



```

LL      IIIIII  88888888
LL      IIIIII  88888888
LL      II      88      88
LL      II      88      88
LL      II      88      88
LL      II      88      88
LL      II      88888888
LL      II      88888888
LL      II      88      88
LL      II      88      88
LL      II      88      88
LL      II      88      88
LLLLLLLLLLLL IIIIII  88888888
LLLLLLLLLLLL IIIIII  88888888
.....
.....
.....
.....

```

```

MM      MM  DDDDDDDD  LL
MM      MM  DDDDDDDD  LL
MMMM    MMMM DD      DD  LL
MMMM    MMMM DD      DD  LL
MM  MM  MM  DD      DD  LL
MM  MM  MM  DD      DD  LL
MM      MM  DD      DD  LL
MM      MM  DD      DD  LL
MM      MM  DD      DD  LL
MM      MM  DD      DD  LL
MM      MM  DD      DD  LL
MM      MM  DD      DD  LL
MM      MM  DDDDDDDD  LLLLLLLLLL
MM      MM  DDDDDDDD  LLLLLLLLLL

```

.....

Version 'V04-000'

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## MODIFIED BY:

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V03-002 MCN0145      Maria del C. Nasr      08-Feb-1984
          Add DATA bit to indicate /DATA qualifier was specified.

V03-001 JWT0056      Jim Teague              20-Sep-1982
          Add structures for implementation of DCX data reduction
          and expansion.

V02-006          RPG0046      Bob Grosso              25-Aug-1981
          Turn on Update History

V02-005          RPG0045      Bob Grosso              7-Aug-1981
          Support /BEFORE and /SINCE

V02-004          RPG0044      Bob Grosso              30-Jul-1981
          Add KEEP flag.

V02-003          RPG0041      Bob Grosso              8-May-1981
          Add lhe$w_modcnt

V02-002          RPG0033      Bob Grosso              20-Apr-1981
          Add lib$s_history, lib$s_recordluh, lib$c_defluhrec, and
          lib$c_cre_opt. Add structure LHE.

V02-001          BLS0029      Benn Schreiber          23-Dec-1980
          Add shareable image symbol table library

```

\$STRUCT LIB

```

C
<LIB,$S_,
CLIBIT      :Spare bit--used by CLI
OBJECT      :Object library
MACRO       :Macro library
HELP        :Help text library
TEXT        :TEXT library
SHRSTB      :Shareable image symbol table library
COMPRESS    :Compress function
CREATE      :Create
DELETE      :Delete
EXTRACT     :Extract
INSERT      :Insert
LIST        :List
REMOVE      :Remove
REPLACE     :Replace
OUTPUT      :Output
NAMES       :Names
FULL        :Full listing
GLOBALS     :Globals
SELECTIVE   :Selective search
SQUEEZE     :Squeeze macro defs.
LIBOPEN     :Library file is open
OUTOPEN     :Output file is open
LOG         :Log operations on terminal
OLDLIB      :Library is old (VMS R1) format
CONVERT     :Issue cnvrting message in compress_lib
ADDRESS     :List module RFA also
ONLY        :List only selected modules
MODULE
CROSS       :Cross reference of object library
HISTORY     :List the history
RECORDLUH   :Opened library maintains a history
KEEP        :Keep user info and history across compress
BEFORE      :List entity predating
SINCE       :List entity postdating
DCX         :Reduce library with DCX
DATA        :Data qualifier found
>
V
<M
CLIBIT      :Spare bit--used by CLI
OBJECT      :Object library
MACRO       :Macro library
HELP        :Help text library
TEXT        :TEXT library
SHRSTB      :Shareable image symbol table library
COMPRESS    :Compress function
CREATE      :Create
DELETE      :Delete
EXTRACT     :Extract
INSERT      :Insert
LIST        :List
REMOVE      :Remove
REPLACE     :Replace
OUTPUT      :Output
NAMES       :Names
FULL        :Full listing

```

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GLOBALS           ;Globals
SELECTIVE         ;Selective search
SQUEEZE          ;Squeeze macro defs.
LIBOPEN          ;Library is open
OUTOPEN          ;Output file is open
LOG              ;Log operations on terminal
OLDLIB           ;Old format library
CONVERT          ;Issue cnvrting message in compress_lib
ADDRESS          ;List module RFA also
ONLY             ;List only selected modules
MODULE           ;Cross reference of object library
CROSS            ;List the history
HISTORY          ;Opened library maintains a history
RECORDLUH       ;Keep user info and history across compress
KEEP             ;List entity predating
BEFORE          ;List entity postdating
SINCE           ;Reduce library with DCX
DCX              ;Data qualifier found
DATA
>
C <LIB,$$
  CRFBYSYM,      ;Cross reference by symbol
  CRFBYVAL,     ;Cross reference by value
  CRFBYMOD      ;Cross reference by module
>
V <M
  CRFBYSYM
  CRFBYVAL
  CRFBYMOD
>
C <
  DEFBLKS,100   ;Number of blocks to allocate by default
  DEFGBLS,512   ;Number of global symbols to allocate by default
  DEFMODS,128   ;Number of modules to allocate by default
  DEFLUHREC,20  ;Default maximum number of LUH records to save
  DEFVERTYP,3   ;Default library version type to create
  LISRECLNG,132 ;Length of listing file record
  SHORTSYM,15   ;Length of symbols in Help libraries
  SUBSYS,<134*65536> ;LIBRARIAN subsystem number (134)
  OPT_BLKs,0    ;BLOCKS= option index number
  OPT_GBLs,1    ;GLOBALS= option index number
  OPT_MODs,2    ;MODULES= option index number
  OPT_KSZ,3     ;KEYSIZE= option index number
  OPT_LUHs,4    ;HISTORY= option index number
  OPT_VER,5     ;VERSION= option index number
  OPT_KEE,6     ;KEEP option index number
  OPT_DCX,7     ;REDUCE option index number
>
V <M
  OPT_BLKs      ;BLOCKS= option index number
  OPT_GBLs      ;GLOBALS= option index number
  OPT_MODs      ;MODULES= option index number
  OPT_KSZ       ;KEYSIZE= option index number
  OPT_LUHs      ;HISTORY= option index number
  OPT_VER       ;VERSION= option index number
  OPT_KEE       ;KEEP option index number

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      OPT_DCX          ;REDUCE option index number
    >
E
$STRUCT FDB
F      NXTFDB,L       ;Link to next FDB or 0 if end of list
F      FILFLGS,B      ;Flags for this file
V      <M
      SETSEL          ;Set selective search for this file
    >
F      ,B             ;Spare byte
F      IFI,W          ;IFI of file
F      DEFEXT,L       ;String descriptor for default extension
F      ,L,1           ;
F      NAMDESC,L      ;String descriptor for file
F      ,L,1           ;
F      MODNAM,L       ;String descriptor for /MODULE name
F      ,L,1           ;
F      ,L,8           ;Spares
                        ;NAM block and resultant string follow
                        ;*NOTE* must be longword aligned
F      NAM,T,0        ;Start of NAM block
L      SIZE           ;Size of local part of FDB
E

$STRUCT LNB
F      FLINK,L        ;Link word forward
F      BLINK,L        ;Link backwards
F      FLAGS,B        ;Flags
V      <
      REPLACE         ;Replace rather than insert symbol
    >
F      NAMLNG,B       ;Length of name
F      NAME,T,0       ;Start of name
L      FIXESIZE       ;Length of fixed part of library name block
E

$STRUCT MNB
F      NEXT,L         ;Link to next module name block
F      SYMBOLS,L      ;Link to symbol list
F      NAMLNG,B       ;Length of module name
F      NAME,T,0       ;Start of name
L      FIXESIZE       ;Length of fixed part of module name block
E

$STRUCT SNB
F      NEXT,L         ;Link to next symbol name block
F      VALUE,L        ;Value of symbol
F      FLAGS,W        ;Symbol flags
F      NAMLNG,B       ;Length of symbol name
F      NAME,T,0       ;Start of name
L      FIXESIZE       ;Length of fixed part of symbol name block

```

E

\$STRUCT LHE

F	TIME,L	;Time of modification
F	,L,1	
F	MODCNT,W	;count of module names
F	MODCODE,B	;code for the modification
C	<	
	DELETED,1	
	INSERTED,2	
	REPLACED,3	
	>	
F	USRNAMLEN,B	;length of the username
F	USRNAM,T,12	;username
L	FIXEDSIZE	
E		

