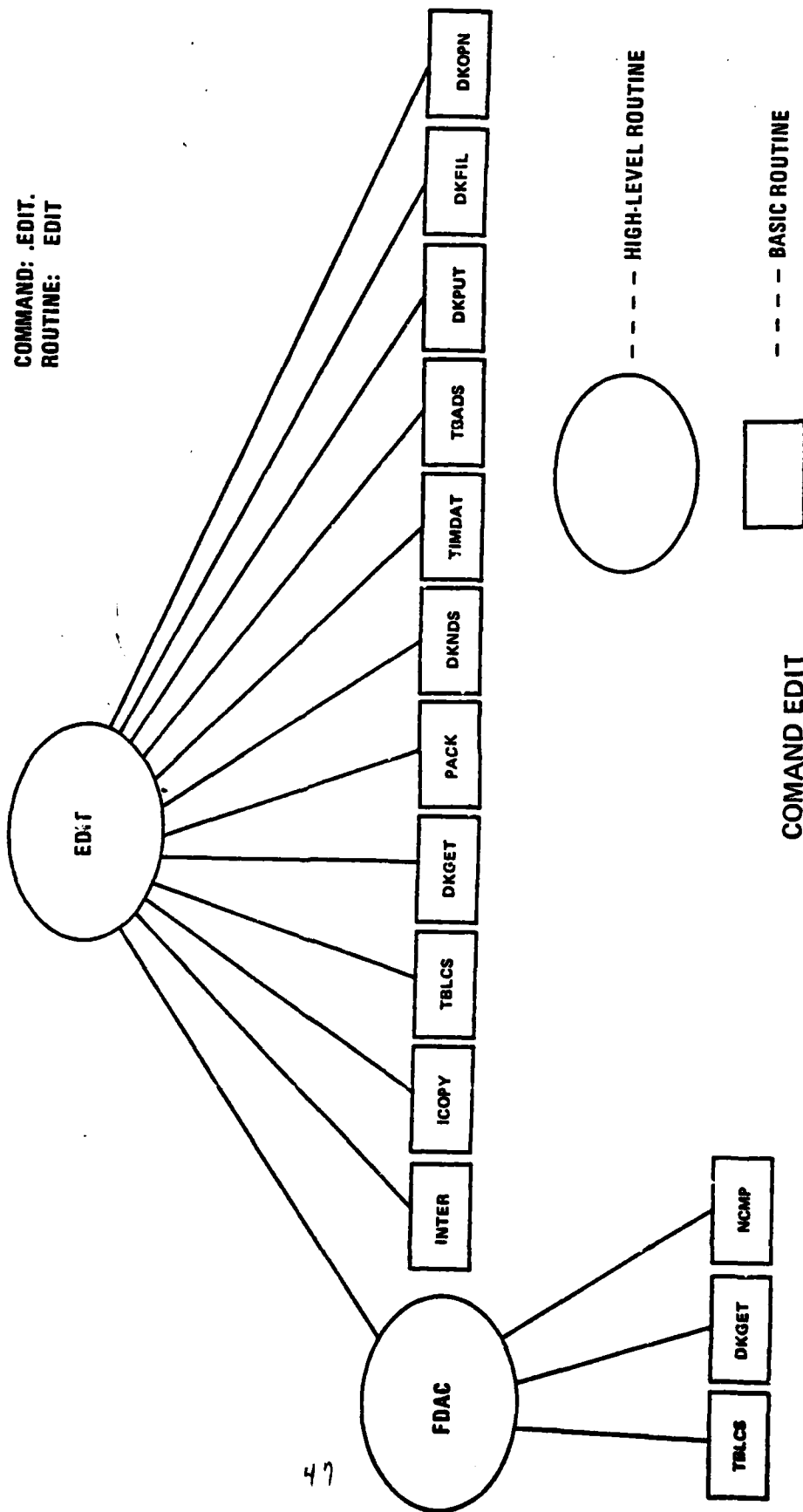
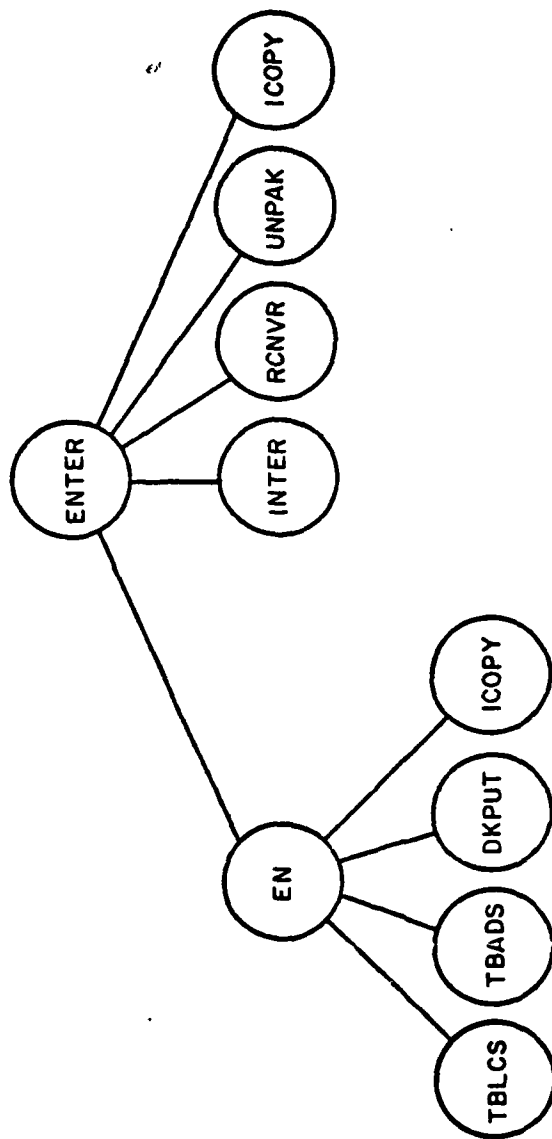
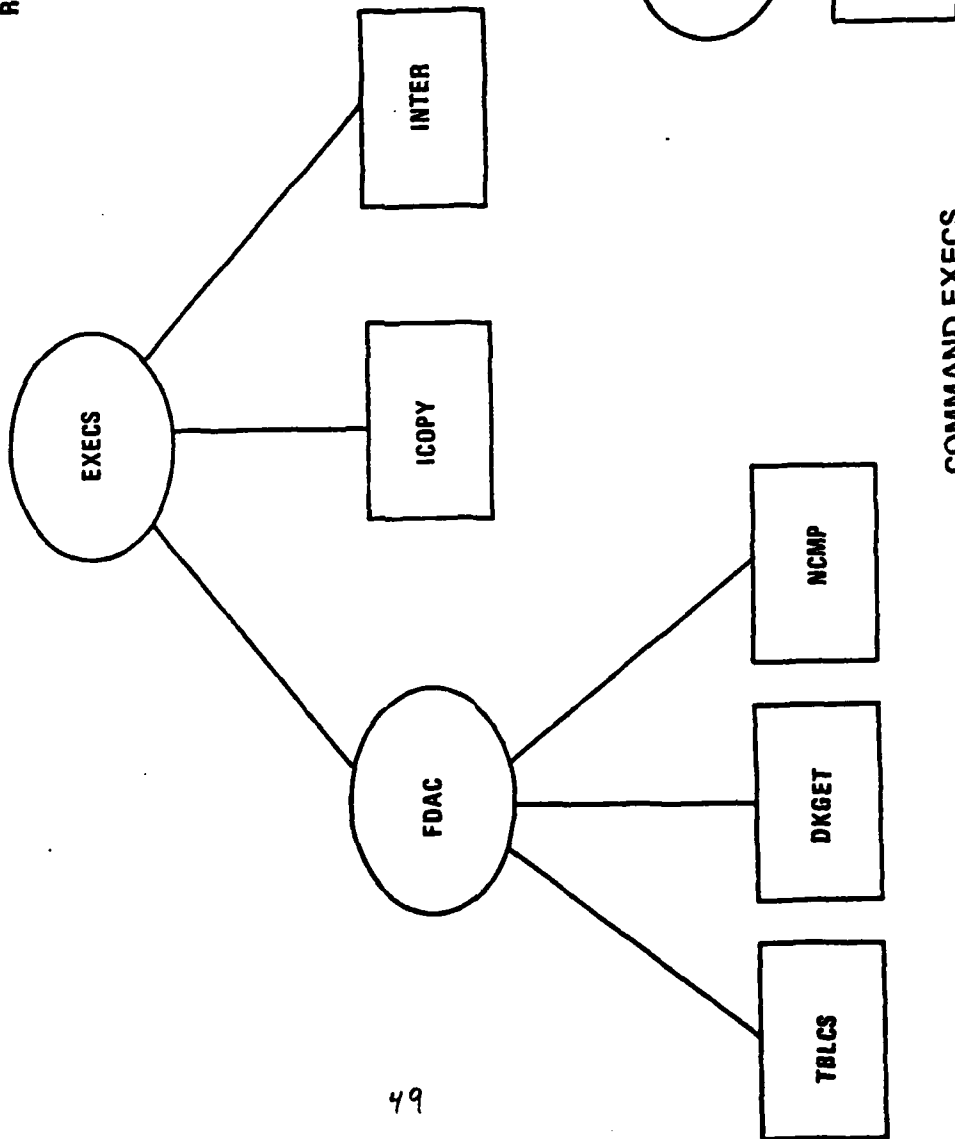


Figure Command EDIT Sheet 1 of 1



SUBROUTINE FLOW DIAGRAM

COMMAND: EXEC.
ROUTINE: EXECS

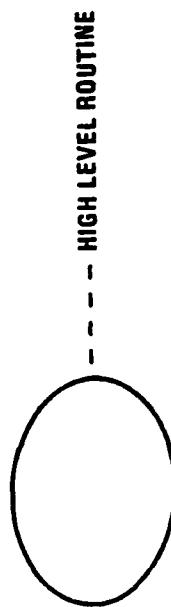
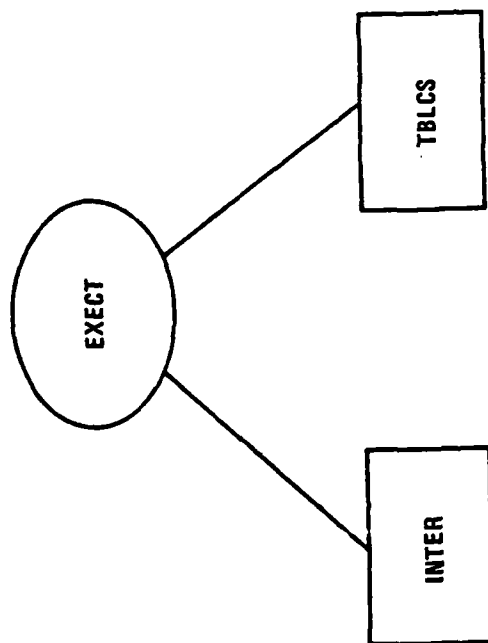


COMMAND EXECS

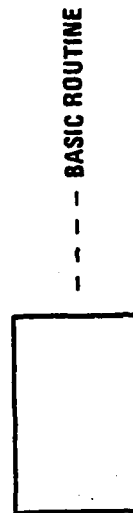
Figure Command EXECS Sheet 1 of 1

SUBROUTINE FLOW DIAGRAM

COMMAND: EX.
ROUTINE: EXECT

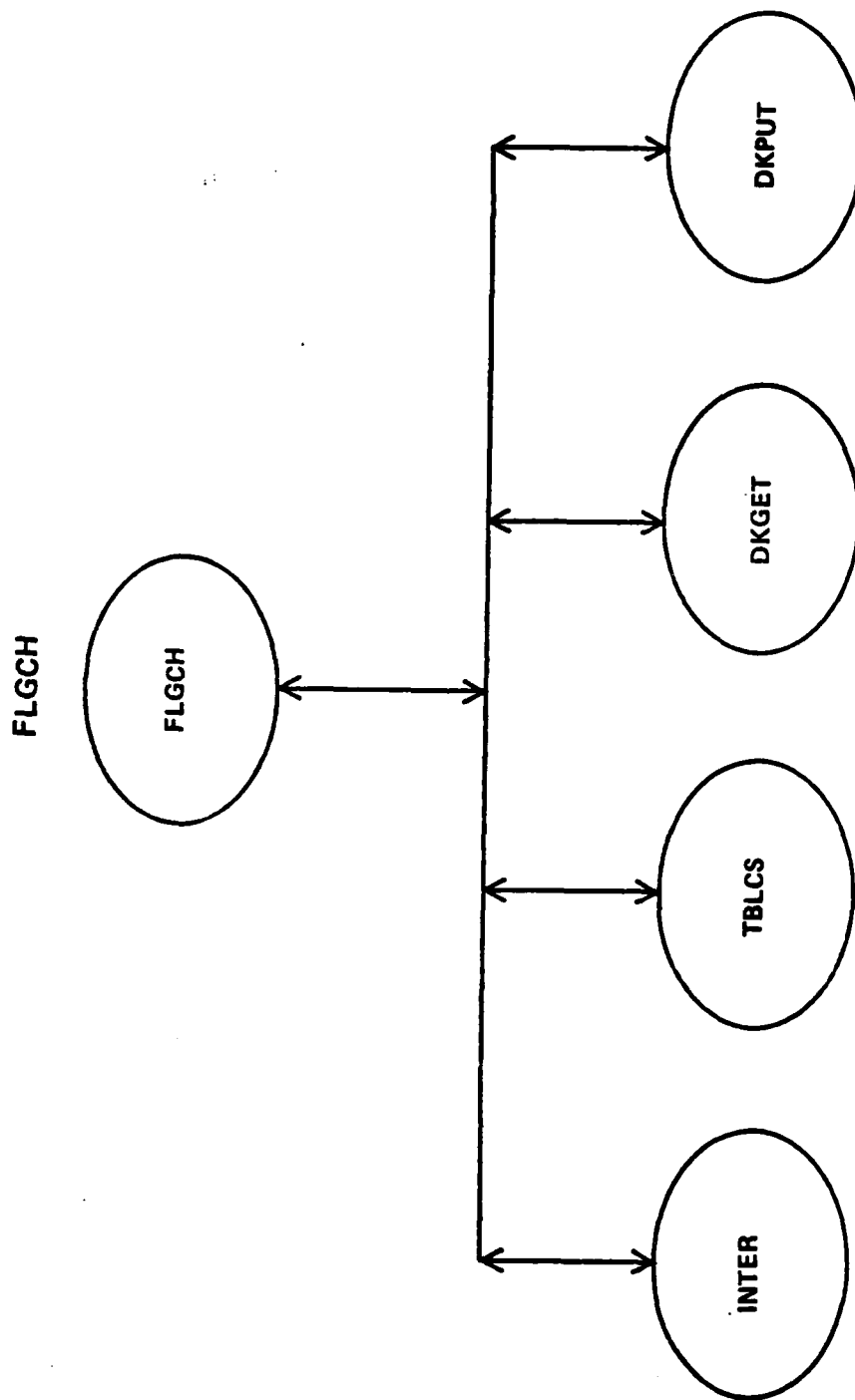


--- HIGH LEVEL ROUTINE



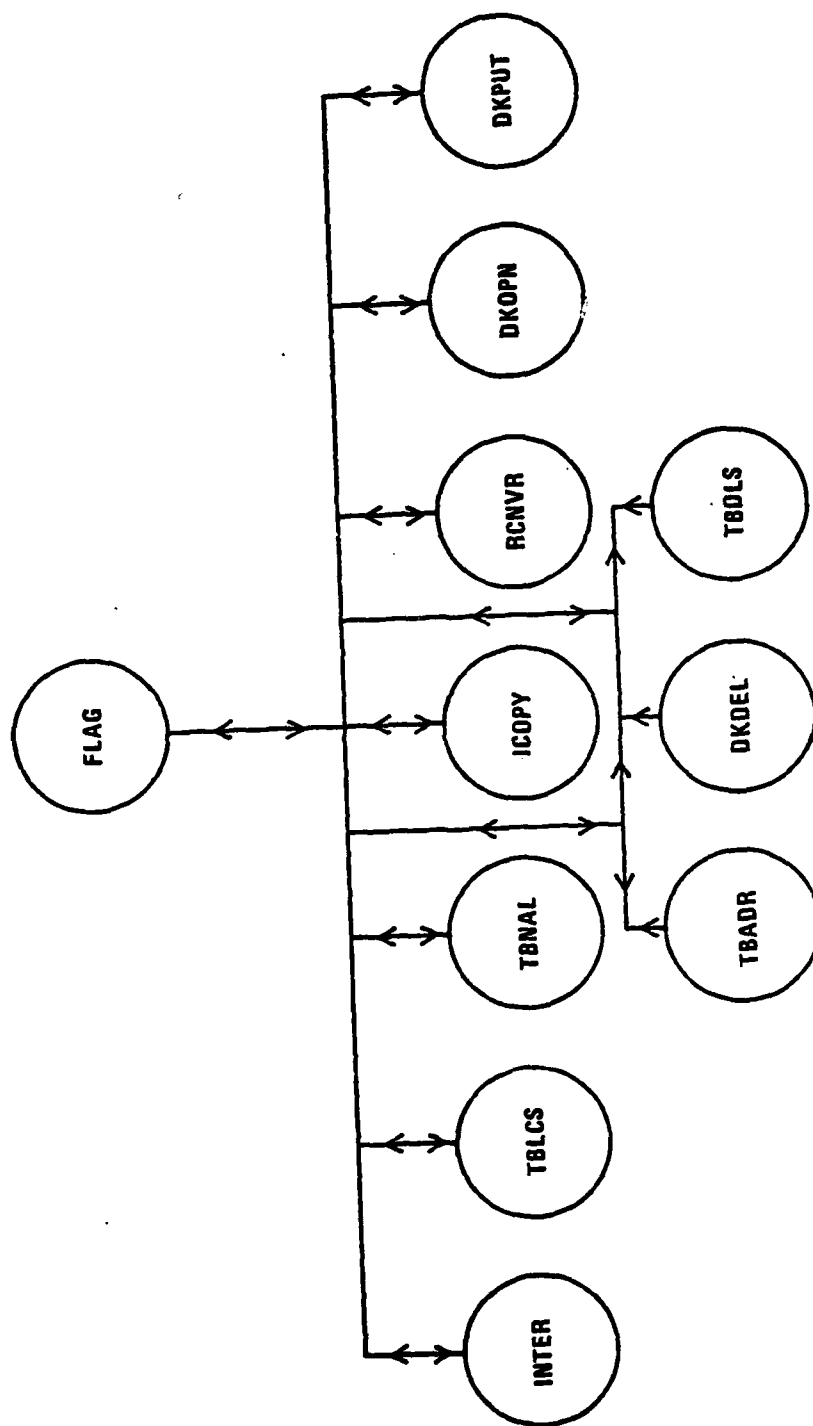
--- BASIC ROUTINE

COMMAND EXECT



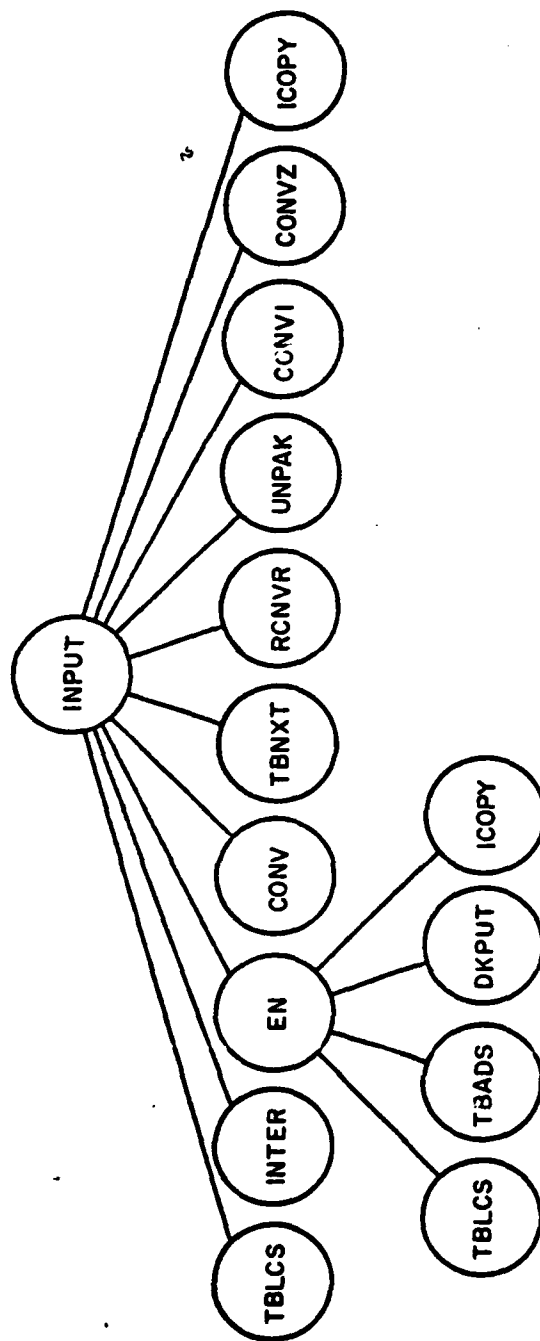
COMMAND . FL.

Figure Command .FL. Sheet 1 of 1



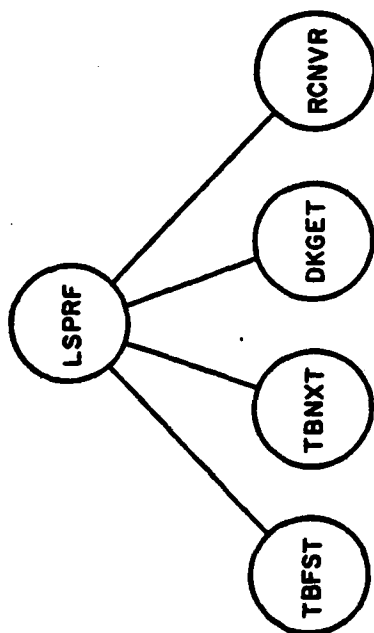
FLAG COMMAND

Figure Flag Command Sheet 1 of 1



INPUT COMMAND

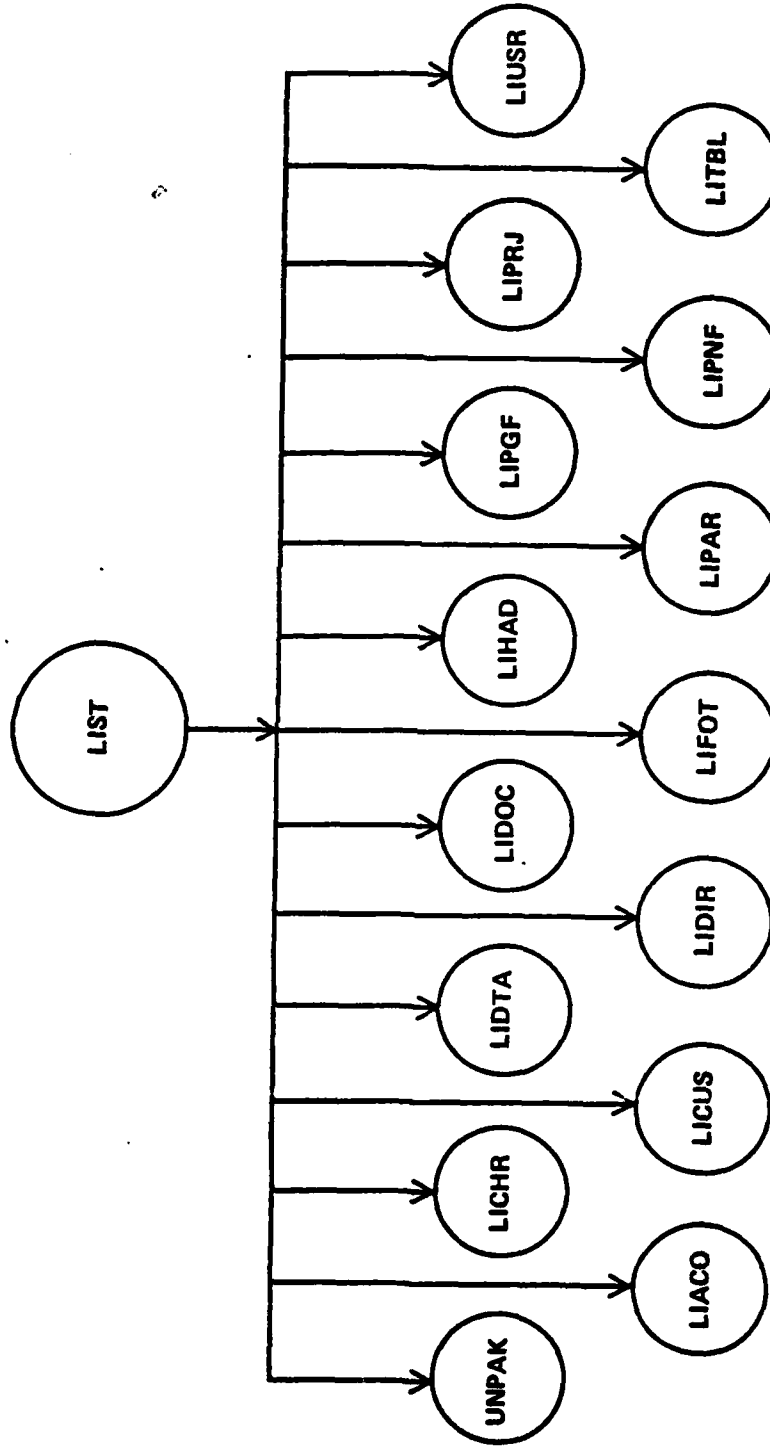
SHEET 1 OF 1



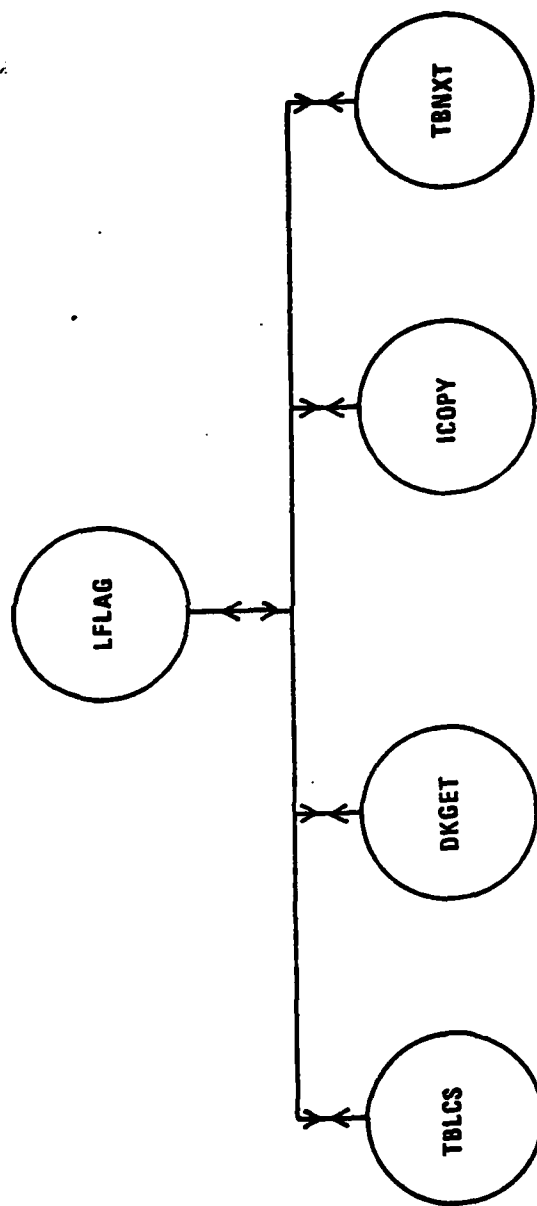
LIST COMMAND

SHEET OF

COMMAND: LIST
PROGRAM NAME LIST



COMMAND . LIST .

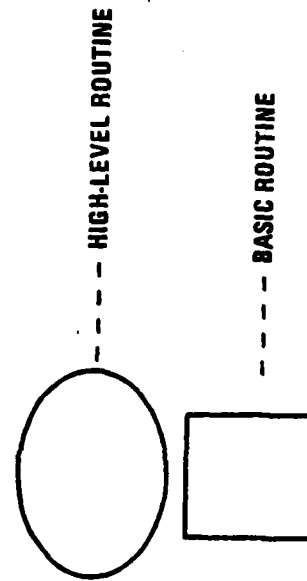
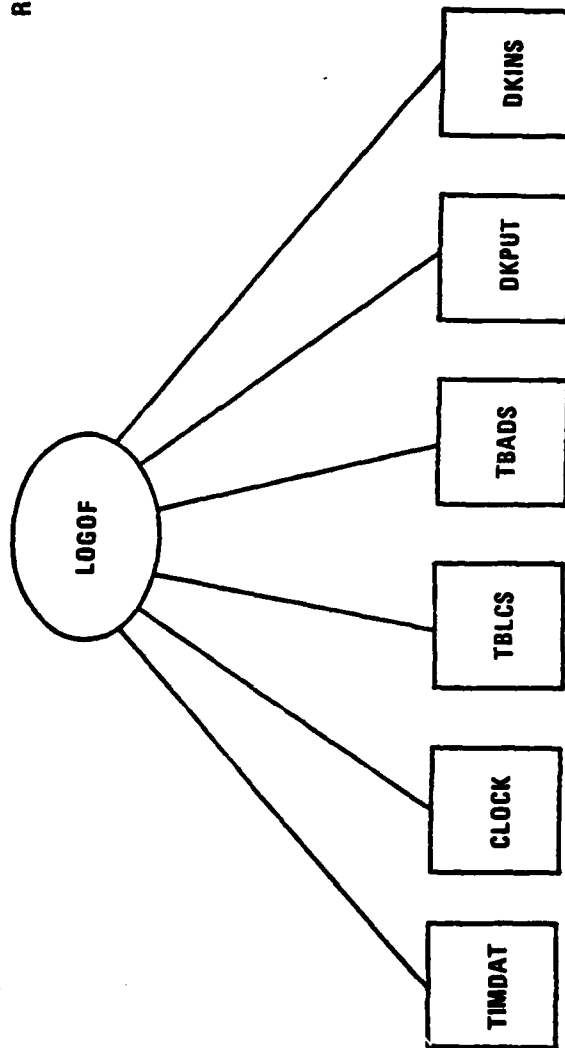


LIST FLAG COMMAND

Figure LIST FLAG Command Sheet 1 of 1

SUBROUTINE FLOW DIAGRAM

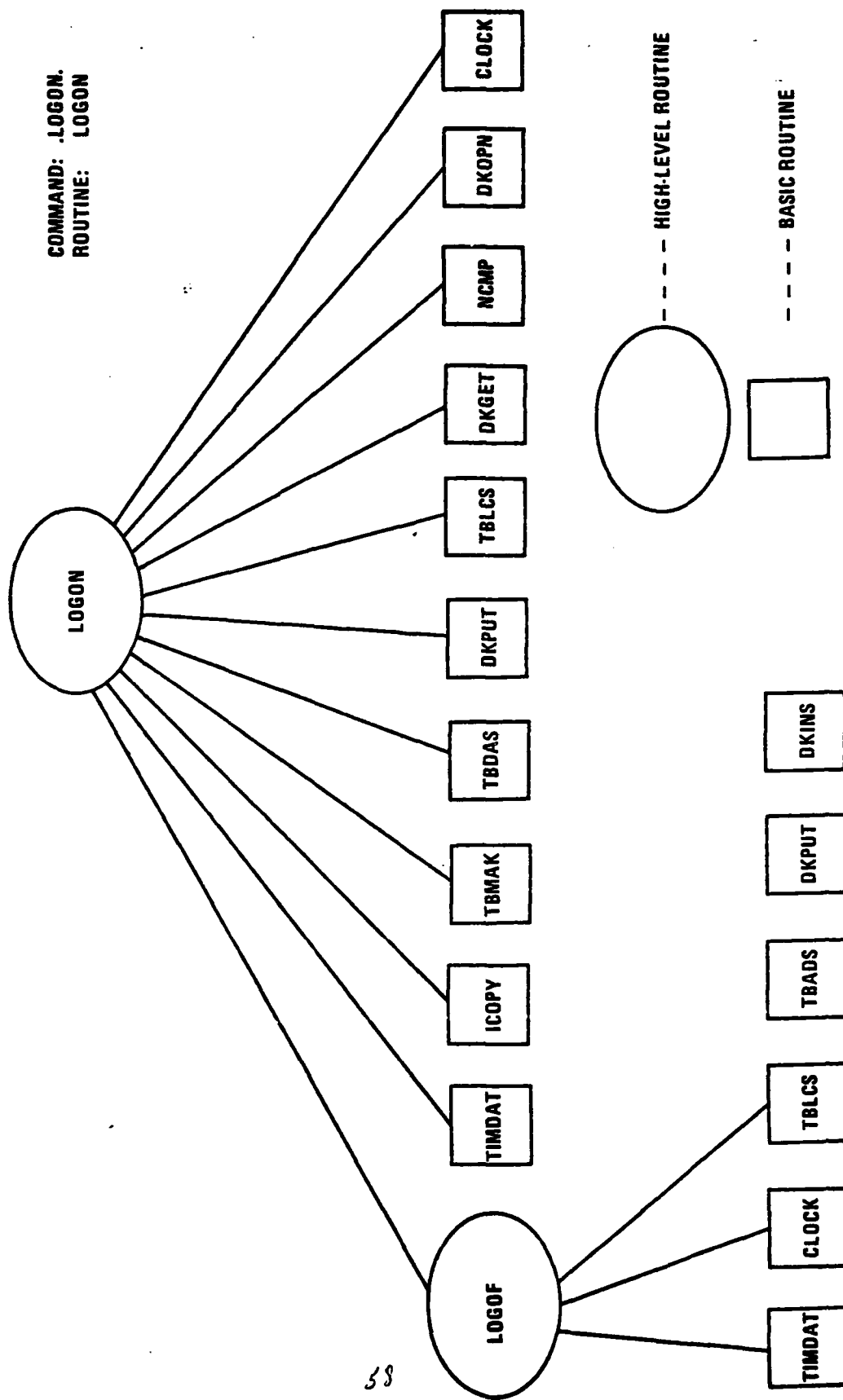
COMMAND: .LOGOF.
ROUTINE: LOGOF



COMMAND LOGOF

Figure Command LOGOF Sheet 1 of 1

SUBROUTINE FLOW DIAGRAM

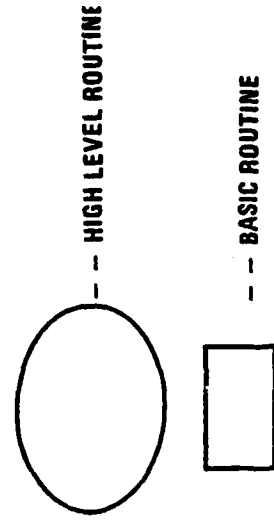
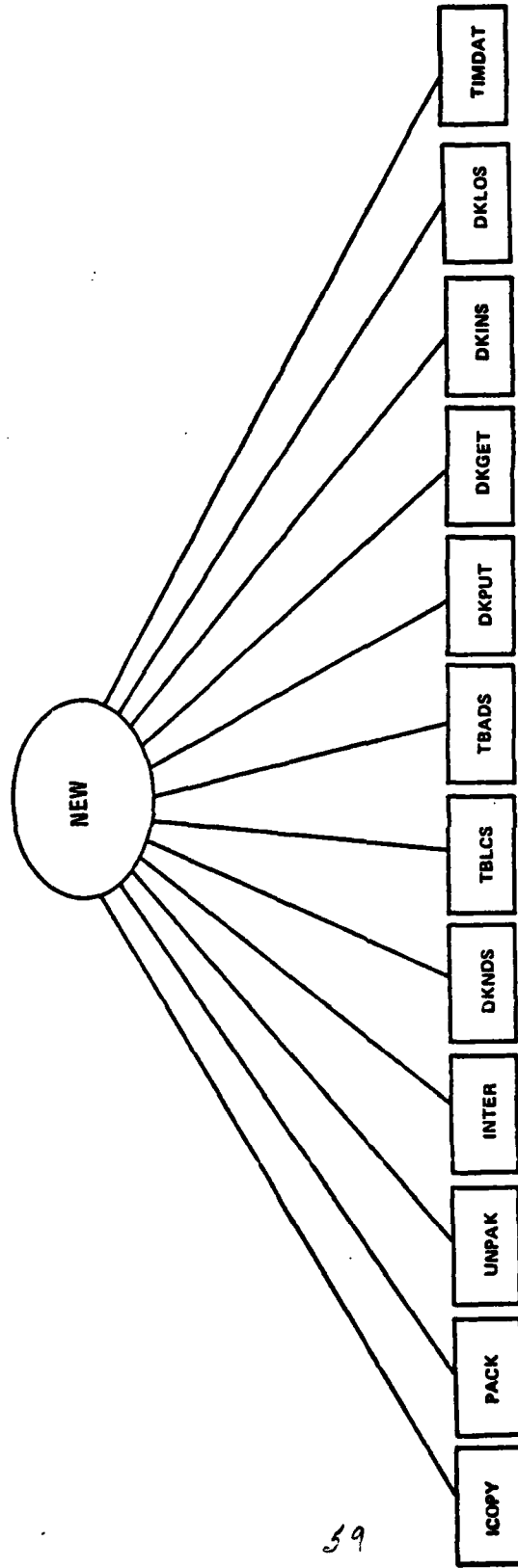


COMMAND LOGON

Figure Command LOGON Sheet 1 of 1

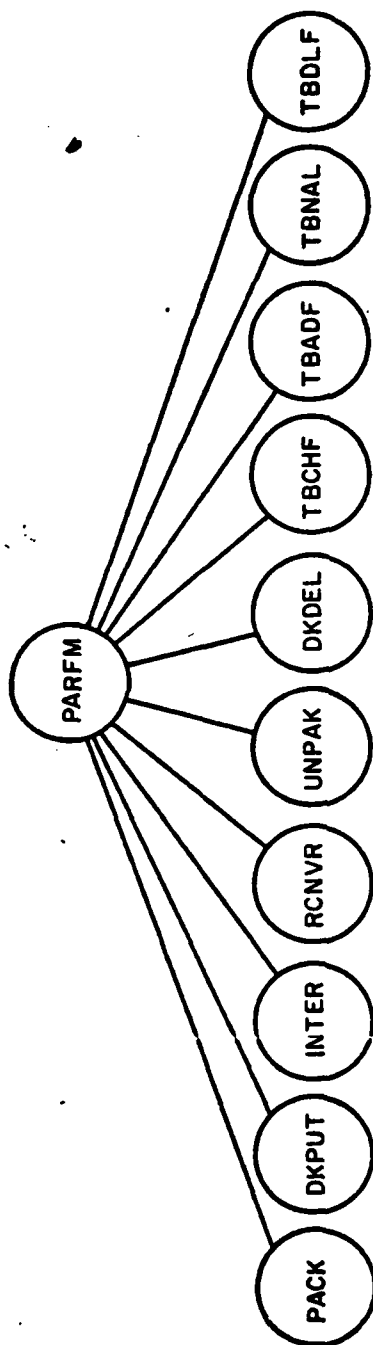
COMMAND: NEW.
ROUTINE: NEW

SUBROUTINE FLOW DIAGRAM



COMAND NEW

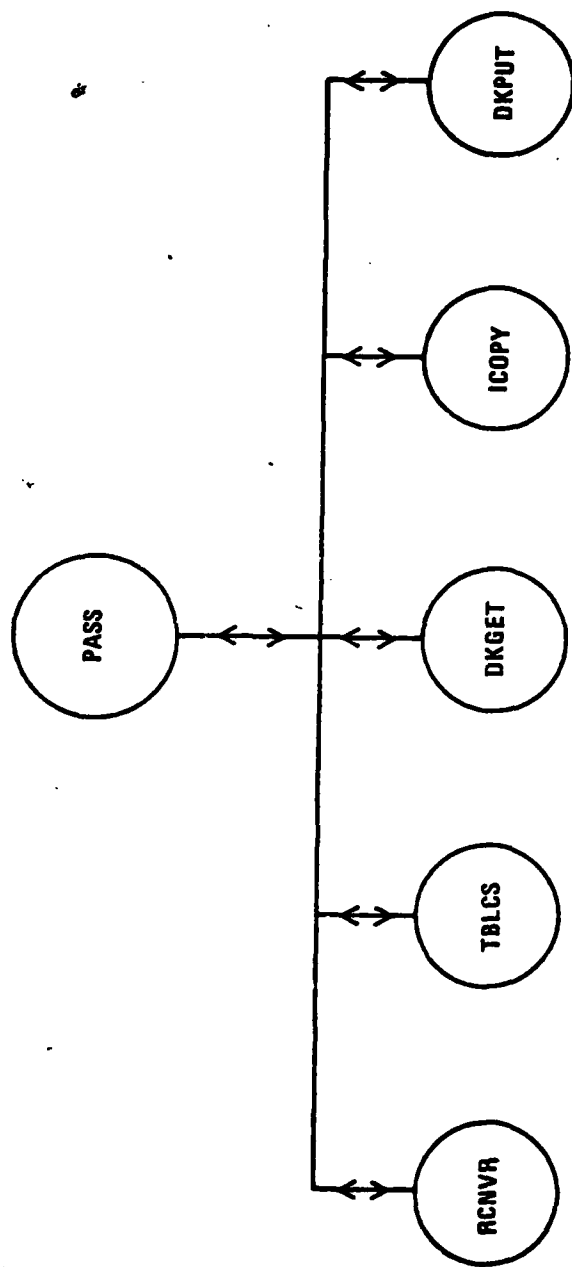
Figure Command NEW Sheet 1 of 1



60

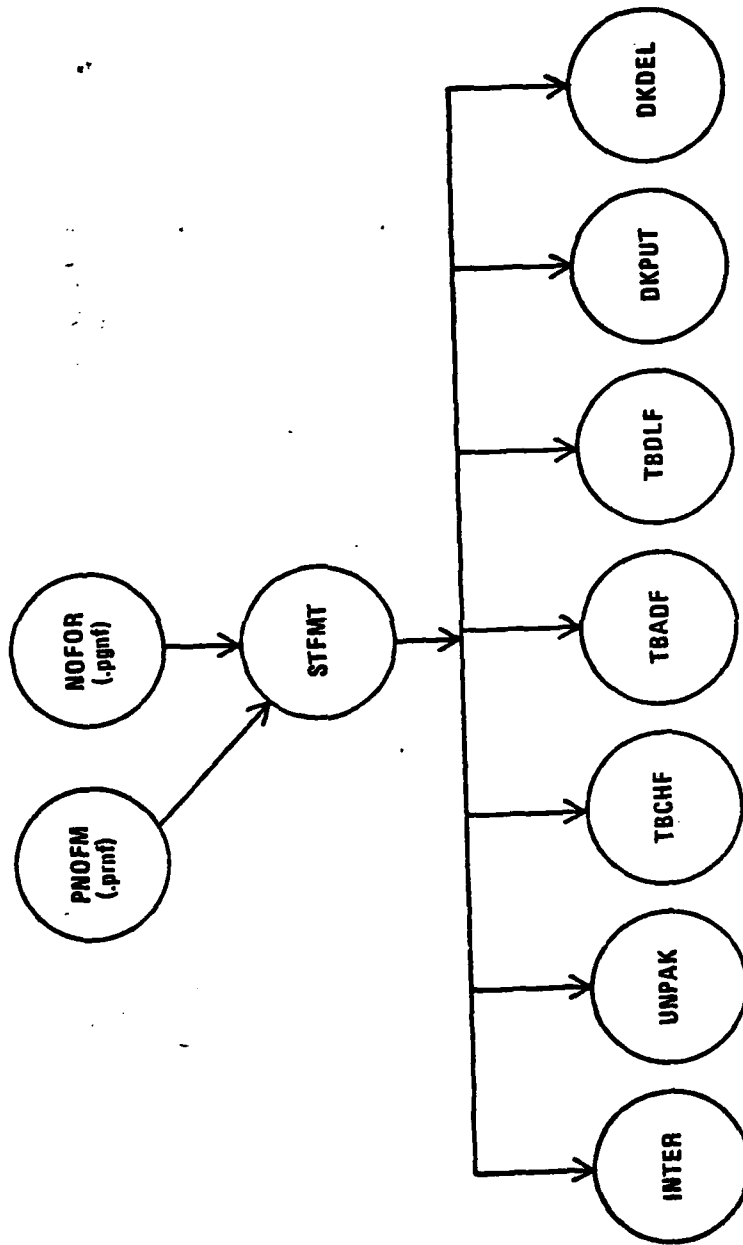
PARFM COMMAND

SHEET 1 OF 1



COMMAND . PASS.

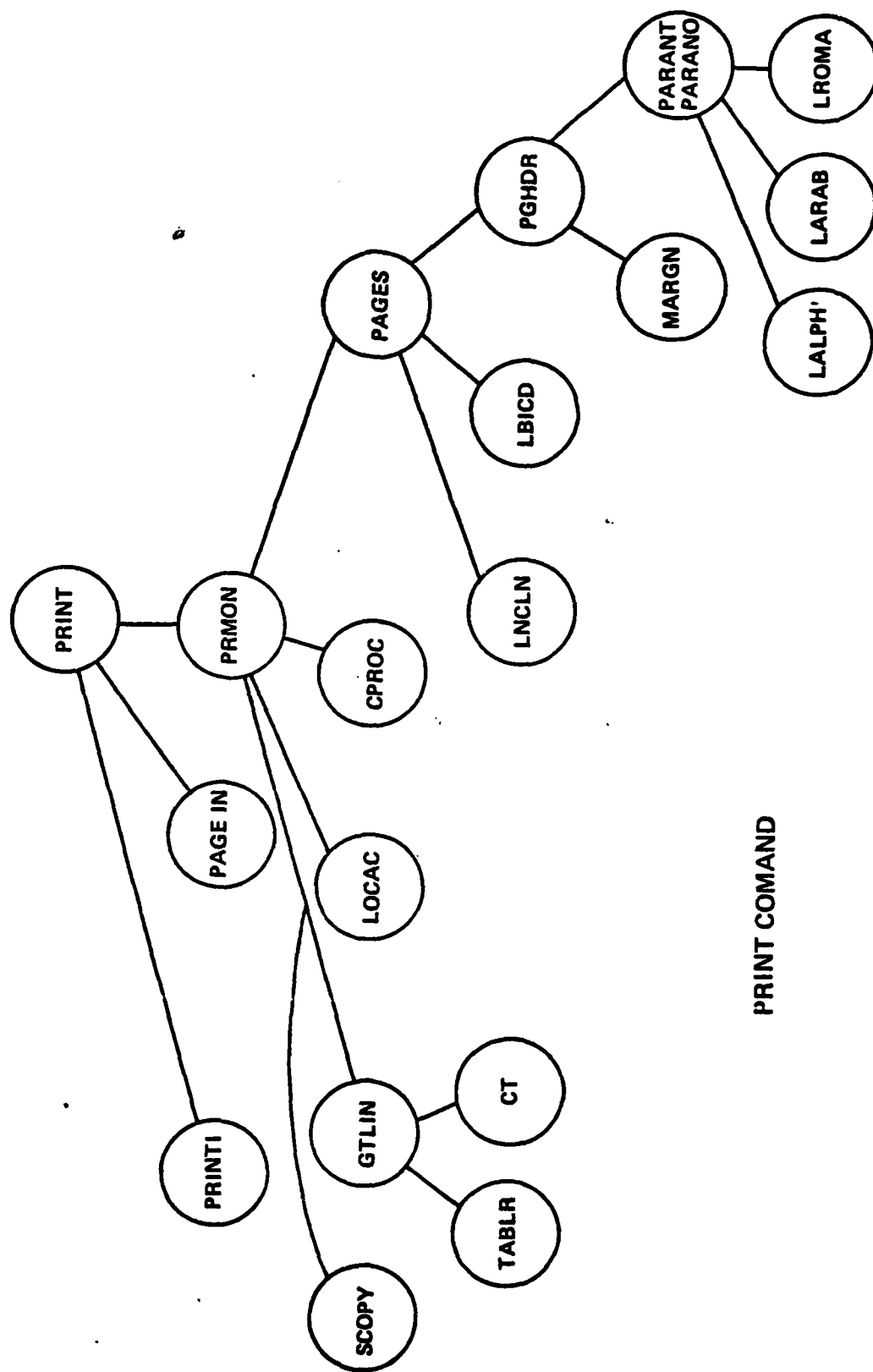
COMMAND: .PGNF (PROGRAM NAME IS NOFOR)



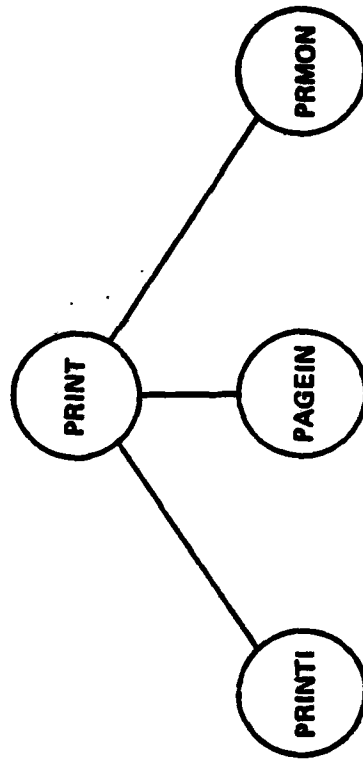
NOTE: STFMT IS A COMMON SUBROUTINE FOR NOFOR (.pgnf) AND PNOFM (.prnf).

COMMAND. PGNF.

Figure Command .PGNF. Sheet 1 of 1

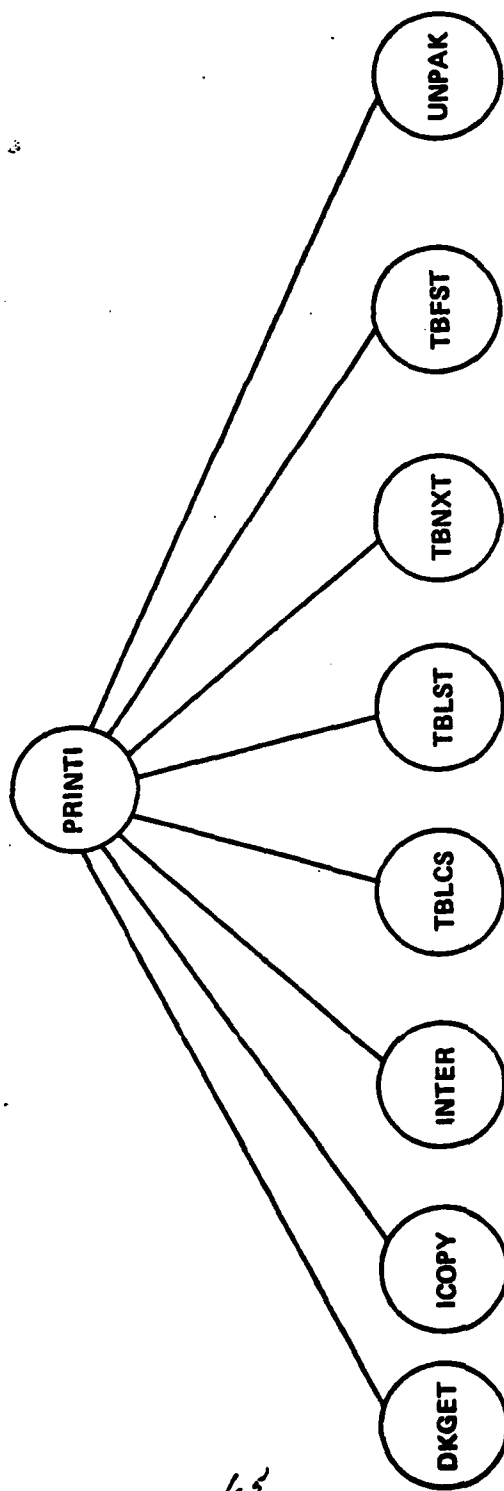


PRINT COMMAND



PRINT COMAND

Figure Print Command Sheet 2 of 20



PRINT COMAND

Figure Print Command Sheet 3 of 20

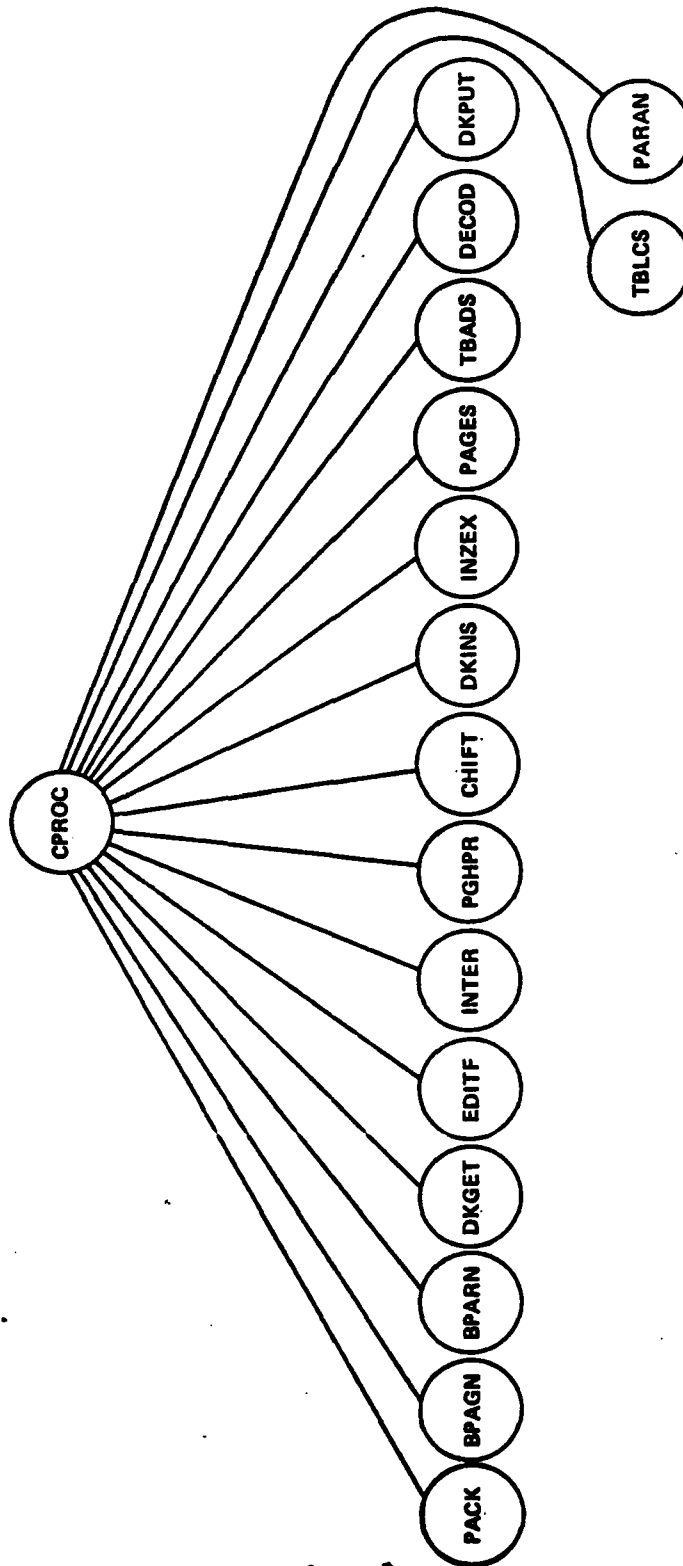
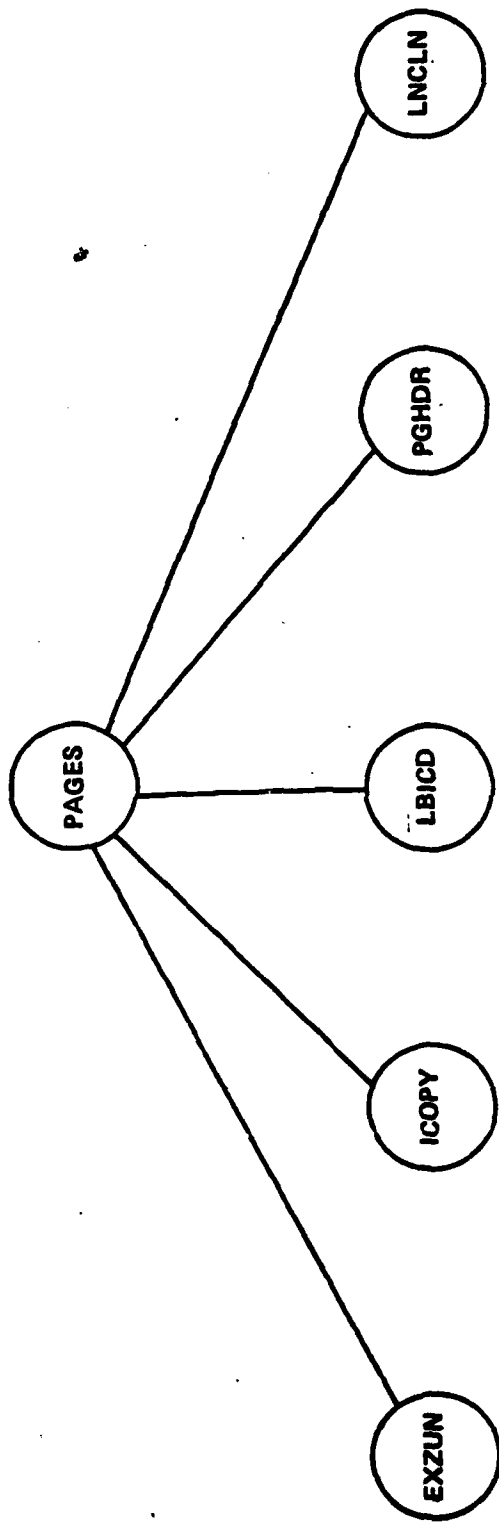


Figure Print Command Sheet 9 of 20

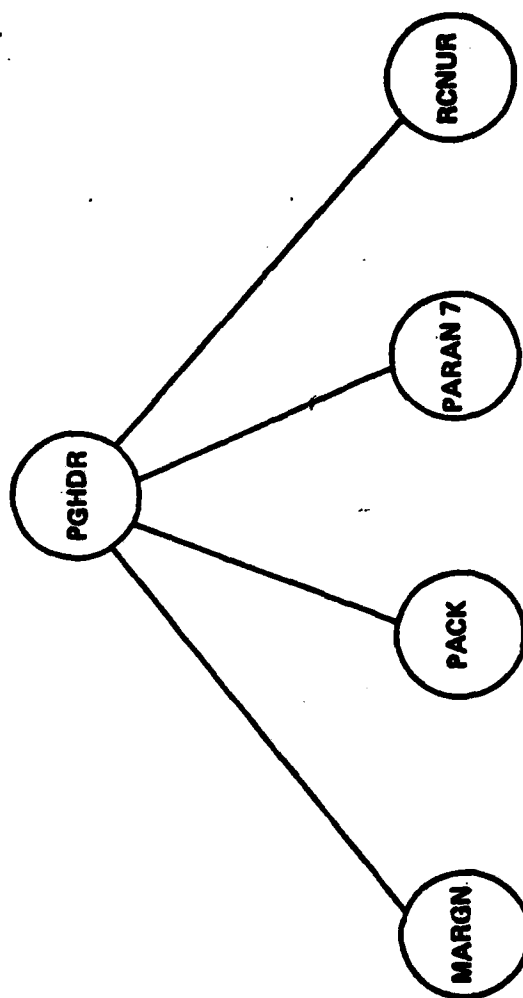


PRINT COMAND



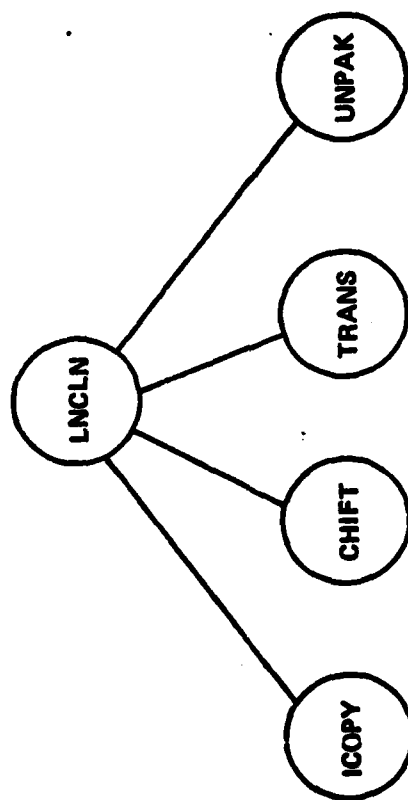
PRINT COMAND

Figure Print Command Sheet 15 of 20



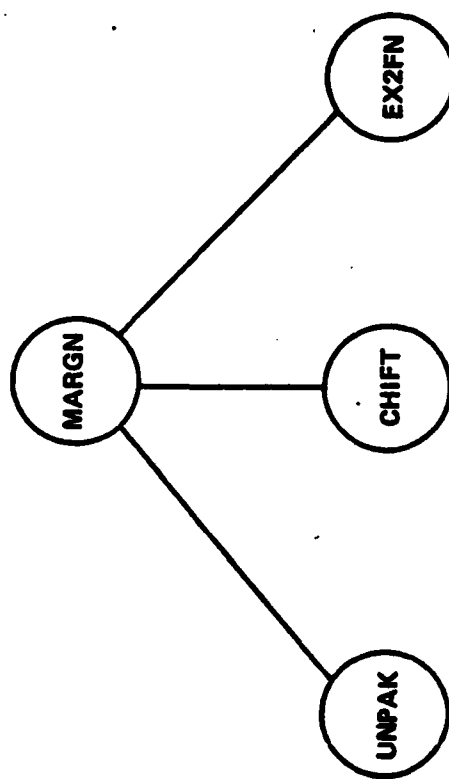
PRINT COMAND

Figure Print Command Sheet 16 of 20



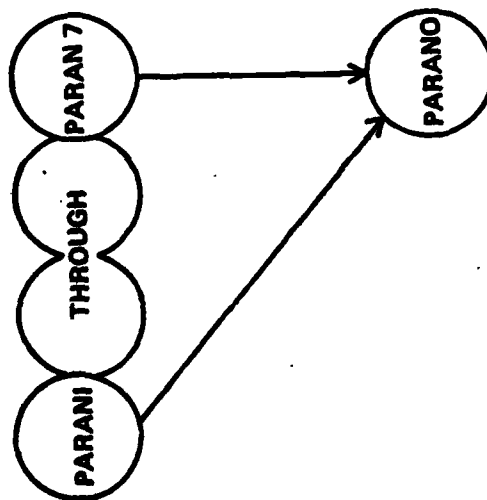
PRINT COMMAND

Figure Print Command Sheet 17 of 20



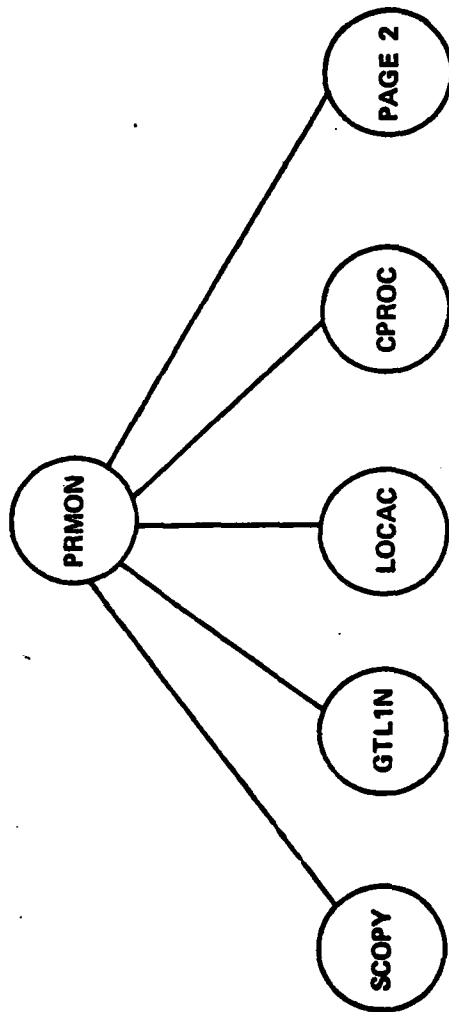
PRINT COMAND

Figure Print Command Sheet 18 of 20



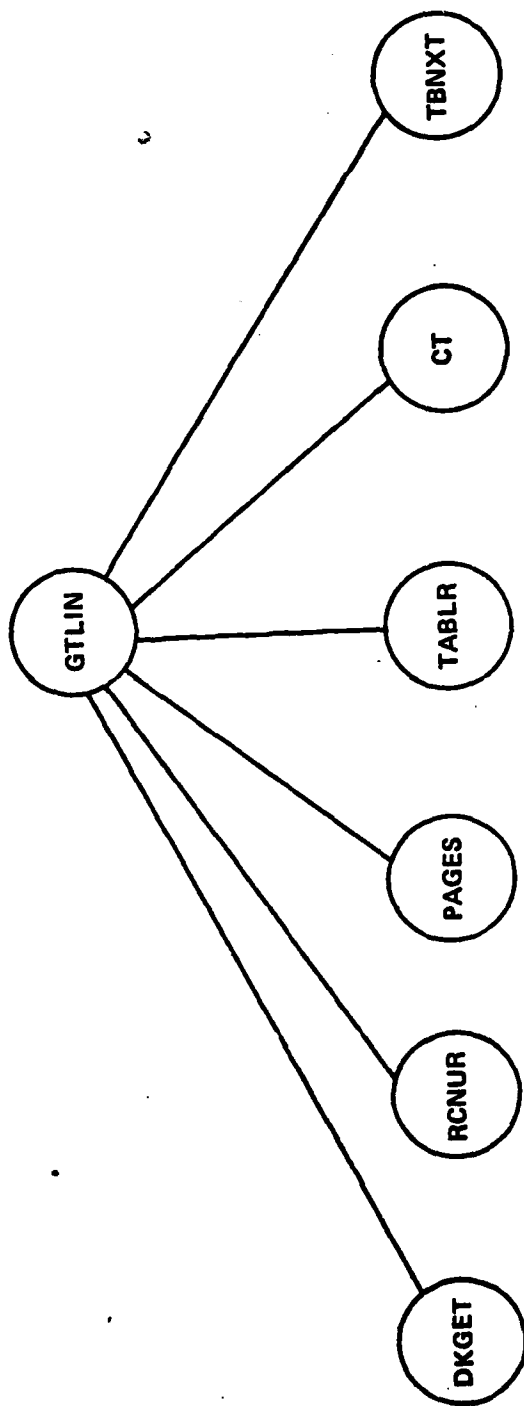
PRINT COMAND

Figure Print Command Sheet 19 of 20



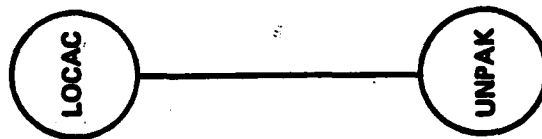
PRINT COMAND

Figure PRINT Command Sheet 5 of 20



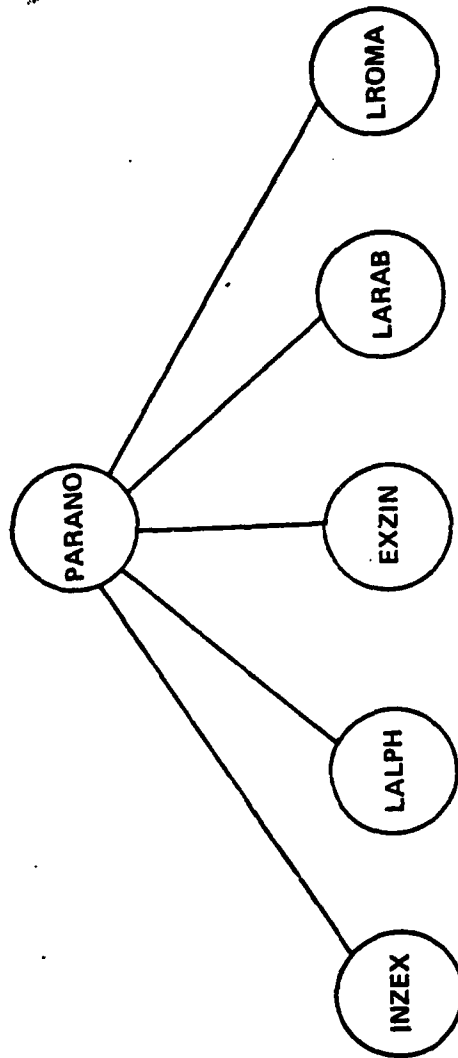
PRINT COMAND

Figure PRINT Command Sheet 7 of 20



PRINT COMAND

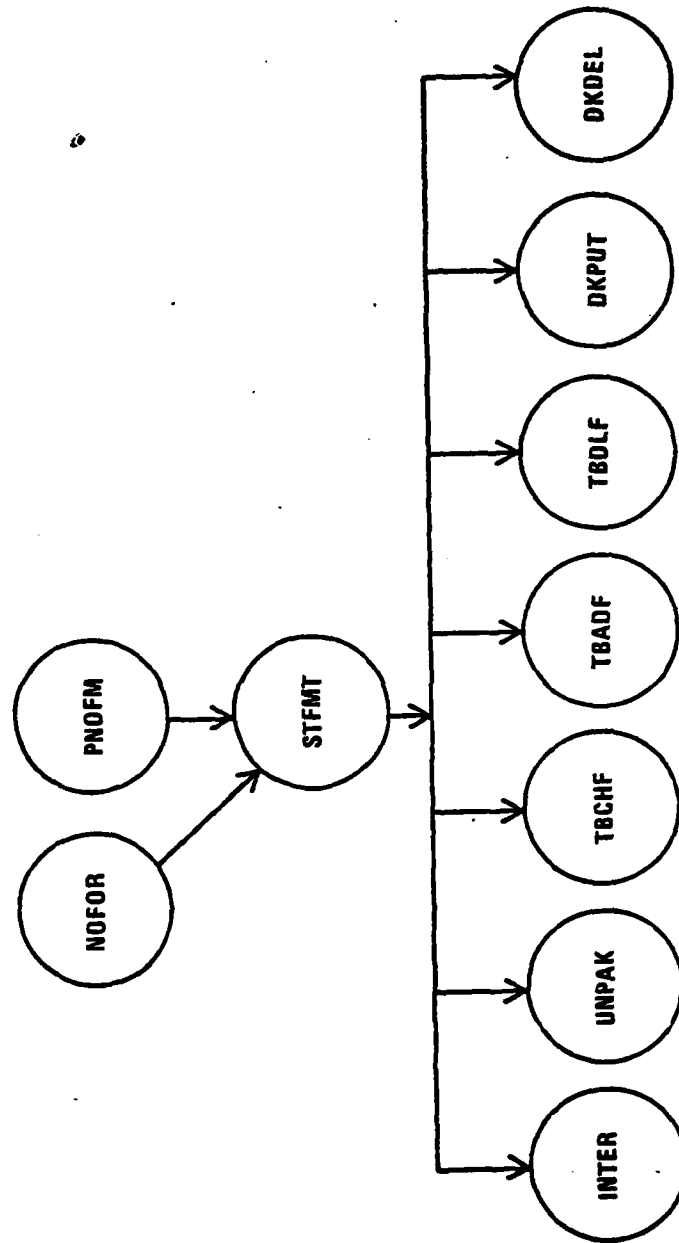
Figure PRINT Command Sheet 8 of 20



PRINT COMAND

Figure PRINT Command Sheet 20 of 20

COMMAND: .prnf (PROGRAM NAME IS PNOFM)



NOTE: STFMT IS A COMMON SUBROUTINE FOR PNOFM (.prnf) AND NOFOR (.pgnf).

COMMAND . PRNF.

SCHNG.

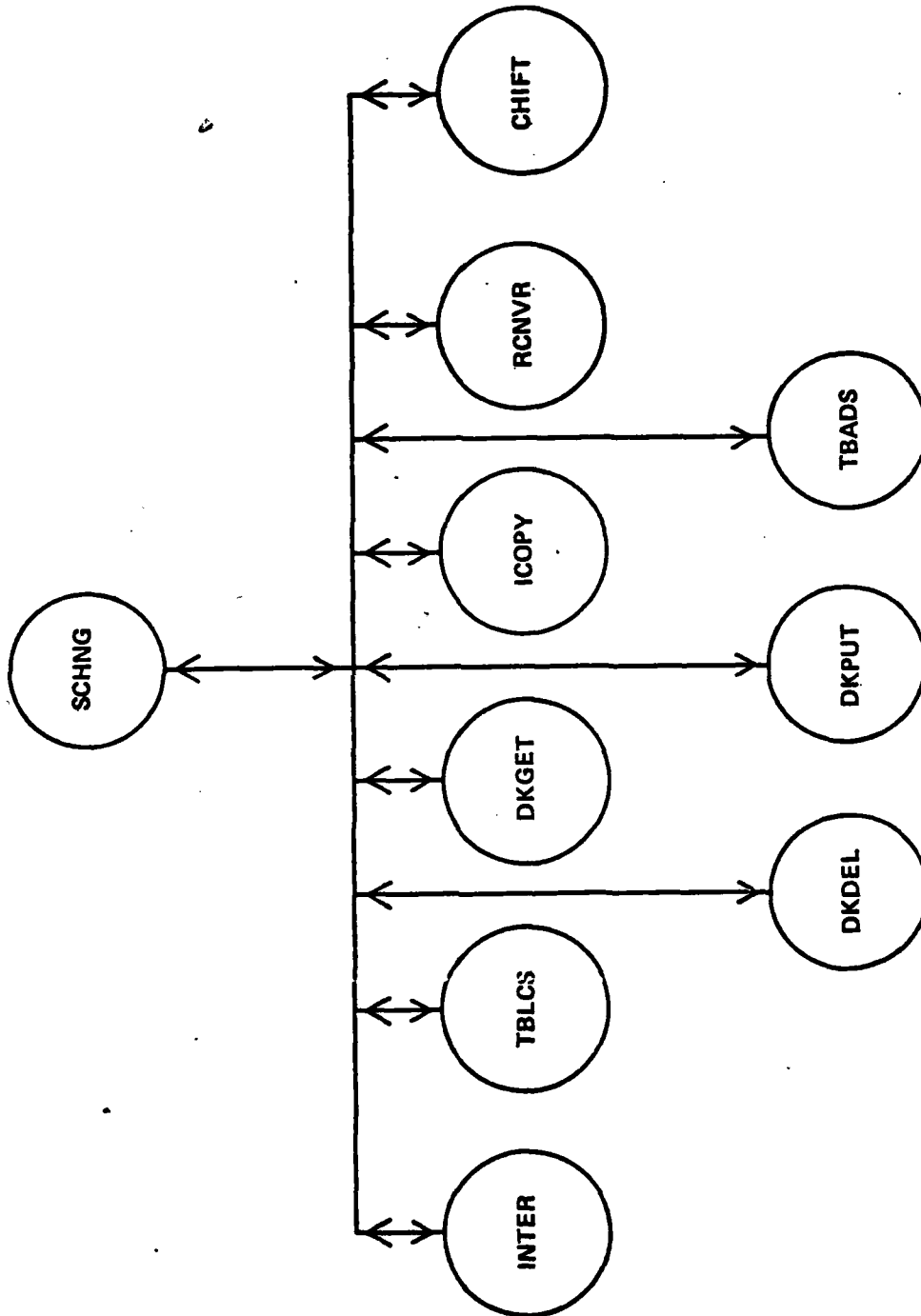


Figure Command .SC. Sheet 1 of 1

SUBROUTINE FLOW DIAGRAM

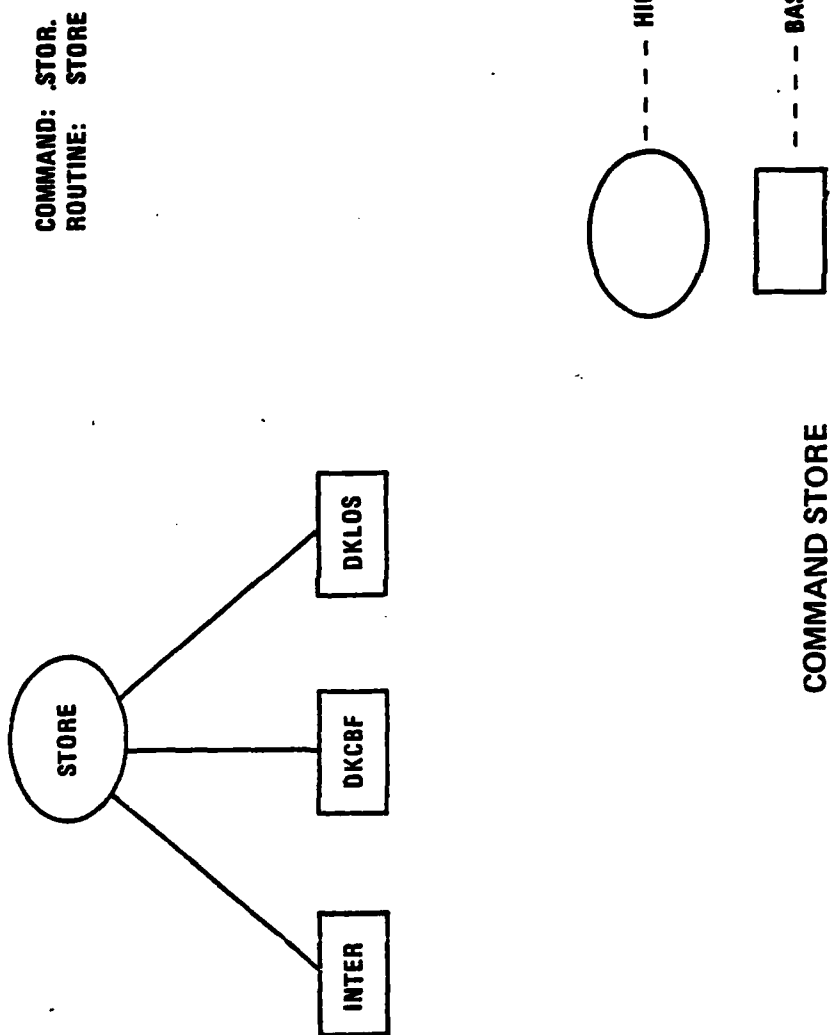
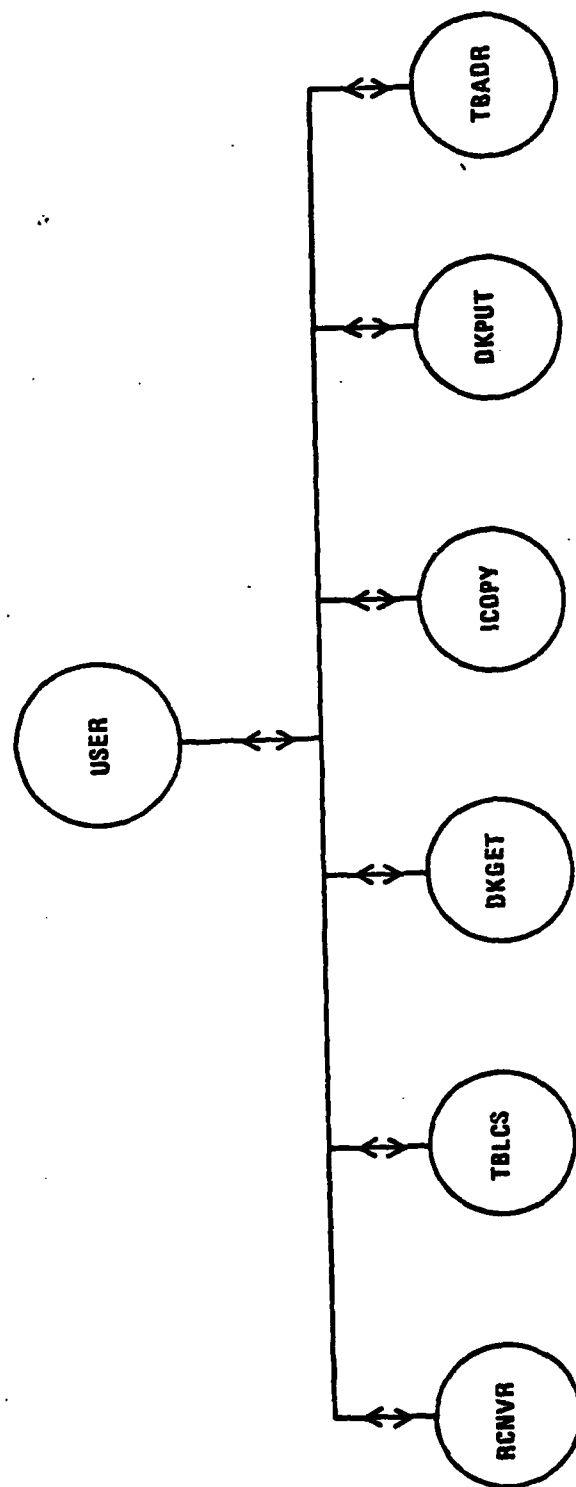


Figure Command STORE Sheet 1 of 1



USER COMMAND

Figure USER command Sheet 1 of 1

DATE
FILMED
8