BEM:RSP — OS/3
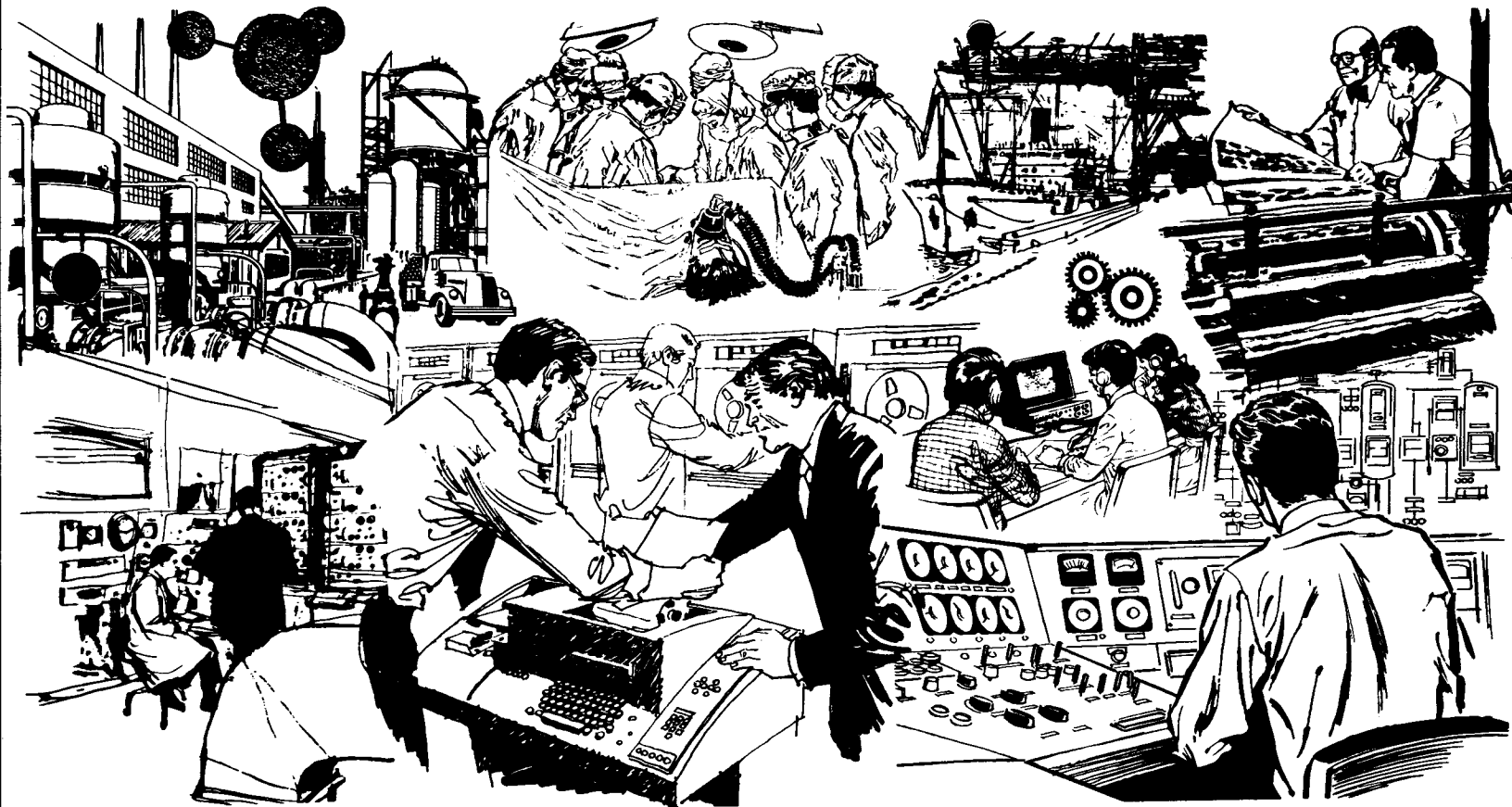## Remote Spoolout Processor

User Reference

SPERRY✛UNIVAC

BEM:RSP — OS/3

Remote Spoolout Processor

User Reference

SPERRY✦UNIVAC

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PREFACE

This manual describes the SPERRY UNIVAC Basic Editor Monitor (BEM) Remote Spoolout Processor (RSP) which is designed to enable the conversational user to display spooled print and punch files written by batch jobs, and to create input spool files for use by batch jobs. BEM: RSP runs under the OS/3 Operating System. The manual contains seven sections and two appendixes:

- Section 1 — Introduction to RSP — presents the purpose and functions of RSP.

- Section 2 — RSP Usage and Applications — provides an overview of the features of RSP through descriptions of potential uses of the system.

- Section 3 — Major Frame Command Mode — describes the formats and functions of the RSP major frame commands.

- Section 4 — Display Command Mode — describes the formats and functions of the RSP commands to display and modify the RSP work space.

- Section 5 — Spool File Descriptor Screen — presents the format of the RSP spool file parameter screen and describes the user options available.

- Section 6 — OS/3 Spooling Operational Description — provides an overview of the OS/3 Spooling System.

- Section 7 — BEM Operation — details elements of the BEM monitor and how to use it.

- Appendix A — Command Summary — contains a complete list of all RSP commands and a brief description of their use in tabular format.

- Appendix B — Error Messages — an alphabetic listing of all RSP and BEM error messages. The reason for each message is given as well as the procedure to recover from the error.

This manual is one in a series pertaining to BEM. The others are:

BEM — OS/3 Basic Editor Monitor, User Reference UA-0139

BEM: BASIC — OS/3, User Reference UA-0140

BEM: EDT — OS/3 Interactive Editor, User Reference UA-0141

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1   INTRODUCTION

1.1 GENERAL

RSP is one in a series of modular components designed to run under the OS/3 Basic Editor Monitor (BEM).

The primary function of RSP is to retrieve and display the spooled output of batch jobs. In addition, RSP can create card input and job control besides accessing OS/3 library files. RSP is designed to make full use of the flexibility and power of the UNISCOPE terminal and thus cannot be used on hard copy terminals.

On UNISCOPE 100 and 200 terminals all transmits should be made using the large red button marked TRANSMIT UNPROT DISPL. The smaller button marked TRANS-MIT DISPL should *never* be used. When the UTS 400 terminal is used, the user should issue the BEM command /SCREEN UTS400 before executing RSP.

RSP only operates upon data which is in its work space, thus data must be transferred from a library file or the System Spool file before RSP can display and update it.

1.2 RSP DISPLAY FORMATS

RSP guides the user in the sense that the user is always presented with a list of available options from which one can be selected. For this purpose, RSP has a number of screen formats which are displayed to the user. Each screen has a distinctive format which aids the user in determining what facet of RSP is currently in use.

Normally, the user selects an option by tabbing the cursor (using the UNISCOPE tab key) until it is to the right of the desired option. In some cases, the user must also fill in a parameter after the option. Having done this, the user simply depresses the transmit key to send the message to the system. RSP will interrogate the screen if additional information is needed. When many parameters must be entered (as in defining Spool files) RSP preformats the screen with protected fields. Then the user need only advance the cursor through the screen, filling in the fields he wishes to specify. The field descriptors are protected and should not be altered by the user.

1.3 OS/3 SPOOL FILE ACCESS BY RSP

RSP has the capability of accessing anything in the Spool file and of creating elements of any type in the Spool file. To control these broad capabilities, certain restrictions may be imposed at the discretion of the BEM system administrator. (For details, consult BEM — *OS/3 Basic Editor Monitor, User Reference,* UA-0139.) These restrictions include limitations on the type of files which may be accessed. For instance, the RSP user could be restricted to only reading print and punch files, and only creating reader files. These restrictions are, of course, also dependent upon OS/3 SYSGEN options; e.g., an RSP user cannot access a reader subfile unless input spooling has been generated in the system.

A further restriction protects the batch user. RSP treats the account number, which is specified on the job card of an OS/3 job, as a password. RSP will only retrieve a Spool file if the RSP user has correctly specified the account number. If the job's account number is blank, then the RSP user must also leave the account number blank; if the account number is specified, the user must specify it exactly. The batch user is further protected because his jobs will not remain in the Spool file for an extended period of time, but will be printed as soon after completing as possible. This time may be further reduced by operating the OS/3 output writers in burst mode, thus allowing spooled listings to be printed at the end of each job step, rather than only at the end of the job. Extra job control is required by the RSP user to hold the print file in the Spool file instead of printing it immediately.

1.4 ERROR PROCESSING

Whenever RSP encounters an error, a message followed by "CONTINUE ▷" is displayed. When the user has read the message, he depresses the TRANSMIT button and RSP refreshes the screen for the current mode of processing. If the user is in the major command frame, he may enter a HELP message to get additional explanation.

2 RSP USAGE

2.1 RSP INITIALIZATION

Once the terminal has been connected to the system by dialing the computer, the user must log on to the BEM system. First, depress the transmit key to get the system's attention. BEM responds with:

> PLEASE LOGON ▷ /

The user must log on by entering the command:

> ▷ /LOGON *logon-id*

From a UNISCOPE terminal, the user can execute RSP by entering:

> ▷ /EXEC RSP

where

> *logon-id*   User's identification code which consists of a user-id, account-id, and password. This code is assigned by the system administrator.

2.2 PROGRAM DEVELOPMENT

For program development, BEM:RSP, in conjunction with BEM:EDT, provides the means for a programmer to create, compile, and test programs from a UNISCOPE terminal. EDT allows the creation and maintenance of source programs in library files and it facilitates the building of job control. (Refer to *BEM:EDT—OS/3 Interactive Editor, User Reference* UA-0141.) BEM provides the operator communications needed to request the operator to run a job and to find out when that job has finished. RSP has immediate access to the printout of batch jobs, allowing the programmer to inspect compilation and assembly listings for errors before proceeding with testing.

The output of a test run can be scanned with RSP to search for errors. Errors can be corrected immediately by using EDT to correct the source program and then repeat the compile-test procedure.

Jobs whose output are to be retrieved by RSP need to have their output held so that the system output writer does not print and delete the output. Sample job control for an assembly and link run follow. The printout from the assembler will not be printed, but will be held for RSP. The link run will be printed immediately and the listing will be held for later access by RSP.

```
// JOB MYASMJOB
// DVC 20 // SPL HOLD // LFD PRNTR
// DVCVOL PACK99
// LBL ASSEMBLYLIBRARY // LFD SOURCE
// DVCVOL PACK83
// LBL MACROLIBRARY // LFD MACLIB
// DVCVOL PACK83
// LBL COPYLIBRARY // LFD COPYLIB
// DVCVOL PACK99
// LBL OBJECTLIBRARY // LFD OBJLIB
// WORK1
// WORK2
// EXEC ASM
// PARAM IN=MYJOB/SOURCE
// PARAM LIN=MACLIB/SYSMAC
// PARAM COPY=COPYLIB
// PARAM OUT=OBJLIB
// DVC 20 // SPL RETAIN // LFD PRNTR
// WORK1
// EXEC LNKEDT
// PARAM OUT=OBJLIB
/$
    LOADM EXAMP
    INCLUDE *,OBJLIB
/*
/&
```

The following sequence will show the step-by-step process a user would go through when assembling and correcting a source program. First, the user logs on to the BEM system and initiates the batch job. Then RSP is executed so that the results of the job may be displayed.

▷/LOGON TEST
▷/RUN MYASMJOB
▷/EXEC RSP

```
          UNIVAC OS/3 BEM:RSP   (VER 2.0)
          DATE  77/01/14     TIME  16:45:25
  ▶BREAK                    ▶END
  ▶DISPLAY                  ▶RETRIEVE
  ▶RELEASE                  ▶BUILD
  ▶DELETE                   ▶HELP
  ▶UPPER                    ▶LOWER
  ▶CLEAR                    ▶SCREEN
  ▶READ
  ▶WRITE
  ▶SYSTEM
  ▶TYPE
```

The user then tabs the cursor to the right of RETRIEVE and transmits. The following screen is then displayed so that the user may describe his job to RSP:

```
FILL IN ALL KNOWN FIELDS - LEAVE OTHERS BLANK
JOB NAME  _____  ACCOUNT  ____  PROGRAM  _____  STEP  __
LFD  _____  LABEL  _____  TYPE  _____
JOB NUMBER  _____  HELD?(Y/N)  _  ALL(Y/N) _ TRANSMIT -
```

The user fills in those fields which describe the listing to be displayed.

```
FILL IN ALL KNOWN FIELDS - LEAVE OTHERS BLANK
JOB NAME  MYASMJOB  ACCOUNT  ____  PROGRAM  ASM00000  STEP  __
LFD  _____  LABEL  _____  TYPE  PRINT_
JOB NUMBER  _____  HELD?(Y/N)  Y  ALL(Y/N) _ TRANSMIT -
```

When RSP finds the Spool file it displays the following:

```
DESCRIPTION OF SPOOL FILE FOUND:
JOB NAME  MYASMJOB  ACCOUNT  ____  PROGRAM  ASM00000  STEP  01
LFD  PRNTR___  LABEL  MYASMJOBPRNTR____  TYPE  PRINT_
JOB NUMBER  00074  HELD?(Y/N)  Y  ALL(Y/N) N TRANSMIT -

▷  CONTINUE?  PROCESS?  STOP?
```

This being the correct job, the user selects the PROCESS option and RSP transfers the Spool file to its work space. Upon completion of the read, the first screen of the file is displayed in display mode:

```
▷CMD    >UP    >DO    >RI    >LE    >DEL    >INS  >UPD  >    1.001
▷1234567890123456789012345678901234567890123456789012345678 9
▷UNIVAC OS/3 ASSEMBLER
▷DATE- 77/01/14 TIME- 16.32
▷ASSEMBLER CONTROL STATEMENTS ENCOUNTERED AND PROCESSED AS F
▷              // PARAM IN=MYJOB/SOURCE
▷              // PARAM LIN=MACLIB/SYSMAC
▷              // PARAM COPY=COPYLIB
▷              // PARAM OUT=OBJLIB
▷                                               EXTERNAL SYMBO
▷SYMBOL.  TYPE.  ESID.  ADDRESS.  LENGTH.
▷MYJOB    CSECT  01     000000    000114
```

Then, to find if there were any errors, the user would skip to the end of the file with the next two commands:

▷ UP 10000

```
▷CMD    >UP    >DO    >RI    >LE    >DEL    >INS  >UPD  >   104.001
▷1234567890123456789012345678901234567890 1234567890123456789
```

Then to see the error messages, the user scrolls the screen down:

▷ DO

```
▷CMD    >UP    >DO    >RI    >LE    >DEL    >INS  >UPD  >   94.001
▷1234567890123456789012345678901234567890123456789012345678 9
▷Y6         00002 00000A 02167  1033
▷Y64        00002 00002A 02168  1145  1567
▷Y68        00002 00000E 02156
▷Y7         00002 00002C 02152
▷Y8         00002 00000C 02153  2087  1045
▷Y80        00002 00002E 02169  2089
▷                                               DIAGNOSTICS
▷LINE   ERROR CODE     MESSAGE
▷ 2999     A101         MISSING END DIRECTIVE
▷     1 STATEMENT FLAGGED IN THIS ASSEMBLY    -77/01/14  16.42
```

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Now, since the user has identified the error in the assembly, the Spool file may be deleted from the system. To do this the user first returns to major frame command mode:

▷ CMD

```
                    UNIVAC OS/3 BEM:RSP  (VER 2.0)
                    DATE  77/01/14    TIME  16:51:25
          ▷BREAK                    ▷END
          ▷DISPLAY                  ▷RETRIEVE
          ▷RELEASE                  ▷BUILD
          ▷DELETE                   ▷HELP
          ▷UPPER                    ▷LOWER
          ▷CLEAR                    ▷SCREEN
          ▷READ
          ▷WRITE
          ▷SYSTEM
          ▷TYPE
```

Now, the user tabs the cursor to the right of DELETE and transmits. RSP will once again display the Spool file descriptor so that the user may identify the Spool file to be deleted:

```
   FILL IN ALL KNOWN FIELDS - LEAVE OTHERS BLANK
   JOB NAME   _____   ACCOUNT   ____   PROGRAM   _____   STEP  __
   LFD   _____   LABEL   _____   TYPE   _____
   JOB NUMBER   _____   HELD?(Y/N)   _   ALL(Y/N) _ TRANSMIT -
```

The user fills in the fields which identify the job:

```
   FILL IN ALL KNOWN FIELDS - LEAVE OTHERS BLANK
   JOB NAME  MYASMJOB  ACCOUNT   ____   PROGRAM  ASMC0000  STEP  __
   LFD   _____   LABEL   _____   TYPE PRINT_
   JOB NUMBER   _____   HELD?(Y/N)  Y   ALL(Y/N) _ TRANSMIT -
```

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The user transmits the description and RSP displays the file it finds:

```
DESCRIPTION OF SPOOL FILE FOUND:
JOB NAME  MYASMJOB  ACCOUNT  ____    PROGRAM  ASM00000  STEP  01
LFD  PRNTR___   LABEL  MYASMJOBPRNTR____   TYPE PRINT_
JOB NUMBER  00074  HELD?(Y/N)  Y  ALL(Y/N) N  TRANSMIT -

▷  CONTINUE?  PROCESS?  STOP?
```

The user then selects the PROCESS option; RSP deletes the Spool file and returns to major frame command mode:

```
                     UNIVAC  OS/3  REM:RSP   (VER 2.0)
                     DATE  77/01/14     TIME  16:53:52
▷BREAK                          ▷END
▷DISPLAY                        ▷RETRIEVE
▷RELEASE                        ▷BUILD
▷DELETE                         ▷HELP
▷UPPER                          ▷LOWER
▷CLEAR                          ▷SCREEN
▷READ
▷WRITE
▷SYSTEM
▷TYPE
```

To terminate RSP the user tabs to END and transmits. The user is now in BEM system mode. In order to correct the source program, the editor is employed and issues the following commands:

```
▷/EXEC EDT
OS/3 EDITOR READY (VER 4.0) BEGIN
        1.0000▷@READ MYJOB,SOURCELIBRARY,PACK54
      148.0000▷  END
      149.0000▷@WRITE MYJOB,SOURCELIBRARY,PACK54
OVERWRITE (YES OR NO)?▷Y
      149.0000▷@HALT
▷ /RUN MYASMJOB
```

The source is now corrected and is being reassembled. The user will return to RSP to check for additional errors and then will print the job.

▷/EXEC RSP

```
                    UNIVAC OS/3 BEM:RSP  (VER 2.0)
                    DATE  77/01/14    TIME  17:07:12
        ▷BREAK                        ▷END
        ▷DISPLAY                      ▷RETRIEVE
        ▷RELEASE                      ▷BUILD
        ▷DELETE                       ▷HELP
        ▷UPPER                        ▷LOWER
        ▷CLEAR                        ▷SCREEN
        ▷READ
        ▷WRITE
        ▷SYSTEM
        ▷TYPE
```

To retrieve the file, the user selects the RETRIEVE function and RSP displays the Spool file descriptor screen:

```
FILL IN ALL KNOWN FIELDS - LEAVE OTHERS BLANK
JOB NAME  _____   ACCOUNT  ____   PROGRAM  _____   STEP  __
LFD  _____   LABEL  _____   TYPE  _____
JOB NUMBER  _____   HELD?(Y/N)  _   ALL(Y/N) _  TRANSMIT -
```

The user fills in the fields describing the job:

```
FILL IN ALL KNOWN FIELDS - LEAVE OTHERS BLANK
JOB NAME  MYASMJOB  ACCOUNT  ____   PROGRAM  ASMC0000  STEP  01
LFD  _____   LABEL  _____   TYPE PRINT_
JOB NUMBER  _____   HELD?(Y/N)  Y   ALL(Y/N) _  TRANSMIT -
```

RSP displays the description of the Spool file it found:

```
DESCRIPTION OF SPOOL FILE FOUND:
JOB NAME  MYASMJOB  ACCOUNT   ____   PROGRAM  ASM00000  STEP  01
LFD  PRNTR___  LABEL  MYASMJOBPRNTR____   TYPE PRINT_
JOB NUMBER  00082  HELD?(Y/N)  Y  ALL(Y/N) N TRANSMIT -

▷  CONTINUE?  PROCESS?  STOP?
```

To see the file, the user selects the PROCESS option and RSP enters display mode:

```
▷CMD    >UP    >DO    >RI    >LE    >DEL    >INS  >UPD  >    1.001
▷12345678901234567890123456789012345678901234567890123456789
▷UNIVAC OS/3 ASSEMBLER
▷DATE- 77/01/14 TIME- 16.55
▷ASSEMBLER CONTROL STATEMENTS ENCOUNTERED AND PROCESSED AS F
▷              // PARAM IN=MYJOB/SOURCE
▷              // PARAM LIN=MACLIB/SYSMAC
▷              // PARAM COPY=COPYLIB
▷              // PARAM OUT=OBJLIB
▷                                         EXTERNAL SYMBO
▷SYMBOL.  TYPE.  ESID.  ADDRESS.  LENGTH.
▷MYJOB    CSECT  01     000000    000114
```

To check for errors, skip to the end of the work space with:

▷UP 10000

```
▷CMD    >UP    >DO    >RI    >LE    >DEL    >INS  >UPD  >   102.001
▷12345678901234567890123456789012345678901234567890123456789
```

Then to check the last line in the listing, the user rolls the screen down one line:

▷DO 1

```
▷CMD   >UP   >DO   >RI   >LE   >DEL   >INS  >UPD  >    94.001
▷1234567890123456789012345678901234567890123456789012345 6789
▷  NO STATEMENT FLAGGED IN THIS ASSEMBLY    -77/01/14  17.02
```

Since there are no errors, the user may wish to print the file so he returns to major frame command mode by typing:

▷CMD

Now, the RELEASE command is issued and RSP displays the spool format descriptor screen.

```
FILL IN ALL KNOWN FIELDS - LEAVE OTHERS BLANK
JOB NAME  _____  ACCOUNT  ____   PROGRAM  _____  STEP  __
LFD  _____  LABEL  _____  TYPE _____
JOB NUMBER  _____   HELD?(Y/N)  _   ALL(Y/N) _ TRANSMIT -
```

The user describes the Spool file and transmits:

```
FILL IN ALL KNOWN FIELDS - LEAVE OTHERS BLANK
JOB NAME  MYASMJOB  ACCOUNT  ____   PROGRAM  ASMC0000  STEP  01
LFD  _____  LABEL  _____  TYPE PRINT_
JOB NUMBER  _____   HELD?(Y/N)  Y   ALL(Y/N) _ TRANSMIT -
```

RSP supplies the complete descriptions of the file it found:

```
DESCRIPTION OF SPOOL FILE FOUND:
JOB NAME  MYASMJOB  ACCOUNT  ____   PROGRAM  ASMC0000  STEP  01
LFD  PRNTR___  LABEL  MYASMJOBPRNTR____  TYPE PRINT_
JOB NUMBER  000R4  HELD?(Y/N)  Y  ALL(Y/N) N TRANSMIT -

▶  CONTINUE?  PROCESS?  STOP?
```

The user causes the release function to occur by transmitting PROCESS. RSP releases the file and returns to major frame command mode:

```
              UNIVAC OS/3 BEM:RSP  (VER 2.0)
              DATE  77/01/14     TIME  17:10:47
     ▶BREAK                 ▶END
     ▶DISPLAY               ▶RETRIEVE
     ▶RELEASE               ▶BUILD
     ▶DELETE                ▶HELP
     ▶UPPER                 ▶LOWER
     ▶CLEAR                 ▶SCREEN
     ▶READ
     ▶WRITE
     ▶SYSTEM
     ▶TYPE
```

The user selects the END option to terminate RSP and returns to BEM system mode. The printout is now in the print queue and will be printed by an OS/3 output writer operating in burst mode. If the OS/3 system is operating in non-burst mode, an operator type-in is required at the OS/3 console. To request the operator to type this, the terminal user may send a message using the BEM/TYPE command:

▷/TYPE PLEASE ENTER "PR BU,JOB=MYASMJOB"

The user has now finished the session and may release the terminal by logging off:

▷/LOGOFF

3 MAJOR FRAME COMMAND MODE

When the user first executes RSP, a list of RSP commands is provided. To select an option the user tabs the cursor until it is to the immediate right of the desired option and then depresses the transmit key. Major frame commands are described in the remainder of this section.

The major frame screen format is given below. The top line identifies RSP; the second gives the current date and time. The remaining lines list the various commands available to the RSP user.

```
              UNIVAC OS/3 BEM:RSP   (VER 2.0)
              DATE  76/08/23     TIME   13:23:15
    ▶BREAK                        ▷END
    ▶DISPLAY                      ▷RETRIEVE
    ▶RELEASE                      ▷BUILD
    ▶DELETE                       ▷HELP
    ▶UPPER                        ▷LOWER
    ▶CLEAR                        ▷SCREEN
    ▶READ
    ▷WRITE
    ▷SYSTEM
    ▷TYPE
```

3.1 READ (FILE PARAMETERS)

This command is used to transfer an element from an OS/3 library file to the RSP work space. If the work space is not empty, the transferred element is added to the end of the work space. Thus, elements can be merged in the work space. Upon completion of this command, RSP will be in display command mode ready for the user to display the work space.

File parameters have the same format as they do in the rest of the BEM system:

element, file-name [*(password)*], [*volume*], [*type*]

where

element	Name of the library element
file-name	Name assigned to the file (as it appears in the VTOC)
password	Password of a cataloged file — optional
volume	Volume-serial-number of the disk-pack — optional
type	S for source, P for proc, or M for macro — optional

3.2 WRITE (FILE PARAMETERS)

This command is used to transfer the contents of the RSP work space to an OS/3 library file. If the work space contains lines longer than 128 characters, the lines are truncated. The format of the file parameters is the same as described above for the READ command.

3.3 RELEASE

This command releases a spooled file for printing or punching. Once released, a Spool file may be printed or punched by an output writer operating in burst mode. It may still be accessed by RSP, but there is no guarantee that the file will remain in the Spool file because the output writer will delete the file after printing or punching it. If the OS/3 spooling system is not being accessed in burst mode, an operator type-in is required to print or punch the file. This key-in is:

PR BU,JOB=x,ACCT=y

where

x   Name of the job which produced the output
y   Account number of the job

Either JOB = x or ACCT= y can be omitted but at least one should be specified. (For a complete list of available options, consult the OS/3 Operator Guide.)

3.4 DELETE

The DELETE command removes spooled output from the system Spool file. Once deleted, the output cannot be retrieved by either RSP or a system output writer. The user should delete output whenever there is no more need for it. Failure to do so will result in extraneous output being retained in the Spool file for extended periods of time.

3.5 BUILD

The BUILD command is used to transfer the contents of the RSP work space to the system Spool file. The data written to the Spool file may subsequently be used for one of the following purposes:

Printing — may be printed by an output writer.
Punching — may be punched by an output writer.
Input — may be used as card input to a batch job.
Job control — may be run by the operator or the BEM /RUN command.

Job control written to the JCS queue must be terminated with a //FIN card for correct operation of the RUN processor.

3.6 RETRIEVE

The RETRIEVE command is used to transfer a spooled element from the system Spool file to the RSP work space. As with the READ command, the data is added to the end of the existing contents of the work space. Upon completion of this command, RSP will be in display command mode ready for the user to display the work space.

The user may retrieve any printed or punched output of a batch job which has been placed in the hold condition by the inclusion of an SPL card in the JCL. For example

```
// DVC 20 // SPL RETAIN //  LFD PRNTR
// DVC 40 // SPL HOLD  // LFD PUNCH
```

When printouts are read by RSP, skips to new pages and skipped lines are removed to facilitate display on a UNISCOPE. This means, however, that forms control options will not be present if the report is written back to the Spool file by RSP.

If the output of a batch job has been breakpointed, all segments of the file will be retrieved by this command. Thus, the breakpoints, whether a result of an operator key-in or a program-issued BRKPT macro, will be transparent to the RSP user.

3.7 END

The END command terminates the current RSP session. Memory and disk space allocated to RSP are released to BEM and the user is returned to the BEM system mode.

3.8 BREAK

The BREAK command temporarily returns the user to the BEM system mode so that system commands may be entered. BEM's /RESUME command can be used to return control to RSP.

3.9 HELP

This command displays additional information about the previous error message displayed. Its function is identical to that of the /HELP command in BEM.

3.10 TYPE

This command allows the RSP user to communicate with the OS/3 system operator. Its function is identical to that of the /TYPE command in BEM. In particular, the RSP user will need to determine the status of batch jobs and to request the operator to initiate the printing of spooled output.

3.11 SCREEN *H*×*W*

This command is used to describe the characteristics of the user's UNISCOPE terminal. Because RSP can handle any of the four UNISCOPE sizes, the user must inform RSP of the dimensions of his UNISCOPE. Allowable values are:

SCREEN 16x64 — 16 lines by 64 columns — U100
SCREEN 12x80 — 12 lines by 80 columns — U100
SCREEN 24x64 — 24 lines by 64 columns — U200
SCREEN 24x80 — 24 lines by 80 columns — U200

3.12 DISPLAY

This command transfers the user from major frame command mode to display command mode. In display mode the user may display, delete, insert, and update the contents of the RSP work space.

3.13 CLEAR

This command clears the RSP work space. This method is more efficient than deleting the work space line by line from display mode. When the work space is cleared, all of BEM's internal pointers are reset and all disk space is released to the BEM system. When lines are deleted individually, they are simply removed from the index and marked for deletion.

3.14 UPPER

This command specifies that all data entered is to be translated into uppercase mode.

3.15 LOWER

This command specifies that no translation is to take place on data lines entered.

3.16 SYSTEM

This command allows any BEM System command to be entered without leaving RSP. If no parameters are specified, this command is identical to BREAK.

4 DISPLAY MODE

In this mode the user can display, delete, and update the contents of the RSP work space. To handle lines longer than the UNISCOPE screen width, RSP has the ability to shift the screen right or left in addition to up and down.

The top line of the display mode screen contains a list of the options available to the user. To select one, the user tabs the cursor to the right of the desired option, erases the rest of the line, enters a number (if needed), and depresses the transmit key. At the right-hand side of the top line is the line number of the top line on the screen and the column number of the leftmost position on the screen. The format of these numbers is *lllll.ccc* where *lllll* is the line number and *ccc* is the column number.

Lines in the work space are numbered sequentially with relative line numbers. When lines are inserted or deleted, following lines are assigned new line numbers. The second line of the screen contains column numbers for ease in editing lines.

The following is an example of the display command mode screen. The remainder of this section explains the use of each command. Several examples of display mode commands are given. In each case, the screen shown is the result of executing the specified command on the previous screen shown; that is, the examples are cumulative, beginning with the following screen

```
▷CMD    >UP    >DO    >RI    >LE    >DEL    >INS   >UPD   >12345.102
▷2345678901234567890123456789012345678901234567890123456 7890
▷ LINE ONE
▷  LINE TWO
▷   LINE THREE
▷    LINE FOUR
▷     LINE FIVE
▷      LINE SIX
▷       LINE SEVEN
▷        LINE EIGHT
▷         LINE NINE
▷          LINE TEN
```

4.1 CMD

This option returns the user to major command mode. Its use does not affect the contents of the RSP work space and when the user returns to display mode the work space will be intact.

4.2 UP *n*

This command causes the screen to be rolled up *n* lines. If *n* is omitted the next sequential screen is displayed. If *n* is less than the size of a screen only the next *n* lines are displayed. If *n* is more than a screen only the resultant lines are displayed. When the end of the work space is reached, the UP command will blank out the rest of the current screen and then set the current line number to one greater than the last line in the file. For example:

    ▷UP 3

will result in the following screen being displayed:

```
▷CMD    ▷UP    ▷DO    ▷RI    ▷LE    ▷DEL    ▷INS  ▷UPD  ▷12348.102
▷2345678901234567890123456789012345678901234567890123456789012345678901234567890
▷       LINE FOUR
▷        LINE FIVE
▷         LINE SIX
▷          LINE SEVEN
▷           LINE EIGHT
▷            LINE NINE
▷             LINE TEN
▷              LINE ELEVEN
▷               LINE TWELVE
▷                LINE THIRTEEN
```

This command can be used to locate the end of the work space by specifying a large number for *n*. Typically, a value of 10,000 is more than enough to bypass all the lines in the work space. After the command UP 10000 is issued, all but the top two lines of the screen will be blank and the current line number will be one greater than the number of lines in the file. At this point, lines could be inserted at the end of the work space.

4.3 DOWN *n*

The DOWN command causes the screen to be rolled down *n* lines. If *n* is omitted, then the previous sequential screen will be displayed. If *n* is less than a full screen, only *n* lines will be displayed. If *n* is greater than the screen height only the resultant screen will be displayed. When the DOWN command reaches the beginning of the work space, it displays only up to the first line in the work space. For example:

▷DOWN 1

```
▷CMD   >UP   >DO   >RI   >LE   >DEL   >INS   >UPD   >12347.102
▷2345678901234567890123456789012345678901234567B901234567890
▷    LINE THREE
▷      LINE FOUR
▷        LINE FIVE
▷          LINE SIX
▷            LINE SEVEN
▷              LINE EIGHT
▷                LINE NINE
▷                LINE TEN
▷                  LINE ELEVEN
▷                    LINE TWELVE
```

4.4 LEFT *n*

This command is used to shift the current display to the left. When this command is processed, the *n* columns on the left of the screen will no longer be displayed and *n* new columns will be displayed on the right. If the value of *n* would cause the rightmost column displayed to be greater than 256, then the value is changed such that the rightmost column is column number 256. The second line of the screen is also shifted so that the column numbers correspond. This line always displays the correct one's digit of the column number. For example:

▷LEFT 8

```
▷CMD   >UP   >DO   >RI   >LE   >DEL   >INS   >UPD   >12347.110
▷0123456789012345678901234567890123456789012345578901234567B
▷THREE
▷ FOUR
▷E FIVE
▷NE SIX
▷INE SEVEN
▷LINE EIGHT
▷ LINE NINE
▷  LINE TEN
▷    LINE ELEVEN
▷      LINE TWELVE
```

4.5 RIGHT *n*

This command is used to shift the current display to the right. When this command is processed, the *n* columns on the right of the screen will no longer be displayed and *n* new columns will be displayed on the left. If the value of *n* specified would result in a column number less than one, the value of one is assumed as the starting column number. For example:

▷RIGHT 12

```
▷CMD    >UP    >DO    >RI    >LE    >DEL    >INS   >UPD   >12347.098
▷8901234567890123456789012345678901234567890123456789012345 6
▷          LINE THREE
▷           LINE FOUR
▷            LINE FIVE
▷             LINE SIX
▷              LINE SEVEN
▷               LINE EIGHT
▷                LINE NINE
▷                 LINE TEN
▷                  LINE ELEVEN
▷                   LINE TWELVE
```

4.6 REFRESH

The REFRESH command is used to reconstruct the screen. It does not alter what is displayed, but merely re-displays what was last displayed. Thus, if a user accidently changes or erases the screen, this command may be used to restore the screen to its previous condition. This command may be entered in either of two ways: the user may transmit the word REFRESH or the user may transmit a null message. The latter may be accomplished by pressing two keys in sequence: CURSOR TO HOME then TRANSMIT.

4.7 DELETE *n*

This command is used to delete entire lines from the RSP work space. The lines deleted are the *n* lines starting with the top line on the screen. If *n* is omitted, only the top line is deleted. For example:

▷ DEL 3

```
▷CMD    >UP    >DO    >RI    >LE    >DEL    >INS   >UPD   >12347.098
▷8901234567890123456789012345678901234567890123456789012345 6
▷          LINE SIX
▷           LINE SEVEN
▷            LINE EIGHT
▷             LINE NINE
▷              LINE TEN
▷               LINE ELEVEN
▷                LINE TWELVE
▷                 LINE THIRTEEN
▷                  LINE FOURTEEN
▷                   LINE FIFTEEN
```

Notice that since LINES THREE, FOUR and FIVE were deleted, LINE SIX is now at relative position 12347.

To delete the entire work space, the user must display the first line in the work space as the top line on the screen, then issue a delete for at least the number of lines in the work space. Normally, the easiest way to accomplish this is to do a DOWN 10000 followed by a DELETE 10000. (This assumes that the work space contains less than 10,000 lines.) This sequence will work because a roll-down stops when it reaches line 1 and a delete stops when it reaches the end of the work space.

4.8 LINE NUMBER

To display a specific line when the line number is known, the user transmits the line number and column number. To do this, the user tabs the cursor to the line number on the top line of the screen, updates the starting line and column number, and transmits it. RSP will update its internal starting numbers and then refresh the screen starting at the new line and column numbers. For example:

▷ 12345.102

```
>CMD    >UP   >DO   >RI   >LE   >DEL   >INS  >UPD  >12345.102
>234567890123456789012345678901234567890123456789012345678901234567890
> LINE ONE
>   LINE TWO
>       LINE SIX
>        LINE SEVEN
>         LINE EIGHT
>          LINE NINE
>           LINE TEN
>            LINE ELEVEN
>             LINE TWELVE
>              LINE THIRTEEN
```

4.9 INSERT n

This command is used to add blank lines to the RSP work space. The lines that are added are inserted immediately before the top line on the screen. The screen is refreshed after inserting lines so that the top lines of the screen contain blank lines. To create data lines, the user may then type over the blank lines and update them. If n is omitted, a single line is inserted. For example:

▷ INS 4

```
>CMD    >UP   >DO   >RI   >LE   >DEL   >INS  >UPD  >12345.102
>234567890123456789012345678901234567890123456789012345678901234567890
>
>
>
>
>
> LINE ONE
>   LINE TWO
>       LINE SIX
>        LINE SEVEN
>         LINE EIGHT
>          LINE NINE
```

4.10 UPDATE *n*

This command is used to make changes to existing lines in the work space. The user makes the necessary corrections to lines displayed on the screen, and then tabs the cursor to the UPD keyword on the top line. If the entire screen is to be updated, the transmit key can be depressed immediately. If only the top *n* lines are to be updated, then the number of lines must be typed after the keyword.

When making corrections to lines on the screen, the user must ensure that there is no erasing or typing over the start of entry character ($\triangleright$) at the start of each line. This character is protected to prevent it from being accidentally erased.

Only those columns of the lines which are displayed on the screen can be updated. The updated portion of the line overlays the original data without changing the surrounding columns which were not displayed on the screen.

4.11 SEARCH

This command may be used to locate a line containing a known character string. The lines in the workspace are searched for the first occurrence of the user-specified search string. The search begins at the second line on the display and continues until the string is found or all remaining lines in the work space have been searched.

The user may direct RSP to only search specific columns of each line by including a column range consisting of two column numbers separated by a hyphen. If a column range is omitted, entire lines will be searched.

To enter this command the user must clear the top line of the display and enter the string to be located, enclosed in apostrophes. If an apostrophe is part of the string to be found, two consecutive apostrophes must be entered. The string may optionally be followed by the line range described in the preceding paragraph.

RSP always begins searches at the current line number plus one - the second line on the screen. If the entire work space is to be searched the user must first reposition the display to line one before issuing the search.

DOCUMENT NO.	TITLE	PAGE REV.	PAGE

Samples:

      '0432'   1-20
      'BILL''S'
      'BILL''S'   20-157

For example:

    ▷ 'EIGHT'

```
▷CMD    >UP    >DO    >RI    >LE    >DEL    >INS  >UPD   >12353.102
▷2345678901234567890123456789012345678901234567 8901234567890
▷           LINE EIGHT
▷            LINE NINE
▷             LINE TEN
▷              LINE ELEVEN
▷               LINE TWELVE
▷                LINE THIRTEEN
▷                 LINE FOURTEEN
▷                  LINE FIFTEEN
▷                   LINE SIXTEEN
▷                    LINE SEVENTEEN
```

5 SPOOL FILE DESCRIPTOR SCREEN

Whenever the user accesses the system Spool file, he must specify a number of parameters to describe the spooled element. This section describes the format of the screen used to obtain these parameters. This screen is a fill-in-the-blank protected format display. The user need only supply as much information as is needed to uniquely describe the spooled element; other fields may be left alone. When an ENTER function is being performed, the Label field or the job name and LFD fields must be specified. Fields which may be specified by the user are displayed as underlines(_). If the user does not wish to specify a field, it should be left as underlines. When retrieving Spool files, RSP will get the first file which matches the specified fields. Unspecified fields will not be considered when testing for a match, and thus may have any value when retrieved. To enable the user to ensure that he gets the correct file, the description of the located file will be displayed to the user. The user will then have the option of processing the file, looking for another one, or returning to RSP major frame command mode.

5.1 SPOOL FILE FIELD DESCRIPTIONS

This section will briefly describe each of the fields, and their origins (see Table 5-1), which the user may specify.

Table 5-1   Spool Fields

Field	Length	Origin	Use
Job name	8	Job card	Input/Output/JCS
Account	4	Job card	Output
LFD	8	// LFD	Input/Output
Label	17	// LBL	Input/Output
Type	6		Input/Output/JCS
Step	2	Job stepno	Output
Program	6	// EXEC	Output
Job number	5	Job control	Output
Held	1	// SPL	Input/Output/JCS
All	1		Release/Delete

The format of a Spool file descriptor screen is given.

```
FILL IN ALL KNOWN FIELDS - LEAVE OTHERS BLANK
JOB NAME  _____  ACCOUNT  ____  PROGRAM  _____  STEP  __
LFD  _____  LABEL  _____  TYPE  _____
JOB NUMBER  _____  HELD?(Y/N)  _  ALL(Y/N)  _  TRANSMIT  -
```

5.1.1 Job Name

This field is the 8-character job name as it appeared on the job card of the batch job which produced the output. For an input file, this is the name of the job which will read the input file.

5.1.2 Account Number

This field is the 4-character account number as it appeared on the job card (positional parameter 8). It has no meaning for input files. This field must be specified to recover a Spool file which was created with an account number. This requirement allows the batch user to restrict access to the Spool files by adding an account number to the job card.

5.1.3 LFD

This field is the 8-character logical file name that appeared on the LFD card in the job control of the job which created this file. For an input file this must match the LFD of the job which reads the file.

5.1.4 Label

This field is the 17-character label that appeared on the LBL card in job control. For an input file this parameter may be used instead of the job name and LFD. However, the job which reads the file must specify it accordingly.

5.1.5 Type

This field specifies the file type of the Spool file to be retrieved or created. The allowable values are:

    PRINT — print file
    PUNCH — punch file
    READER — input file
    JCS — job control file
    LOG — job log file
    RBPPR — remote batch print file
    RBPPU — remote batch punch file

If omitted, PRINT is assumed.

5.1.6 Step

This field specifies the job step number of the job that created the output file. It is ignored for input files.

5.1.7 Program

This field specifies the 6-character name of the program which created this output file. It is ignored for input files.

5.1.8 Job Number

This field specifies the unique job number of the batch job. The number is assigned by job control and is printed in the job log.

5.1.9 Held

This field indicates whether or not the Spool file is in a held state. The default option is N (non-held file). This field must be specified correctly to retrieve a file. A held file can only be retrieved if Y is specified; a non-held file only if N is specified.

An output file will be held if the job control card // SPL HOLD is included in the DVC-LFD sequence for the file or if the // SPL RETAIN card is included and the file has already been printed (punched). Input files must not be held if they are to be accessed by a batch job.

5.1.10 All

This field indicates that all steps of this job are to be released or deleted. The default value is N. This field has no meaning for RETRIEVE, or BUILD; it is only used by RELEASE and DELETE.

5.2 USER OPTIONS

If a Spool file is found which matches the specified parameters, RSP displays a description of the located file which consists of the unspecified fields being filled in. After this, the following message is displayed to the user:

▷ CONTINUE? PROCESS? STOP?

The user may specify one of the three options by tabbing the cursor to the desired location or he may define a new search criterion and tab to the transmit option.

5.2.1 CONTINUE Option

If CONTINUE is selected, RSP will ignore the file just found and search for another file fitting the originally specified parameters. This option is useful when there are several jobs under the same name or account number, or the user does not know the exact name of the job, or when the same job has been run more than once.

Note that each time a file is breakpointed, a new file is created. Thus, each section of a breakpointed file will be found separately during CONTINUE processing. However, the RETRIEVE function of RSP will transfer the entire file, starting with the last segment found, ignoring all subsequent breakpoints.

5.2.2 PROCESS Option

This option is used when the user has found the desired Spool file. Upon receipt of the PROCESS option, RSP will continue with the major frame command entered by the user. This command must have been one of RELEASE, DELETE or RETRIEVE.

5.2.3 STOP Option

This option is used when the user decides not to process any of the files found or does not wish to complete the major frame operation. The user is returned to major frame command mode.

5.2.4 TRANSMIT Option

This option is used when the user decides to modify the Spool file search criteria. To do so, the changes are made to the parameters on the screen. If a field is to be removed, at least the first character must be replaced with an underline. When the changes are made, the cursor is tabbed to the TRANSMIT location and the transmit key is depressed.

5.2.5 Sample Spool File Scanning Sequence

If the user has selected the RETRIEVE option from major frame command mode, the following screen will be displayed.

```
FILL IN ALL KNOWN FIELDS - LEAVE OTHERS BLANK
JOB NAME   _____   ACCOUNT   ____   PROGRAM   _____   STEP   __
LFD   _____   LABEL   _____   TYPE   _____
JOB NUMBER   _____   HELD?(Y/N)   _   ALL(Y/N) _ TRANSMIT  -
```

The user fills in those fields which describe the job and transmits the entire screen.

```
FILL IN ALL KNOWN FIELDS - LEAVE OTHERS BLANK
JOB NAME  ASMTEST_   ACCOUNT  MINE  PROGRAM  _____  STEP  __
LFD  PRNTR___  LABEL  _____  TYPE PRINT_
JOB NUMBER  _____  HELD?(Y/N)  Y  ALL(Y/N) _ TRANSMIT -
```

If RSP cannot locate a Spool file fitting that description, it will display the following message and return to major frame command mode.

SPOOL FILE NOT FOUND — COMMAND IGNORED

If RSP finds one or more Spool files, it fills in the remaining fields to describe the file found:

```
DESCRIPTION OF SPOOL FILE FOUND:
JOB NAME  ASMTEST_   ACCOUNT  MINE  PROGRAM  ASM00000  STEP  01
LFD  PRNTR___  LABEL  ASMTESTPRNTR_____  TYPE PRINT_
JOB NUMBER  00053  HELD?(Y/N)  Y  ALL(Y/N) N TRANSMIT -

▶  CONTINUE?  PROCESS?  STOP?
```

If the user selects CONTINUE, RSP will search for another print file fitting the original description. If none are found, the "not found" message will be displayed and the user is returned to major frame mode. If it is found, RSP fills in the identifying fields:

```
DESCRIPTION OF SPOOL FILE FOUND:
JOB NAME  ASMTEST_   ACCOUNT  MINE  PROGRAM  LNKEDTOO  STEP  02
LFD  PRNTR___  LABEL  ASMTESTPRNTR_____  TYPE PRNTR_
JOB NUMBER  00053  HELD?(Y/N)  Y  ALL(Y/N) N TRANSMIT -

▶  CONTINUE?  PROCESS?  STOP?
```

If the user selects STOP, control is returned to major frame command mode. If the user selects PROCESS, the command originally specified in major frame mode (RETRIEVE, DELETE, RELEASE) is carried out. DELETE and RELEASE will return the user to major frame mode; RETRIEVE will put the user in display mode so that the Spool file in the RSP work space can be examined.

If, at this point, the user could decide that the original Spool file description should be modified, the user may do so by changing the Spool file descriptor and transmitting:

```
FILL IN ALL KNOWN FIELDS - LEAVE OTHERS BLANK
JOB NAME   ASMTEST1  ACCOUNT   MINE   PROGRAM  LIBS0000  STEP  __
LFD   PUNCH___   LABEL  _____  TYPE PUNCH_
JOB NUMBER _____  HELD?(Y/N)  Y  ALL(Y/N) _ TRANSMIT -
```

The above process may be repeated until the user selects PROCESS or STOP, or until RSP is not able to find a Spool file.

6 OS/3 SPOOLING OPERATIONAL DESCRIPTION

6.1 SPOOLING

Printed and punched output on OS/3 is directed to a disk file (when spooling is configured) for subsequent printing or punching by system symbionts (output writers). The Spool file is divided into subdirectories of the various types of information spooled (print, punch, reader, log, JCS, remote print, remote punch) and within each subdirectory are Spool files defined for each job step. A Spool file is determined uniquely by a number of parameters. For an output file, these include job name, program name, job step number, job number, LFD name, LBL name, spooled device type, account number, and output form name. The printout of each step of a job forms a new Spool file. Also, printing directed to different print devices (i.e., // DVC 20 // LFD PRINT1 and // DVC 21 // LFD PRINT2) will be spooled to separate Spool files. Similarly, punched output will be directed to its own Spool file. The Log file contains the job accounting information for a job. Thus, a three-step job with only one printer allocated to it would have four Spool files associated with it: one for the log and one print file for each job step. Input Spool files are created by the input reader symbiont. Each time an Input Spool file is created, it is added to any existing input files. Duplicate names may exist in the Spool file. The identification for an input file is taken from the // DATA card. This file-id must match the LBL card for the job reading the input data.

6.2 OUTPUT WRITERS

Output writers read Spool files from the system spool disk and print or punch the file. Once a file is printed or punched, it is deleted from the Spool file, unless the job creating it specified that it be retained after processing. If operating in burst mode, each Spool file will be printed as soon as it is completed, even though the job may not yet be finished. However, in non-burst mode, Spool files for a given job are only printed after the log associated with that job is printed. Thus, no part of a job is printed until the job is completed.

6.3 IMPLICATIONS FOR RSP USERS

RSP has the ability to retrieve held or non-held files. Files which are non-held will be printed by an output writer when the job is completed. Hence, RSP can only access non-held files while the job that created them is running, or while the files are queued to be printed by an output writer. Files may remain queued while other jobs print and no printer is available.

Files which are created by RSP will never be printed without operator intervention if the system is operating in non-burst mode. This is because there will be no Log file associated with these Print files. To print these, the operator must load an output writer in burst mode. If there are uncompleted jobs executing at that time, the operator should specify spooling criteria to the output writer when it is loaded.

6.4 USE OF THE JCS SPOOL SUBDIRECTORY

Job control may be written to the JCS subdirectory.[1] These jobs may be subsequently executed by the operator. To do so, he types RV at the console. This causes the run processor to search the Spool file for a job to run. The terminal user may also run these jobs by issuing the BEM /RUN command without an operand. Jobs written into the JCS subdirectory *must* be built with HELD set to N.

6.5 USE OF REMOTE BATCH SUBDIRECTORY

Files written to the remote batch queues (RBPPR and RBPPU)[1] may be accessed by a remote batch processor and printed or punched at a remote site.

6.6 USE OF THE READER SUBDIRECTORY

Files written to the reader subdirectory may be accessed by OS/3 batch jobs. To the batch job, these files appear as if they have been created with an OS/3 input reader. A batch job may access multiple reader files sequentially if each one is read to end of file. The Reader file must exist when the card reader is opened or the program will receive an RDFCB error code.

6.7 SPOOLING GENERATION AND RSP

The system administrator of a site using RSP should be aware of the impact that spooling generation has on the RSP user. The level of spooling support is specified at system generation time and allows the installer to generate either 3,4 or all 7 spool queues (sub files). The table below summarizes the relevant spooling generation parameters and how they effect RSP.

Spooling Option	Speed Subfiles accessible under RSP
SPOOLING=OUTPUT	PRINT,PUNCH,LOG
SPOOLING=INPUT	PRINT,PUNCH,LOG,READER
SPOOLING=REMOTE	PRINT,PUNCH,LOG,READER,JCS,RBPPR,RBPPU

Thus if users are to put job control into the JCS subfile for use with the /RUN command, SPOOLING=REMOTE should be specified.

---

[1] The JCS and remote batch queues are not available unless specified during OS/3 SYSGEN.

7 BEM OPERATION

7.1 INTRODUCTION

This section instructs the novice user on how to use BEM and how to execute RSP in particular. The purpose of this section is to explain commands available to the terminal user; how to initiate a session, execute and monitor application programs, and terminate the session. For details on how to configure BEM, console operation, etc., the user should consult the *BEM — OS/3 Basic Editor Monitor, User Reference* UA-0139.

To use BEM, the user must locate a free terminal and log on. Logging on consists of entering the LOGON command, together with a user-id, account-number, and password. This user-id is used for identification by the console operator, the account number is used for billing purposes, and the password for security; each is one to four characters long, and either of the last two may be omitted depending on conditions at your site. When the LOGON command is accepted, BEM will display the log-on bulletin and inform the user it is ready to process requests. The log-on bulletin is built by the administrator and may contain messages to inform the users of resource availability or system status.

The administrator may also assign a default file to each user's account, and place certain restrictions on command and file usage. If the user wishes to use the default file, the file and volume names should be omitted from the command which references the file. If a user is informed that he cannot access a certain file, or is not permitted to write to a certain file, the system administrator will need to be contacted to remove the restriction.

Once logged on, the user is placed in monitor mode and may enter any monitor command. To identify monitor mode, BEM presents the UNISCOPE start of entry (SOE) character, followed by a slash (/). All monitor commands begin with the slash, but if the user does not erase the screen, the slash is supplied by BEM.

Several commands may be entered while in command mode. The HELP command functions identically to the RSP HELP command. TYPE allows the user to send a message or question to the computer console. Three STATUS commands are provided, one to list users of BEM, another to list OS/3 resources available and those in use, and the last gives information about the user's own terminal.

The EXECUTE command is used to load and run BEM application programs such as RSP, BASIC, and EDT. The program is located and loaded, and any additional storage (memory or disk) requests for that program are processed. Once loaded, the program is in control of the user's terminal and all key-ins and responses are controlled by it.

While a program is processing, BEM provides a method to interrupt it and return control to the monitor. To interrupt a program, the user depresses the MESSAGE-WAITING key or transmits something.

PAGE	PAGE REV.	TITLE	DOCUMENT NO.

A program may only be interrupted when it is active. If it is awaiting input, the program provides its own way to exit to the monitor; for example, the BREAK command may be used to interrupt RSP.

At the end of a session the LOGOFF command is used to release all storage that has been acquired during the session. To begin a session after LOGOFF has been processed, the next user must LOGON again.

7.2 COMMAND FORMAT

All BEM commands begin with a slash (/), and are immediately followed by the command keyword. The slash is normally provided by BEM, but it must be entered if the user has altered the screen, or is operating a non-video terminal. Commands may be abbreviated by typing at least those characters which are underlined.

7.2.1 LOGON Command

The LOGON command is used to begin a BEM session. The "id" used may be one to four characters and is determined at the user site.

Format

/LOGON   user-id,[account-id],[password]

7.2.2 HELP Command

The HELP command allows the user to obtain additional information or explanation about an error or status message which has been displayed. The HELP command should be entered immediately after the message requiring explanation, since the command always relates to the message immediately preceding the HELP query.

Format

/HELP

7.2.3 TYPE Command

The TYPE command is used to send a message or question to the console operator. All characters following the command keyword are sent to the computer console. Up to 52 characters may be sent.

Format

/TYPE   comment

7.2.4 PAUSE Command

The PAUSE command is used to send a question to the console operator. It is different from the type command in that the user's task is suspended until the operator replies to the messages.

Format

/PAUSE   *question*

7.2.5 STATUS Command

Three formats of this command are available. The first will display information concerning terminals on the system. The second format will display information about OS/3 resources in use by BEM. Lastly, information about the user's own terminal may be obtained.

Format 1

/STATUS   TERM

Output Format 1:

TERMINAL	COMMAND	PROGRAM	SCRATCH SPACE	ID
nnnn	ccccc	ppppp	sss	uuuu
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.

where

nnn	Terminal name in the form T*l*t0 where *l* is the line number and *t* is the terminal number.
ccccc	Last system command issued at this terminal.
ppppp	Last program executed at this terminal.
sss	Number of disk scratch space cylinders acquired by this terminal.
uuuu	User's identification code.

Format 2

/STATUS RESOURCE

Output Format 2:

		----------------MEMORY----------------			-----SCRATCH-----	
TASKS	TERMS	MAX	AVAIL	FREE	MAX	FREE
nnn	ttt	mmmmm	aaaaa	fffff	sss	ddd

where

nnn	Total number of tasks which may be active at one time; the maximum number of terminals which may be logged on the system.
ttt	Number of terminals currently logged on.
mmmmm	Amount of storage, in bytes, allocated to the entire BEM system as obtained from the job card.
aaaaa	Total amount of storage, in bytes, available for allocation to users and program areas.
fffff	Current amount of storage, in bytes, which is free to be allocated.
sss	Total number of disk cylinders available for allocation to users and programs.
ddd	Current number of disk cylinders that are to be allocated.

The third STATUS option will display the user's id, terminal number, logon time, current date, and wall-clock time.

Format 3

/STATUS

Output Format 3:

TERMINAL	USER	LOGON	DATE	CUR-TIME
E001	PROC	09:07	78/02/17	09:08:20

7.2.6 EXECUTE Command

This command is used to invoke application programs. Sufficient memory and disk space must be available for loading a successful completion.

Format

  /EXECUTE *program*

Programming Note

  Programs which may be executed are RSP, EDT, and BASIC.

7.2.7 LOGOFF Command

The LOGOFF command is used to terminate a session. All work areas assigned to the user are released.

Format

  /LOGOFF

7.2.8 FSTATUS Command

To obtain a directory listing of an OS/3 library file at the terminal, the file status (FSTATUS) command may be used. This command will display the name of each source, proc, object or load module, together with the type of each module. An alternate form of this command, (LONG), displays the additional information about each module.

Format

  /FSTATUS   *library* [*(password)*] [*,volume*]   [LONG]

where

  library   Name of the file which is to be listed.

  password   Read password for the file. It must be supplied with the command if the file was cataloged with a password.

  volume   Name of the disk pack on which the file resides. If the file has been cataloged with a volume name, this parameter may be omitted.

  LONG   The alternate format of the command is to be used to display the comment, creation date, and time for each module.

PAGE	PAGE REV.	TITLE	DOCUMENT NO.

This command will produce output similar to this example:

```
P-SUPEQU        P-EOJ          S-SRCMOD       S-COPYMOD
S-COBOLPRG      P-CLOSE        O-OBJMOD       L-LODMOD00
```

To obtain a directory listing of the default file for an account (if one exists), enter the command without any operands.

The LONG format of the FSTATUS command produces output similar to:

```
P-SUPEQU        SUPERVISOR EQUATES           02/05/78        12:15
P-EOJ           END OF JOB PROC              01/31/77        02:59
S-SRCMOD        COBOL PROGRAM                07/14/77        14:20
S-COPYMOD       COBOL COPY MODULE            07/14/77        14:35
S-COBOLPRG                                   07/14/77        15:05
P-CLOSE         CLOSE THE FILE               01/28/77        22:06
O-LOAD          PROGRAM TO SAVE FILE         09/15/78        08:15
L-LOADMOD       PROGRAM TO SAVE FILE         09/15/78        08:17
```

If the LONG format is used with the default file, a single comma must precede LONG:

/FSTAT , LONG

7.2.9 PRINT and PUNCH Commands

These two commands may be used to produce a printed listing of a module, or a punched card deck. The PRINT command will list a module on the system printer. A heading identifying the user and line numbers are also produced. The PUNCH command will punch the named module on the system punch. Identifier cards are punched preceding and following each deck to give the user's task information.

Format

/PRINT *element, file*[(*password*)], [*volume*] [,*type*]
/PUNCH *element, file* [(*password*)], [*volume*] [,*type*]

where

element	Name of the module to be printed or punched.
file	Name of the OS/3 library file which contains the element.
password	Read password for the file. It must be included in the command if the file has been cataloged with a password.
volume	Name of the disk pack on which the file resides. If the file has been cataloged with a volume name, this parameter may be omitted.
type	Element-type of the module. An "S" denotes source, a "P" denotes proc. If this is omitted, source is assumed.

7.2.10 DELETE Command

This command may be used to delete an element from a library file. Any macro proc, source, object, load element or group header may be deleted.

Format

/DELETE *element, file* [(*password*)],[*volume*] [,*type*]

where

element	Name of the module to be deleted.
file	Name of the OS/3 library file which contains the element.
password	Write password for the file. It must be included in the command if the file has been cataloged with a password.
volume	Name of the disk pack on which the file resides. If the file has been cataloged with a volume name, this parameter may be omitted.
type	Element type of the module:

S   Source
P   Proc
M   Macro
O   Object
L   Load
G   Group header

If this is omitted, source is assumed.

NOTE: Type G specifies that only group headers (BOG and EOG markers) be deleted, not the entire group.

7.2.11 RUN Command

This command will schedule a batch OS/3 job. If a job name is specified the job control is assumed to be stored in the system Job Control file (YJCS). If the name is omitted, the job control is assumed to be in the JCS queue of the system Spool file.

Format

/RUN [*jobname*]

Example:

/RUN LISTLIB
/RU

When a job is scheduled via BEM, the user will not be notified of its actual initiation or termination. The DISPLAY JOBS command may be used at the terminal to monitor the execution of a batch job.

> NOTE: The RUN command is an optional feature of BEM and may not be available at your site due to operating procedures.

7.2.12 DISPLAY Command

The DISPLAY command gives information about OS/3 system usage. This command takes two forms:

- Information about batch jobs
- List of disk volumes currently mounted

Information about batch jobs may be obtained using the JOBS display option.

/DISPLAY   JOBS

Example:

JOB NAME	SIZE	TIME	STEP	EXEC	JOB NO.
BEM	044986	13.2	01	BEM000	0002
ASMTEST	131972	25.8	02	ASM000	0015
FREE MEMORY	004096				

where

JOB NAME   The name of each batch job currently executing.

SIZE   Amount of memory allocated to that job including program load area and job prologue in decimal.

TIME	Current elapsed CPU time for all steps of job in seconds.
STEP	Step number currently executing.
EXEC	Name of current load module.
JOB NO.	Unique job number assigned by spooling.

The unused memory entry shows total free memory at the time of the DISPLAY. Memory allocated to the supervisor, symbionts, and ICAM is not explicitly shown by the display.

A list of disk volumes on the OS/3 system may be obtained with the volumes option:

/DISPLAY VOLUMES

Example:

*OS3REL   USER01   *BEMPAK

This example shows three disk packs mounted. The two of these that are accessible to the BEM user are marked with an asterisk (*).

7.2.13 SCREEN Command

The SCREEN command is used to inform the BEM system of certain UNISCOPE characteristics or options which the user wishes to utilize.

Format

/SCREEN   [*dimension*]   , COP   ROLL   [UTS400]
                             NOCOP NOROLL

where

dimension	Size of the UNISCOPE screen; height X width, e.g., 16X64, 24X80
	For a hard copy device, the width is ignored, but the height will control the number of lines printed at a time.
COP	Indicates that all messages output by BEM are to be logged on the COP printer.
NOCOP	Messages are no longer to be logged.

ROLL   All messages displayed by BEM will be displayed at the bottom of the UNISCOPE and the screen will be scrolled up.

NOROLL   UNISCOPE screen will no longer be scrolled.

UTS400   Indicates to BEM that this is a UTS400 terminal and sets the UTS control page for correct RSP operation.

The COP option should not be used unless the device is actually present and configured or control will not be returned to the terminal. If such a problem occurs, the user should clear the terminal and issue a /SCREEN NOCOP command to restore operation.

The COP option provides the ability to obtain selected hard copy listings at the terminal. It is not intended to produce a hard copy log of all terminal transactions. Consequently, not all BEM commands will produce meaningful COP listings. To get a hard copy of an FSTATUS or DISPLAY, for instance, the user should format the screen and use the UNISCOPE terminal PRINT button.

The ROLL option truncates all output to a single line on the UNISCOPE screen and thus should not be used when longer lines need to be displayed. Two lines are always left at the bottom of the screen, however, for data entry.

7.2.14 VTOC Command

The VTOC command may be used to display the names of the files on disk volume, the name of each file on the disk will be shown, along with the number of cylinders allocated to the file, the file type and extent count. If the file is a Library file (file type=SAT), additional information is displayed showing the remaining free space in each partition of the file. This command may be issued to any disk allocated to the BEM system.

Format

/VTOC *volume-name*

Example:

/VTOC PACK22

would produce output similar to the sample below:

FILENAME	CYL.	EXTENTS	TYPE	DIRECTORY/	DATA/	B-LOAD
SAMFILE	010	01	SAM			
RANDFILE	002	01	D.A.			
LIBFILE	050	05	SAT	124/	4021/	4
VERYLONGFILENAME						
	010	02	SAT	0/	/	0

7.2.15 Disk Space Management Commands

These commands allow the user to create and erase files dynamically under BEM. As with most other BEM commands, their use may be restricted by the system administrator for certain accounts.

7.2.15.1 ALLOCATE

This command will allocate a new disk file on a specified volume. The file may be any OS/3 file type. If it is a SAT file, it may be initialized as an OS/3 library file.

Format

$$/\text{ALLOCATE} \quad type, \quad file\text{-}parameters \text{ [, INIT} = \begin{Bmatrix} \text{YES} \\ \text{NO} \end{Bmatrix} \text{ [,SIZE} = n] \text{ [,INC} = n]$$

where

type	Indicates the type of file to be allocated:
	ST — SAT (possibly a library file)
	IR — IRAM
	IS — ISAM
	DA — Direct access
	SQ — Sequential
	NI — Nonindexed
file-parameters	Valid OS/3 file description of a file which does not exist on the volume. The volume stated in the parameter list specifies where the file will be placed.
INIT	YES — Causes the SAT file to be initialized as an OS/3 library file. This is the default value for a SAT file.
	NO — The file is not initialized. This is the default value for non-SAT files.
SIZE	Initial allocation SIZE in cylinders. Default value is ten cylinders.
INC	SIZE in cylinders of any extents added when the file is extended. Default is one cylinder.

Any DA, SQ, or NI files allocated may be processed by BASIC. Any initialized SAT file may be processed as a library file by any BEM module.

7.2.15.2 SCRATCH

This command will scratch any file except system files. If the file is cataloged, its catalog entry will not be removed. The user should be careful when using this command, as once a file has been scratched, its contents are inaccessible.

Format

> /SCRATCH   *file-parameters*

where

> *file-parameters*   Description of the file to be scratched. This may not be a Y file.

7.2.16   ENTER Command

This command enters an OS/3 library file element to be executed in BEM background mode. This function is only available if it is configured by the system administrator. Tasks entered in background are executed by BEM exactly as from interactive terminals except that output is produced on the high-speed printer.

Format

> /ENTER *element,file-parameters* [,*type*]

where

> *element*   Is the name of the module to be entered.

> *file-parameters*   Is a description of the OS/3 library file which contains the element.

> *type*   Is the element-type for the module. An S denotes source, a P denotes proc. If this is omitted, source is assumed.

The ENTER facility allows users to submit an OS/3 library element containing commands and data just as they would be entered at the terminal. This element may contain one or more LOGON-LOGOFF sequences, and each task (LOGON-LOGOFF pair) may perform any functions which would be valid at the terminal. The first statement of an entered deck must be a LOGON command, and there should not be any cards between the LOGOFF and LOGON commands when several tasks are stacked in a single ENTER deck.

Decks submitted via the ENTER function are queued in the OS/3 spool file, along with background decks submitted through the card reader. These decks are then processed in a first-come first-served manner concurrently with interactive processing. The number of tasks available to process these decks is defined by the system administrator; more than one background task may be active at a time.

DOCUMENT NO.	TITLE	PAGE REV.	PAGE

Output from entered tasks is routed to the main site printers and each task's output is identified with the user-id from the LOGON statement. Invalid LOGON statements in a deck cause BEM to begin rejecting cards until a valid LOGON is found, or the end of the deck is reached. Rejected cards are printed on a separate listing.

Each time an input is expected during a background session, BEM attempts to read the next card. This card could be either a command or a line of data. It is processed just as if it had been entered from a terminal. If an error is encountered during the processing of a command, the error message is printed and processing continues with the next card; the session is not aborted. The only condition which will cause a background session to be aborted is the exhaustion of all input. This is usually due to a missing or misinterpreted LOGOFF statement, and results in the task being logged off.

Certain conditions which normally arise at a terminal have been modified for background tasks:

- CONTINUE queries are eliminated for background tasks and all output is displayed in its entirety. Normally, BEM outputs one screen of lines and suspends output until the user answers the CONTINUE query.

- OVERWRITE queries are eliminated for background tasks. If a module to be written already exists, it is deleted and a new one written automatically.

- OUT OF MEMORY conditions for background tasks are considered errors and a NO response is assumed.

- Batch tasks are treated as hard copy terminals, thus RSP is not available.

7.2.17 COMMENT Command

This command permits the user to enter comments in the comment field associated with an OS/3 library element. The element is located, and then the 30-character comment specified in the command is applied.

Format

/COMMENT *element,file-parameters* [*,type*] *comment*

where

element	Name of the OS/3 librarian format element to be commented.
file-parameters	Specifies the location of the file containing the element.
type	Specifies the element type. A P denotes proc or macro; an S or blank, source; an O, object; an L, load.

comment	A 30-character string to be used as a comment. It must be separated from the file-parameters by exactly one space. Any additional spaces are considered part of the comment.

7.2.18 BULLETIN Command

This special purpose command allows the system administrator to read, display, and change (using the WRITE keyword) the LOGON bulletin. The READ and WRITE options are restricted to privileged users only, while DISPLAY can be used by any user.

Format

$$/\text{BULLETIN} \quad \left\{ \begin{array}{l} \text{READ} \\ \text{DISPLAY} \\ \text{WRITE} \end{array} \right\}$$

where

/BULLETIN READ	Deletes the entire contents of the user's workspace and then reads the current LOGON bulletin into the workspace. This command should be issued while in EDT or RSP as a SYSTEM command to avoid losing the workspace again on entry into EDT or RSP. *NOTE: This option is equivalent to @DROP; all procs are lost.*
/BULLETIN DISPLAY	Displays the current LOGON bulletin to the terminal. This option can be invoked by any user.
/BULLETIN WRITE	Overwrites the existing LOGON bulletin with the contents of the user's workspace.

If the entire new bulletin will not fit in the maximum space reserved for LOGON bulletins, only as much as will fit is written and an error will be displayed. The user can find out how much was accepted via the BULLETIN DISPLAY function. It is allowable to write a new bulletin which is larger than the existing one, provided the maximum bulletin space limit is not exceeded. This command should be issued from EDT or RSP via a SYSTEM command.

7.2.19 RECOVER Command

This command allows the terminal user to recover OS/3 librarian elements which were unintentionally deleted. It is only effective for elements which have been deleted recently and have not been entirely removed from the file via a PAC librarian statement. It must be used carefully to ensure that the correct element is "undeleted" (there may be several to choose from).

Format

    /RECOVER   *element,file-parameter*[*,type*]

where

element	Name of the deleted modules to be recovered.
file-parameters	Location of the file containing the elements to be recovered.
type	Element type which is to be used to rebuild directory entries for the deleted element.

Once invoked, this command will begin by listing each deleted element which could possibly have the same element type specified in the command. For example, if the user attempts to recover a source module named TEST, and the file contains both source and load deleted modules, only the source modules will be shown:

    /RECOVER   TEST,MYFILE,MYPACK,S

```
1.  TEST    OS/3    TEST PROGRAM    01/30/78    12:48
2.  TEST    OS/3    TEST PROGRAM    01/30/78    14:02
3. *TEST    OS/3    TEST PROGRAM    01/30/78    15:25
```

SELECT NUMBER AND NEW NAME ▷

Each element with the name and type indicated will be displayed, with a sequence number for identification purposes. The comment field, date, and time of creation will also be shown. If an undeleted element currently exists, it too will be shown and flagged with an asterisk.

After displaying the list, the user will be asked to select an element (by number), and the name under which the recovered element is to be written. The name selected by the user must not be a name which already exists. As long as this rule is followed, the user may rename any of the modules listed including the active one; thus RECOVER may be used to rename modules too.

Continuing with this example, if the user wished to retain the active TEST element, but also recover deleted element 2, the response

▷ 2,TEST2

could be entered to recover copy 2 of TEST and rename it to TEST2. BEM will insure that another module of the same name does not already exist and generate appropriate error messages.

If, on the other hand, the user did not want the active copy of TEST (#3), but wished to restore copy two, he could rename the active copy and restore copy two via:

▷3,DUMMY
▷2,TEST

and later go back and delete element DUMMY from the file.

Each time the user renames a module, BEM will list the elements again with new numbers to avoid confusion. To end the RECOVER command, type STOP.

7.3 BATCH SUBMISSION

An optional feature available at some sites is the capability for entering card decks of BEM sessions for background execution. This feature permits access to the system when a terminal is not available.

To use the batch capability, the user need only keypunch the session from LOGON to LOGOFF, and submit it to BEM via the computer operator. The deck will be queued and executed on a first-come first-served basis.

Output from batch tasks is routed to the main site printers, and each task's output is identified with the user-id from the LOGON statement.

Batch decks are processed in a manner similar to the decks submitted via the ENTER facility. For additional details on how these decks are processed, and how errors are handled, see the description of the ENTER command (7.2.16).

APPENDIX A COMMAND SUMMARY

A.1 COMMAND SUMMARY

A.1.1 Major Frame Commands

Command	Operand	Description
READ	File params	Read from library file to RSP work space.
WRITE	File params	Write from work space to OS/3 library file.
RELEASE		Allow spooled element to be printed or punched.
DELETE		Delete a spooled element from the system Spool file.
BUILD		Transfer the work space to the system Spool file.
RETRIEVE		Transfer an element from the system Spool file to the RSP work space.
TYPE	Message	Send a message to the OS/3 system operator.
END		Terminate RSP and return to BEM system mode.
BREAK		Temporary return to BEM system mode.
HELP		Display information about previous error message.
SCREEN	Height by Width	Describe the dimensions of the user's UNISCOPE terminal.
DISPLAY		Transfer RSP to display mode.
UPPER		Informs RSP that all lower case input is to be translated to upper case.
LOWER		informs RSP that all lower case input is to be retained as is.
CLEAR		Deletes the contents of the workspace so another module may be processed.
SYSTEM	[BEM-command]	Executes a BEM command without leaving RSP.

PAGE	PAGE REV.	TITLE	DOCUMENT NO.

A.1.2 Display Mode Commands

Command	Operand	Description
CMD		Return to major frame command mode.
UP	Number of lines	Roll screen up n lines.
DO	Number of lines	Roll screen down n lines.
RI	Number of columns	Shift screen right n columns.
LE	Number of columns	Shift screen left n columns.
DE	Number of lines	Delete n lines from the work space.
INS	Number of lines	Insert n lines in the work space.
UPD	Number of lines	Update n lines in the work space.
REF		Rebuild current screen contents,
Line Number		Set the current starting line and column number and refresh the screen.
Search		Locate a line when the contents are known.

APPENDIX B   SYSTEM ERROR MESSAGES

Error messages appropriate for an interactive environment are short and self-explanatory. For additional information about an error message, the user is directed to the HELP command. The messages are categorized on a functional basis and are listed in the following table. Possible causes of each error and suggested procedures to follow in response to the error are also included. The designation to the right of the message identifies the BEM component which identified the error.

A SUBSTATEMENT OCCURRED BEFORE AN END   *BASIC*

Subprograms must occur after the main program. This means that they must be placed immediately after the END statement, or after another subprogram's SUBEND statement.

ACCESS TO PROGRAM NOT PERMITTED FOR USER ID   *BEM*

The account currently in use does not permit its users to execute the selected function or program. Use another account, or contact the system administrator to change the account's restriction.

ACCESS TO QUEUE TYPE NOT PERMITTED   *RSP*

Access to the queue type (PRINT, PUNCH, READER, LOG, JCS, RBPPU, RBPPR) is not permitted for one of two reasons. The OS/3 Supervisor has not been generated to include the appropriate level of support for the queue, or the BEM job control includes parameters to restrict access to that queue. Consult the system administrator to have the access type changed.

ACCESS TO SYSRES FILES NOT PERMITTED   *LIBRARY*

The account currently in use does not permit its users to access files on the OS/3 system pack. Use another account or contact the system administrator to change the account's restriction.

ACTIVE SUBROUTINES EXCEED 16 LEVELS   *BASIC*

A maximum of 16 levels of subprogram calls may be issued. Investigate for a possible program loop, or a recursive subprogram call.

ALLOCATE FORMAT ERROR   *BEM*

The ALLOCATE command has been entered incorrectly. The format of this command is:

$$/\text{ALLOCATE} \quad type, file, vol, [\ \text{SIZE}=n\ ]\ [\ ,\text{INC}=n\ ] \left[,\text{INIT}=\begin{Bmatrix} \text{YES} \\ \text{NO} \end{Bmatrix}\right]$$

ARGUMENT TOO LARGE FOR EXP(X) FUNCTION   *BASIC*

A value has been used with the exponential function which will produce a result greater than the largest number that the 90/30 is capable of handling. The maximum permissible value for the EXP argument is approximately 174.6.

ARRAY SUBSCRIPT OUT OF RANGE   *BASIC*

An array subscript, which is out of the range specified by the dimension statement has been detected. The subscript is either less than zero, or greater than the upper limit in the dimension statement. If no dimension statement has been used, the upper limit is 10.

ATTEMPTED TO RESET FILE BEYOND EOF OR NEGATIVE   *BASIC*

The RESET statement may not reposition the file past the end of the file pointer. The record number specified must be positive.

ATTEMPT TO TEST END OR MORE ON RANDOM FILE   *BASIC*

The IF-END or IF-MORE formats may only be used against TERMINAL format files. Check the file type referenced by this statement.

BAD FORMAT — TRY AGAIN   *RSP*

The user has transmitted something other than the preformatted parameter table. This may also be the result of using RSP with a UNISCOPE without the protected fields hardware option.

BASIC EDITING COMMAND UNRECOGNIZABLE   *BASIC*

Either an invalid command has been entered, or a BASIC statement has been entered without a valid line number. Valid commands are:

OLD	NEW	SAVE
RUN	PRINT	HELP
BYE	DELETE	LIST
SYSTEM	RUNOLD	

BASIC FILE NOT OPEN OR NO DATA STATEMENTS   *BASIC*

The channel number referenced by the flagged statement has not been opened by a FILE statement. Check the channel-setter for a valid file, or issue a FILE statement for the channel to be used. This error can also result when READ statements are issued and no DATA statements are present.

BASIC SOURCE LINES OUT OF ORDER   *BASIC*

The lines of source in a BASIC program read in by a RUNOLD or CHAIN statement are not in order by line number. This is mandatory. Do an OLD against the program and then SAVE it.

BEM POINTERS DO NOT AGREE WITH WORKSPACE   *WORKSPACE*

The workspace access routines have detected a problem with the in-core and disk pointers. This could have been caused by a previous I/O error, or a modification of the disk by an external source. If the error persists, the user may be forced to halt the current program and reexecute it.

BULLETIN LOCKED — RETRY LATER   *BEM*

The bulletin cannot be updated because another user is currently accessing it. Wait until the other user finishes and retry the command. The system administrator should discourage the updating of the bulletin by multiple users.

CHAIN ERROR — INVALID NAME OR PASSING BAD FILE   *BASIC*

There are two possible causes for this error. The Library element specified in the CHAIN statement does not exist, or one of the channel numbers of files to be passed to the next program segment is invalid.

CHANGE ERROR   *BASIC*

The CHANGE operation specified by the flagged statement is not valid. Possible causes of this error are an invalid vector or vector size, invalid BIT expression, or invalid string result, or invalid value encountered during conversion.

CHANNEL NUMBER INVALID IN FILE STATEMENT   *BASIC*

The channel-setter used in the FILE statement results in a channel number which is not in the range 1 to 4095. Channel zero cannot be defined by a FILE statement.

COMMAND CANNOT BE USED AT THIS TIME   *BEM*

A PRINT, PUNCH, DELETE, or FSTATUS command was issued while an active program had been interrupted. The active program was accessing a file at the time of interruption. Allow the interrupted command to complete (RESUME) and then retry the command.

COMMAND KEYWORD OMITTED   *EDT*

An operand has been entered for which there is no command function. For example, the file parameters have been used without the specification READ or WRITE.

COMMAND TERMINATED   *EDT*

The EDT command which was active when the user issued a /INTR or DISCONTINUE command has been terminated. Informational message only.

CONTINUE? (Y OR N)   *ALL*

BEM has displayed a full screen or page and has additional output for the terminal. When ready, the user may respond with a Y to see additional displays, or an N to terminate the display and the command. A response other than Y or N will result in the CONTINUE message being displayed again.

COPY WITH NUMBER OPTION INVALID   *EDT*

The COPY command may not be used with the NUMBER command.

DEF MUST PRECEDE REFERENCE IF LOCALS ARE USED   *BASIC*

When local variables are used in a multiline user function, the definition must occur at a lower numbered line than the first reference to that function. Move the function definition and rerun.

DESEQ OPTION ONLY ALLOWED WITH READ   *EDT*

The DESEQUENCE option is only meaningful when used with the EDT READ command; in all other cases its use is treated as an error.

DEVICE UNAVAILABLE AT THIS TIME   *BEM*

The printer or punch is not configured and may not be used. Contact the system administrator to have the printer or punch configured.

DIMENSIONS INCONSISTENT IN SUB CALL   *BASIC*

The type of variables used in the SUB and CALL lines differ. Either a scalar variable was used where an array was expected, or the number of subscripts on the SUB and CALL lines differ.

DISPLAY COMMAND PARAMETER ERROR   *BEM*

The DISPLAY command has been entered incorrectly. Valid options are:

$$/\text{DISPLAY} \quad \begin{Bmatrix} \text{JOBS} \\ \text{VOLUMES} \end{Bmatrix}$$

DIVISION BY ZERO, EXECUTION CONTINUES   *BASIC*

The program has attempted a division by zero. The algebraic result of division by zero is undefined; however, execution continues using a high value.

EDT VARIABLE AREA NOT AVAILABLE   *EDT*

There is currently insufficient storage available to use EDT variables.

ELEMENT/GROUP NOT FOUND   *BEM*

The element or group specified in the DELETE command could not be found. Check the spelling of the name and check the names in the file via FSTATUS.

ELEMENT IS NOT IN THE LIBRARY FILE   *LIBRARY*

The program requested by the command is not in the file specified. Check the spelling of the program name and verify that the program is on the file. Also, be sure the correct module type has been used (P for PROCs).

ELEMENT NUMBER DOES NOT EXIST, RE-ENTER ▷   *BEM*

The user did not select one of the numbers listed by the RECOVER command. Only those elements identified with a number in the left margin may be recovered. Reenter the correct number and the new module name.

END OF FILE ON INPUT OR LINPUT   *BASIC*

The program has issued an INPUT or LINPUT statement which attempted to read more records than were in the file. Investigate the program logic to determine why too many records are being read.

END STATEMENT IS MISSING OR MISPLACED   *BASIC*

All BASIC programs must have an END statement as the last line. Insert an END statement and rerun.

ENTER ELEMENT NUMBER, NEWNAME OR "STOP" ▷   *BEM*

The RECOVER command has presented a list of elements which could be recovered. Select one by specifying its number, and a new name for it. Other possible responses at this point are STOP to terminate the command, or HELP to obtain additional information.

ENTER FILE NAME   *BASIC*

The user has entered a SAVE, OLD, or RUNOLD statement without specifying a file name. Supply the name in response to this message.

ENTER FUNCTION NOT CONFIGURED   *BEM*

The system administrator has not elected to make the ENTER command available at your site. Contact the administrator to have the function installed. This error may also be the result of not having OS/3 Spooling configured, or not having any spooled Input Readers.

ERROR IN READING CARDS/ENTER STREAM, USER CANCELLED   *BEM*

A fatal I/O error has occurred while reading cards from a batch stream or enter file. The batch is discarded and the user is cancelled.

ERROR IN READING SCRATCH SPACE   *WORKSPACE*

An I/O error has occurred while reading from the work area. Retry input or investigate for possible hardware problem.

ERROR IN READING SCRATCH SPACE INDEX   *WORKSPACE*

An I/O error has occurred while reading the work area index. Retry input or investigate for possible hardware problem.

ERROR IN SOURCE — RESEQUENCE TERMINATED   *BASIC*

One or more of the source statements read in by an OLD command with errors have not been corrected. Only valid programs in the workspace may be resequenced. This error indicates that there is at least one statement which is not syntactically correct.

ERROR ON READ FROM FILE (INVALID NUMBER)   *BASIC*

A READ statement attempted to read a numeric variable. The record which was read did not contain numeric data.

ERROR PROCESSING USER FILE LABELS   *FILES*

The file being accessed contains user file labels. These cannot be processed by BEM.

ERROR WHILE WRITING INTO SCRATCH SPACE   *WORKSPACE*

An I/O error has occurred while writing to the work area. Retry input or investigate for possible hardware problem.

EXPONENT OVERFLOW, EXECUTION CONTINUES   *BASIC*

The result (or intermediate result) of a computation has exceeded the largest number the 90/30 is capable of handling. This number is approximately 10^{75}. Machine infinity is supplied and execution continued.

EXPONENT UNDERFLOW, EXECUTION CONTINUES   *BASIC*

The result (or intermediate result) of a computation is less than the smallest number the 90/30 is capable of handling. The number is approximately 10^{-78}. Zero is supplied and execution continued.

EXPONENTIATION ERROR   *BASIC*

Invalid operands were used with the A**B or A↑B function. This error can occur if "A" is negative and "B" is not an integer between 1 and 15 or -1 and -15.

EXPRESSION OUT OF COMPUTED GOTO RANGE   *BASIC*

The calculated expression is not a valid number for this computed GOTO. It is either too large or nonpositive. The count of line numbers in the statement determines the largest value the expression may have.

FILE ACCESS HAS BEEN TERMINATED BY USER   *LIBRARY*

This indicates that a file access has been terminated when the user did not wish to wait on a FILE IS IN USE message.

FILE ALREADY EXISTS ON VOLUME   *BEM*

The user is attempting to allocate a file which already exists on the specified volume.

FILE DOES NOT HAVE VALID "ENDLIB"   *LIBRARY*

While searching the directory of the file, BEM could not find the ENDLIB marker. The file's integrity is in question. A possible solution would be to copy all elements to another file, then scratch and rebuild the original file.

FILE IS EMPTY — ENDLIB MISSING   *LIBRARY*

The user has attempted to access an empty library file. Initialize the file with the Librarian in order to use it with BEM.

FILE IS IN USE, PLEASE WAIT   *LIBRARY/FILES*

Another user is accessing the file. After his command completes, yours will begin. If you don't wish to wait, interrupt the system.

FILE IS NOT AN OS/3 LIBRARY FILE   *LIBRARY*

The file specified by the command is not a library file, or has not been initialized by the librarian. Have the system administrator prepare the file, and be sure you are using the correct file.

FILE PARAMETERS DO NOT FOLLOW "FSTATUS"   *BEM*

The FSTATUS command requires file parameters in the format:

filename (password), volume

FILE PARAMETER FORMAT ERROR   *LIBRARY/FILES*

The file parameters given for a file-access function are not valid. The maximum length for each parameter is: name, 8; filename, 44; password, 6; volume, 6. If a module type has been supplied, it must be S, P, or M.

FILE REQUESTED IS NOT ON DISC VOLUME   *LIBRARY/FILES*

The filename requested is not on the volume specified. Check the spelling of the filename or verify that the file is on the volume.

FILE STATEMENT INVALID FOR # 0   *BASIC*

The channel-setter specified with the FILE statement results in a value of zero. Channel zero, the terminal, cannot be defined by a FILE statement.

"FNEND" FOUND WITHOUT FUNCTION DEFINITION   *BASIC*

The FNEND statement was detected, but it was not at the end of a function. Remove the statement or place it in the correct location and rerun.

"FNEND" STATEMENT MISSING   *BASIC*

A user-defined multiline function exists in the program without a closing FNEND statement. Locate the function and insert the FNEND statement.

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FUNCTION ASSIGN DOES NOT MATCH FUNCTION NAME *BASIC*

The name of the function being assigned differs from the name of the function in which it appears. Only the function being defined may be assigned a value.

FUNCTION ASSIGNMENT MUST APPEAR WITHIN FUNCTION *BASIC*

A value must be assigned to a multiline function before the FNEND statement. The function value may not be assigned outside the body of the function.

FUNCTION DEF MUST PRECEDE USE IN "CALL" *BASIC*

In order for a user function to be passed to a subprogram, it must be defined. Move the definition into lower-numbered lines before the CALL.

FUNCTION DEFINITION WITHIN A FUNCTION *BASIC*

BASIC has detected a function within the body of another function definition. Check for a missing FNEND statement or restructure the function.

FUNCTION EXPECTED IN CALL OR SUB LINE *BASIC*

A previous CALL statement passed a function reference. This CALL did not pass a function. The parameter types must be the same. Resolve the conflict and rerun the program.

FUNCTION HAS NOT BEEN DEFINED *BASIC*

The function referenced on the line in error has not been defined. Define the function or remove the reference to it and rerun.

GIVEN LINE EXCEEDS 80 CHARACTERS WHEN RESEQUENCED *BASIC*

The line shown, when resequenced, is larger than 80 characters. This is an informational message, in that the complete resequenced line is written out, and can be modified by EDT, but if the program is later read in by BASIC, it will be flagged with an error for being over 80 characters in length.

GOTO INTO OR OUT OF FUNCTION DEFINITION *BASIC*

A function may not reference program lines which do not occur within the body of the function, nor may statements outside the function reference lines within the function body. This applies to GOTO, GOSUB, ON, and IF statements.

ICAM ERROR (INPUT TOO LONG) RETRY *BEM*

The last message sent from the terminal to BEM did not arrive correctly; retransmit it. Any input to BEM is limited to 128 characters in length. If this error is displayed while transmitting the RSP Spool file descriptor screen, it indicates the UNISCOPE being used does not have the required protected format feature.

ILLEGAL COMBINATION — "NOT" INVALID *EDT*

If the NOT option is specified, then a search-string must also be specified and a change-string must not be specified.

ILLEGAL COMBINATION OF COMMANDS   *EDT*

Several command keywords have been entered which conflict. See Table 3-1 in UA-0141 for allowable combinations.

ILLEGAL "VAL" ARGUMENT   *BASIC*

The string passed to the VAL function did not contain a valid number. The contents of the string must be either an integer or a decimal number in scientific notation. No extra characters may be prefixed or suffixed to the number.

INCORRECT NESTING OF FOR-NEXT STATEMENTS   *BASIC*

A FOR or NEXT statement, which was not nested correctly, was detected. Possible causes are:

1. A FOR statement that has the same index as a previous FOR statement in the nest.

2. A NEXT statement that does not have the same index as the FOR statement immediately preceding it.

3. A NEXT statement that does not follow any open FOR statement.

INCONSISTENT FORMAT IN "USING" STRING   *BASIC*

The format field type does not match the type of variable being printed. Either a string was printed into a field beginning with $, + or −, or a number was printed into a field beginning with < or >.

INPUT DATA INCORRECT, RE-ENTER   *BASIC*

The data entered for an input statement does not match the variable types required by the program. The entire line must be reentered. This error message could also be caused by too much or too little data in the input response.

INSERT ERROR (DUPLICATE OR INVALID CHANGE STRING)   *EDT*

Either the keyword INSERT is preceded by a string, or it is not followed by one. The change string may also be invalid. See Section 3.1.2.4 or 3.1.1.6 of UA-0141.

INSUFFICIENT DATA TO READ   *BASIC*

All DATA statements in the program have been used, yet the program attempted to request additional data.

INSUFFICIENT INFORMATION TO CREATE SPOOL FILE   *RSP*

The minimum information required to create a Spool file was not specified on the spool descriptor screen. An input file requires either an LBL, or both a JOB NAME and an LFD.

INSUFFICIENT RESOURCES TO LOGON   *BEM*

There is not enough memory or user tasks to allow another user to log on to the system. The user should wait until another user has released storage or logged off.

INTERNAL ERROR IN LIBRARY ACCESS ROUTINE   *LIBRARY*

The library access routine within BEM has detected a logic error. Take a dump as soon as possible, save all relevant data, and consult your Sperry Univac representative.

INTERNAL ERROR IN RESEQUENCE ROUTINE   *BASIC*

A condition which should not normally exist has been detected by the resequence routines. Collect all relevant data, obtain a memory dump, and contact your local Sperry Univac customer representative.

INTERNAL ERROR IN WORKSPACE   *WORKSPACE*

An internal error has been detected by the workspace access routines in BEM. If the error persists the user may be forced to halt the current program and reexecute it.

INTERRUPTED: (C)ONT,(D)ISCONT,(S)YSTEM ▷   *BEM*

This message indicates that the user has interrupted BEM by means of the MESSAGE-WAITING key on a UNISCOPE terminal, or the BREAK key on a hardcopy terminal. The user has three options: C- will continue the interrupted operation; D- will discontinue the current operation and return to command mode; S- will temporarily suspend the current operation and allow the user to enter BEM commands; when the user wishes to resume the current operation, the /RESUME command is used.

INVALID @(LABEL) -- MISSING PAREN   *EDT*

An open parenthesis was found to start a label, but there is no closing parenthesis.

INVALID @SET COMMAND   *EDT*

An @SET command has been used with an invalid keyword parameter. The only valid keywords for use with SET command are PAGE, LINE, TABS, and CHAR. See Section 3.2.3 of UA-0141.

INVALID ASSIGN STATEMENT   *EDT*

An ASSIGN statement must be of the form:

       @ASSIGN Gn = *expression*

INVALID BLOCKSIZE OR RECORD SIZE   *FILES*

BEM cannot process the file due to a conflict with the block or record size for this file. If the file already exists, check that the block size or record size is not zero, or greater than 65K.

INVALID BULLETIN OPTION — NOT READ/WRITE/DISPLAY   *BEM*

There are only three valid bulletin functions which may be used with the BULLETIN command. These are READ, WRITE, and DISPLAY. Correct the command and retry it.

INVALID BY PARAMETER USAGE   *EDT*

The BY specification has been used without the SEQUENCE command, or the form of the parameter is not valid. See Section 3.1.1.2 of UA-0141.

INVALID CHANNEL SET EXPRESSION   *BASIC*

The channel-setter in the flagged statement resulted in a number less than zero, or greater than 4095. Channel numbers must be between 0 and 4095.

INVALID COLUMN IN TAB COMMAND   *EDT*

One of the column numbers used in a TAB command is not between 1 and 128. See Section 3.2.3 of UA-0141.

INVALID COLUMN RANGE   *EDT*

The column range specified in a replacement expression is invalid. It must be of the form:

    n:i-j

where $1 \leqslant i \leqslant j \leqslant 128$

INVALID DO OPTION   *EDT*

The DO statement has the format:

    @DO n [P]

where   n is an integer (1-9) and the optional P specifies that each command is to be printed.

INVALID EDT VARIABLE (#Gn)   *EDT*

A single number sign (#) is assumed to designate an EDT general variable. This must be followed by the letter G and a digit in the range 0-9. If a number sign is needed in the command, enter two number signs (##).

INVALID ELEMENT TYPE   *BEM*

The element type used with the /DELETE command must be one of the following:

        S-source   P-proc   M-macro
        O-object   L-load   G-group

PAGE	PAGE REV	TITLE	DOCUMENT NO.

INVALID EXPONENT FIELD IN USING STRING   *BASIC*

An exponent field must consist of exactly five up-arrows (↑) and cannot be followed by a place holder #. Correct program and rerun.

INVALID FIELD DESCRIPTOR, EXPECTING $<,>$ *BASIC*

The user program attempted to print a string variable with a numeric format. Correct the program and rerun.

INVALID FIELD DESCRIPTOR, EXPECTING $,+,—   *BASIC*

The user program attempted to print a numeric variable with a string format. Correct the program and rerun.

INVALID FORMAT FOR LOGON COMMAND   *BEM*

The LOGON command has been entered incorrectly. It must begin with the word LOGON, and is followed by one to three fields of up to four characters each. Check that none of the fields are too long, and that there is nothing entered after the third field.

INVALID ID, ACCOUNT, PASSWORD FOR LOGON   *BEM*

An unlisted id, account, and password combination has been entered; thus the user has been denied access to the system. If the fields have been entered correctly, then the account may have been removed from the system. Contact the system administrator to have the account created.

INVALID IF STATEMENT   *EDT*

An IF statement has the following format:

@IF *expression op expression COMMAND*
@IF $\begin{Bmatrix} T. \\ F. \end{Bmatrix}$ *COMMAND*

INVALID KEY LENGTH   *FILES*

Files containing keys cannot be processed by BASIC.

INVALID LINE RANGE   *BASIC*

Valid line ranges consist of single line numbers (a,b) or ranges of lines (a-b). A line number consists of a decimal number in the range 1-99,999.

INVALID LINE SET COMMAND   *EDT*

An at sign (@) alone has been entered, or the line number with the line set command is not valid. See Section 3.2.4 of UA-0141.

INVALID OR ZERO LINE NUMBER   *EDT*

A line number in an EDT variable expression must be in the form nnnn.nnnn, and must not be zero.

INVALID MAJOR FRAME COMMAND *RSP*

The user has entered a command other than one of those shown on the screen. A new screen will be presented. Valid commands are:

BREAK	END	DISPLAY	RETRIEVE
RELEASE	BUILD	DELETE	HELP
CLEAR	READ	WRITE	SCREEN
TYPE	UPPER	LOWER	SYSTEM

INVALID MARGIN SIZE *BASIC*

The margin expression specified on the flagged statement resulted in a number less than zero, or greater than 4095. This error could also have resulted from attempting to set the size of the margin greater than the limit for the file type.

INVALID NUMBER PARAMETER *EDT*

The number parameter must follow the NUMBER command, must be a valid change string, and must terminate with at least 1 but not more than 15 numeric characters. The parameter must be enclosed in apostrophes and any "or" characters in the string must be entered twice.

INVALID OR DUPLICATE CHANGE STRING *EDT*

The change-string used is not valid or two change-strings have been entered. Change-strings must begin and end with apostrophes. See Section 3.1.1.6 of UA-0141.

INVALID OR DUPLICATE COLUMN RANGE *EDT*

The column range entered is not valid, due to incorrect format, or two column ranges have been entered. See Section 3.1.1.3 of UA-0141.

INVALID OR DUPLICATE COPY-TO LOCATION *EDT*

Either two copy-to locations have been used (i.e., @ COPY 1-10 TO 11 TO 22) or the one given is not valid. The number following the word TO must be a valid line number. See Section 3.1.1.7 of UA-0141.

INVALID OR DUPLICATE LINE RANGE *EDT*

The line range entered is not valid due to incorrect format or two line ranges have been entered. See Section 3.1.1.9 of UA-0141.

INVALID OR DUPLICATE SEARCH STRING *EDT*

The search-string used is not valid or two search-strings have been entered. Strings must begin and end with quotes or apostrophes. See Section 3.1.1.8 of UA-0141.

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INVALID PROC GROUP NUMBER   *EDT*

The PROC group number must be a single digit integer in the range 1-9.

INVALID RESPONSE, ENTER NUMBER, NEWNAME   *BEM*

The user's response to the last query was incorrect. A non-zero number must be entered first, followed immediately by a comma and then the module name. No intervening spaces are permitted.

INVALID SCREEN ROLL COMMAND   *RSP*

The user has entered a command other than one of those shown on the top of the screen. A new screen will be presented. Valid commands are:

CMD	UP	DOWN
RIGHT	LEFT	DELETE
INSERT	UPDATE	REFRESH

INVALID SEARCH COMMAND   *RSP*

The search command issued to RSP is not correct. It consists of a search-string and an optional column range. The search-string must begin and end with an apostrophe. A column range is a single number, or two numbers separated by a hyphen. The number must be between 1 and 256.

INVALID SEARCH STRING   *BASIC*

A search-string consists of any character string enclosed in quotation marks. If a quote appears in the string, it must be typed as " ".

INVALID SUBSTRING EXPRESSION   *EDT*

A substring of an EDT variable is written as a starting position (s) and a length (l) enclosed in parentheses--(s,l).

where $1 \leqslant s \leqslant 50$ and $s + l \leqslant 51$

INVALID TAB EXPRESSION FOR PRINTING   *BASIC*

The argument of the TAB function was less than one.

INVALID TRIMMER IN MATRIX STATEMENT   *BASIC*

Either the trimmer specified did not result in a positive number, or the resultant array would require more storage than the original array.

INVALID VARIABLE EXPRESSION   *EDT*

An EDT variable expression must be one of:

    STRING — 'ABC'
    VARIABLE — Gn
    NUMERIC EXPRESSION — n + m, n − m, n
    LINE/COLUMN RANGE — n:i−j

I/O AREA COULD NOT BE LOCATED, RETRY   *LIBRARY*

An I/O area for the library function could not be acquired by BEM. Wait a few minutes and retry. If the problem persists, contact the system administrator to have the system memory partition enlarged.

I/O ERROR ACCESSING MESSAGE INDEX   *BEM*

An I/O error has occurred while writing to the bulletin file. Only part of the bulletin is now valid. The DISPLAY option should be used to determine that status of the bulletin, and the WRITE option may then be retried.

I/O ERROR ON WRITE TO FILE   *FILES*

An I/O error has occurred while writing the data management file. Investigate for possible hardware problem or retry the program.

I/O ERROR WHILE ACCESSING V.T.O.C.   *LIBRARY/FILES*

An I/O error has occurred while accessing the VTOC for the disk volume specified. Retry or investigate for possible hardware problem.

I/O ERROR WHILE READING CATALOG   *LIBRARY/FILES*

An I/O error has occurred while reading the catalog. Retry or investigate for possible hardware problem.

I/O ERROR WHILE READING LIBRARY FILE   *LIBRARY*

An I/O error has occurred while reading the library file. Part of the program may be missing. Retry or investigate for possible hardware problem.

I/O ERROR WHILE WRITING LIBRARY FILE   *LIBRARY*

An I/O error has occurred while writing the library file. The program has not been saved. Retry the command or investigate for possible hardware problem.

LIBRARY FILE FULL, ELEMENT NOT ADDED   *LIBRARY*

The library file has been filled and there is not enough room to write out the program. The old version, if any, is left intact. Have the file expanded or its contents compressed.

LIMIT OF 4 "LIBRARY" STATEMENTS EXCEEDED   *BASIC*

BASIC will search at most four libraries for subprograms, the program has attempted to use more than four.

LOADER AT LINE xxxxx   *BASIC*

When the error was detected, the BASIC compiler was at the line number given by xxxxx. This message is displayed in conjunction with another error message.

LOG OF A NON-POSITIVE NUMBER UNDEFINED   *BASIC*

The LOG function has encountered a nonpositive argument. The logarithm of a nonpositive number is undefined, thus execution is cancelled.

MATRIX DIMENSIONS ARE INCORRECT FOR FUNCTION   *BASIC*

The row or column dimension of the matrices in the matrix statement is incorrect. Check DIM statement for the matrices in question.

MISSING FILE PARAMETER   *EDT*

A READ or WRITE command has been entered, but the file parameters do not immediately follow the command keyword. Correct and retry.

MISSING FILE PARAMETER   *BEM*

File parameters must immediately follow the DELETE, PRINT, or PUNCH keyword and be in the format:

element, filename (password), volume, type

MODULE NOT OVERWRITTEN, COMMAND TERMINATED   *LIBRARY*

This is a confirmation message informing the user that the WRITE command was not executed. It results from a NO answer to the OVERWRITE question.

MORE THAN 29 FILES OPEN   *BASIC*

BASIC does not support the concurrent use of more than 29 temporary and library files per user. This program has exceeded the limit.

MORE THAN 4 CHARACTERS IN LABEL   *EDT*

EDT statement labels may contain no more than four characters. Correct the proc by using shorter labels.

MUST BE PRIVILEGED FOR BULL READ/WRITE   *BEM*

Only privileged users may read or write the BEM bulletin. Normally, only the system administrator will have a privileged status in the accounting file.

NEW NAME ALREADY EXISTS, RE-ENTER ▷   *BEM*

An element with the specified name already exists in the file. Select another name and retry the response.

NO DISK SCRATCH SPACE AVAILABLE   *WORKSPACE*

All the disk cylinders available to BEM have been assigned, wait and retry or contact the system administrator.

NO FORMAT STRING DEFINED IN USING STRING   *BASIC*

The user program attempted to print a variable using a format string that does not contain any valid format strings.

NO MEMORY AVAILABLE FOR FILE I/O BUFFERS   *FILE*

A memory area to store a block buffer and DTF could not be allocated for your file. Retry later and contact the system administrator if the problem persists.

NO MEMORY AVAILABLE FOR WORKSPACE BUFFERS   *WORKSPACE*

An area of memory could not be acquired for I/O buffers. Retry command when memory becomes available. If problem persists, contact system administrator to have the memory partition size increased.

NO PROC TO END   *EDT*

The @END statement was issued while no proc was active.

NO SUCH LINE NUMBER FOR A GOTO OR GOSUB OR IF-THEN   *BASIC*

The line number referenced in a GOTO, GOSUB, ON, or IF-THEN statement is not present in the program or function. Insert the required statement or remove the reference to it.

NOT A DATA MANAGEMENT FILE   *FILES*

The file being accessed is not a valid sequential or direct access file. To be valid, it must have type SQ or DA and contain a single partition.

NOT ENOUGH MEMORY IS AVAILABLE TO LOAD   *BEM*

Insufficient storage is available to load the function you are calling for. Wait and retry. If the problem persists, contact the system administrator to have the memory partition size increased.

NOTHING HAS BEEN FOUND TO RECOVER   *BEM*

The RECOVER command has searched the library for deleted modules with the same name and type as specified in your command, but could not find any. This response may indicate that the library has been packed, or that you have recovered all deleted elements and there aren't any left to display.

NULL USING STRING NOT ALLOWED   *BASIC*

The using string specified in the print statement is a null string. Define the variable and rerun.

NUMBER OF ARGUMENTS INCONSISTENT   *BASIC*

The number and type of arguments passed in the CALL statement(s) do not agree with the number and type on the SUB line.

NUMBER OF PARAMS IN FUNCTION CALL INVALID   *BASIC*

A maximum of 16 passed parameters and local variables may be specified on a function declaration line. Reduce the number of labels and rerun.

NUMBER OF SUBSCRIPTS FOR ARRAY INCORRECT   *BASIC*

The variable that caused the error has been dimensioned with a different number of subscripts than were found in the reference to it.

OPERATION NOT PERMITTED TO FILE   *BASIC*

The operation to be performed against the file conflicts with the file type.

OS/3 ALLOCATE ERROR   *BEM*

This message is returned when the ALLOCATE command receives an error status from the supervisor when trying to allocate the file. It may indicate that there is insufficient space on the disk volume.

OUT OF MEMORY — RETRY (Y OR N)   *ALL*

One of the internal routines within BEM has attempted to acquire additional storage on a temporary basis. No storage was available. The user may wait for storage to become available and reply Y, or may terminate the current program by replying N. If the problem persists, contact the system administrator to have the memory partition size increased.

OVERFLOW ON VARIABLE SUBSTITUTIONS — TRUNCATED   *EDT*

When variables in a command line were replaced, the new line exceeded 80 characters. The truncated command was processed.

OVERWRITE? (YES OR NO)   *LIBRARY*

The program to be written out by the command already exists on the file. A reply of YES will overwrite the previous version with the new one. A reply of NO will terminate the command.

PAGE/LINE SIZE INVALID   *EDT*

The page or line sizes are not within the correct range. PAGE must be between 1 and 255, LINE must be between 1 and 128.

PARAMETER TYPE MIS-MATCH *BASIC*

The type of a parameter passed to a function/subprogram conflicts with the type defined for the function subprogram. For example, a string was passed when a numeric value was expected or a numeric value was passed when a string was expected. Compare the line in error and the definition; correct the discrepancy.

PASSWORD IS INVALID FOR FILE *LIBRARY/FILE*

The password used does not match the one cataloged for the file. Another cause of this error could be failure to specify a password with the file-access command. The user is denied access to the file in either case.

PAUSED AT xxxxx CONTINUE (Y or N) *BASIC*

A PAUSE statement has been encountered at the line number given by *xxxxx*. Answer YES to continue execution; answer NO to terminate the program.

PLEASE LOGON *BEM*

The user's terminal has not been joined to the BEM system. Follow log-on procedures given in Section 2 of UA-0139.

PRINT TO FILE > MARGIN SIZE *BASIC*

The program attempted to print a string, number or USING string with a length greater than the current margin setting. Change the margin size, or reduce the length of the expression printed.

PRINT/PUNCH I/O ERROR *BEM*

A hardware I/O error has been encountered on the printer or punch. Retry the command. If the problem persists, investigate a possible hardware error.

PRINTER/PUNCH IS IN USE, PLEASE WAIT *BEM*

Another user is using the printer or the punch. Your command will be completed after the other command completes. If you do not wish to wait, interrupt the system.

PROGRAM CANNOT BE RESUMED *BEM*

The user tried to resume a program when no program had been loaded. A RESUME command is only effective when the user has interrupted an active program and wishes to return to it.

.PROGRAM COULD NOT BE FOUND *BEM*

The program to be executed via an EXECUTE command could not be found. Only EDT, RSP, and BASIC may be loaded under level 4.0.

PROGRAM NOT INCLUDED IN CONFIGURATION *BEM*

The system administrator has not elected to provide the program you have requested.

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REFERENCE TO ACTIVE PROC   *EDT*

The user has attempted the DO option on a currently active proc, or has attempted to enter the current proc with an @PROC command.

REFERENCED SUBROUTINE NOT FOUND IN LIBRARIES   *BASIC*

All user-specified libraries have been searched, but the subprogram listed in the error message could not be found. Execution is inhibited.

RENAME ERROR   *BASIC*

The string-expression used to supply the new file name does not contain a valid file parameter or temporary file name. This error may also be the result of attempting to RENAME a data management file.

REQUESTED RECORD NOT FOUND IN DATA FILE   *FILES*

BASIC was attempting to read a record which does not exist in the data management file. Probably due to a hardware error. If the problem persists, consult your Sperry Univac representative.

RETURN WITHOUT MATCHING GOSUB CALL   *BASIC*

The program has attempted to return from a subroutine that was not called by a GOSUB statement.

ROLL OPTION VALID ONLY AT UNISCOPE TERMINALS   *BEM*

The /SCREEN ROLL or /SCREEN COP options cannot be used with a hardcopy terminal. The command is ignored.

RSP AVAILABLE ONLY AT UNISCOPE TERMINALS   *RSP*

RSP cannot be used at a hardcopy terminal. Move to a UNISCOPE terminal and reexecute RSP.

RSP/EDT MUST BE LOADED TO USE/BULLETIN   *BEM*

The BULLETIN READ or WRITE commands can only be issued while EDT or RSP is loaded (use @SY BULLETIN. . .) since there is no workspace unless one of these is active.

SAME MATRIX APPEARS ON BOTH SIDES OF EQUAL SIGN   *BASIC*

The same matrix may be referenced on both sides of the equal sign in a MAT statement, a new matrix must be generated.

SAT ERROR INITIALIZING FILE   *LIBRARY*

The INIT=YES option has been selected in the command, and the file could not be initialized. This could be due to a hardware error, or an attempt to initialize a non-SAT file.

SCRATCH AREA IS FULL, TEXT NOT ADDED *WORKSPACE*

The program you are using has tried to acquire an additional unit of disk space and could not do so. The last image entered has been lost. Wait and retry or contact the system operator.

SCRATCH ERROR *BEM*

The file specified in the command could not be scratched. This may be a result of an error status being returned from the supervisor, or could have been caused by an attempt to scratch a file which should not be scratched (a system file for example).

SCREEN COMMAND FORMAT ERROR *BEM*

The SCREEN command has been entered incorrectly. Valid options are:

$$/\text{SCREEN} \quad \begin{bmatrix} \text{ROLL} \\ \text{NOROLL} \end{bmatrix} \quad \begin{bmatrix} \text{COP} \\ \text{'NOCOP} \end{bmatrix} \quad [\,.height \times width]$$

The default is /SCREEN NOROLL,NOCOP,24×80.

SCREEN DIMENSIONS ARE INVALID FOR RSP *RSP*

RSP may only be used with UNISCOPE terminals; the only valid sizes for these terminals are 12 × 80, 16 × 64, 24 × 80, and 24 × 64. These are the only sizes which will be accepted.

SEARCH STRING NOT FOUND *RSP*

RSP has searched the workspace from the current location to the end, but could not find the string requested. Informational message only.

SEARCH STRING NOT FOUND IN LINE-RANGE *EDT*

The Editor has scanned all lines that the user's command has instructed it to, but did not find the string for which it was searching. This is caused by looking for a word or string which is not in the text. Informational message only.

SECOND DEFINITION OF AN ARRAY NOT ALLOWED *BASIC*

Two-dimension statements have been used to define the same variable. Remove one of the statements and rerun.

SECOND DEFINITION OF THE SAME FUNCTION *BASIC*

The same function has been defined twice within the program. Remove one definition and correct the program. Rerun.

SECOND DEFINITION OF SUB — DEFINITION IGNORED *BASIC*

Two subprograms with the same name have been encountered during the compilation process. The second subprogram will be ignored. The second subprogram may have been found in a library element as a result of a library search. This is a nonfatal error.

PAGE	PAGE REV.	TITLE	DOCUMENT NO.

SEQUENCE PARAMETER ERROR *EDT*

The name or number used to sequence a module is not correct. This may be caused by using more than 16 numeric characters in the name or increment number. See Section 3.1.2.8 of UA-0141.

SET MARGIN FOR DMS FILE NOT AT RECORD 0 *BASIC*

A MARGIN statement was issued against a data management file while it still has data in it. The MARGIN statement may only be used when the file is empty.

SIMPLE VARIABLE INCONSISTENT WITH CALL *BASIC*

The CALL and SUB lines differ in the specification of a simple variable to be passed to the subprogram. Resolve the inconsistency and rerun.

SOFTWARE CHECK AT ee LLLLLL *BEM*

A software check has been detected by the Monitor. Please take a dump as soon as possible; save all relevant data, and consult your Sperry Univac representative.

SPECIFIED LINE NOT IN FILE *EDT*

The line specified in a replacement expression does not exist in the EDT work space.

SPOOL FILE NOT FOUND — COMMAND IGNORED *RSP*

The file described is not present in the Spool file. Check the spelling of the entries, and check that the correct queue name was specified. The spool element may not have been created yet.

SPOOL I/O ERROR R*U* *RSP*

An I/O error occurred while accessing the system Spool file. Respond R to retry; U to terminate the command. If invalid data has been retrieved, clear the workspace (CLEAR) and retrieve the file again.

SPOOL I/O ERROR WHILE ENTERING TASK *BEM*

The ENTER function has encountered a Spool file access error while writing the command element to the Spool file. If the error persists, contact the system administrator.

SQUARE ROOT OF A NEGATIVE NUMBER UNDEFINED *BASIC*

The SQR function has encountered a negative argument. The square root of a negative number is undefined, thus execution is cancelled.

START AND INCREMENT WILL EXCEED 99999 *BASIC*

The starting number and increment used with the RESEQUENCE command cannot be used as they are, because they would cause one of the new line numbers to exceed the maximum line number (99999) for OS/3 BASIC. Use a different start or increment and reissue the command.

STATEMENT FOLLOWING END/SUBEND NOT SUB/REM   *BASIC*

The only permissible statements following an END statement are a REM statement or a SUB statement. Correct the program and rerun.

STATEMENT LABEL NOT IN FILE   *EDT*

The label specified on the @GOTO statement could not be found in the EDT proc space.

STATUS COMMAND PARAMETER ERROR   *BEM*

The operand of a STATUS command is incorrect. Allowable status commands are:

          /STATUS   TERM
          /STATUS   RESOURCE
          /STATUS

STOPPED AT xxxxx   *BASIC*

A STOP statement has been encountered or an error detected at the line number given by xxxxx.

STRING EXCEEDS 4095 CHARACTERS   *BASIC*

A string operation has produced a string with a length in excess of 4095 characters. The maximum number of characters permitted in a string is 4095.

SUB: FNX PRECEDES "CALL"   *BASIC*

A SUB statement declaring a passed function cannot occur before the statement that calls it (and defines the function parameters). Relocate the subprogram so it occurs after at least one statement that calls it.

SUB NAME IS GREATER THAN 8 CHARACTERS   *BASIC*

The name used on a CALL or SUB statement for a subprogram must be a string constant which is not longer than 8 characters. Correct the spelling of the name or shorten its length.

"SUBEND" OR "SUBEXIT" NOT IN A SUB   *BASIC*

A SUBEND or SUBEXIT was encountered which was not in a subprogram. The SUBEND must be the last statement in a subprogram.

"SUBEXIT" NOT ALLOWED IN FUNCTION DEFINITION   *BASIC*

A SUBEXIT statement was encountered within a multiline user function definition. It can only be issued from the subprogram level.

SUBROUTINE CALLING ITSELF   *BASIC*

A CALL statement has been found which references the subprogram in which it resides. Recursive calls in any form are prohibited.

SUBROUTINE LIMIT OF 30 EXCEEDED   *BASIC*

BASIC will not accept more than 30 subprograms. Combine several subprograms or change program logic to eliminate a few.

SYSTEM CLOSED TO NEW USERS, TRY LATER   *BEM*

The computer operator has closed the system so that no new users will be allowed on. Wait until later to LOGON.

SYSTEM COMMAND NOT RECOGNIZED   *BEM*

A command was entered in monitor mode which was not recognized. All commands must begin with one slash and only commands listed below are allowable:

> /DELETE *file-info*
> /DISPLAY JOBS
> /DISPLAY VOLUMES
> /EXEC *program*
> /FSTATUS *file-info*
> /HELP
> /INTR
> /LOGOFF
> /PAUSE *comment*
> /PRINT *file-info*
> /PUNCH *file-info*
> /RUN *program*
> /RESUME
> /SCREEN
> /STATUS RESOURCE
> /STATUS TERM
> /TYPE *comment*
> /VTOC *volume*

"TAB" CANNOT BE USED WITH "PRINT USING"   *BASIC*

The TAB function cannot be used while PRINT USING is active. The TAB should be removed, or a semicolon placed before the function call to terminate the USING clause.

TANGENT/COTANGENT OUT OF RANGE   *BASIC*

The result of a TAN or COT function evaluation caused an overflow condition. Machine infinity is supplied and execution continues.

TASK ENTERED IN BACKGROUND MODE   *BEM*

This is a confirmational message indicating that the Enter file was successfully queued for execution. The task may already have begun, or may be delayed until a batch processor becomes available.

TERMINAL ALREADY LOGGED ON, PROCEED   *BEM*

The previous user did not LOGOFF; this terminal is still logged on.

TERMINAL IDLE TOO LONG, REPLY OR BE CANCELLED   *BEM*

This terminal has had no activity for a long period of time, and is assumed to have
been left idle. If this terminal is still in use, reply within 30 seconds, or BEM will
log the terminal off. The time limit before this message is displayed is set by the
system administrator.

THE SUBROUTINE DEFINED IS NOT REFERENCED   *BASIC*

This is an informational message only. It notifies the user that he has included a
subprogram (either implicitly via LIBRARY or explicitly in the workspace) which is
never called. It should be eliminated as it only takes up memory. Compilation
continues.

TIME UP — PROGRAM LOOPING   *BASIC*

The time limit specified in the TIME statement has been exceeded by the program.
It may be looping, or it may require that the time limit be increased.

TOO MANY TAB STOPS   *EDT*

More than eight tab stops have been used with the TAB command. See Section
3.2.3 in UA-0141.

TYPE OF FUNCTION PARAMS INCONSISTENT IN CALL   *BASIC*

The functions passed to a subprogram do not agree in type or number of
parameters expected. Check the CALL statements to see that any functions passed
contain the same number and type of parameters, then check the subprogram to
be sure it references the function correctly.

UNABLE TO CREATE SPOOL FILE   *RSP*

RSP could not successfully build the desired Spool file. Check parameters and
retry. If the problem persists, consult your Sperry Univac representative.

UNCORRECTED ERROR IN SOURCE   *BASIC*

One of the statements flagged during the previous OLD command has not been
eliminated or corrected. The number of that line is shown.

UNKNOWN ERROR ON SAT FILE   *LIBRARY*

BEM has received an error code from the SAT processor which it does not expect.
If the command issued does not violate any of the constraints placed on it by BEM,
contact your local Sperry Univac representative.

UNRECOGNIZABLE COMMAND *EDT*

A command keyword has been used which the Editor does not recognize. Check all keywords used against Appendix A of UA-0141.

USER DID NOT SUPPLY FILE NAME & NO DEFAULT GIVEN *FILE/LIBRARY*

The user has issued a command which requires that a file-name be specified; no filename was stated in the command. If the user expected to use a default file specification, he should contact the system administrator, as the administrator did not declare a default file for this account. To correct the command, enter a filename explicitly.

USER LOGGED OFF, CANCELLED BY OPERATOR *BEM*

The operator has cancelled your task for some reason. Contact the operator to find out why.

USER LOGGED OFF, END OF FILE ON CONTROL STREAM *BEM*

This message is only issued by a batch processor. It indicates that the processor attempted to read more cards from the enter stream and found none left. The enter task is automatically logged off. This is usually caused by a misinterpreted or mistyped LOGOFF command.

USER LOGGED OFF, NO RESPONSE IS ALLOTTED TIME *BEM*

This message is issued 30 seconds after the "TERMINAL IDLE TOO LONG. . ." message if no response is made. To use this terminal, the next user need only log on again.

USER LOGGED OFF, TERMINAL IS NOW FREE *BEM*

This indicates successful completion of a LOGOFF command.

USER'S ACCOUNT DOES NOT PERMIT WRITING TO FILES *FILE/LIBRARY*

The user has attempted to write or update a file and is not permitted to by his account description. To remove this restriction, contact the system administrator to change the access permission.

USER'S ACCOUNT PROHIBITS ACCESS TO THIS FILE *FILE/LIBRARY*

The account description for this user does not permit the specified file to be accessed. This usually is a result of accessing a file other than the default file if only that file is permitted. To remove this restriction, contact the system administrator.

VOLUME IS NOT AVAILABLE TO THE BEM SYSTEM *LIBRARY/FILE*

The disk volume you have requested is mounted, but has not been made available to the BEM system by the system administrator. Contact the system administrator to have the pack included.

VOLUME NAME IS NOT SPECIFIED *LIBRARY/FILE*

The user has not supplied the name of the disk volume to scan, and the volume name is not in the catalog.

VOLUME NOT MOUNTED ON A DISK DRIVE *LIBRARY/FILE*

The volume requested is not mounted on a disk drive. Contact the operator to have the volume mounted.

WAITING FOR OPEN FILE TABLE ENTRY *LIBRARY/FILE*

An "Open File Table Entry" in the preamble could not be secured for this file access. BEM will wait until another file access terminates and releases its entry. If the user does not wish to wait, the interrupt facility of BEM may be used to terminate the file access. If this problem occurs frequently, contact the system administrator to have more entries placed in the preamble.

 # OF FUNCTION PARAMS INCONSISTENT IN CALL *BASIC*

The number of parameters passed to a subprogram does not agree with the number stated on the SUB line, or does not agree with another CALL to the same program.

#0 INVALID ON CHAIN *BASIC*

Channel zero, the terminal, may not be used as the file from which the chained program is to be read. A data management, temporary, or library file must be used.