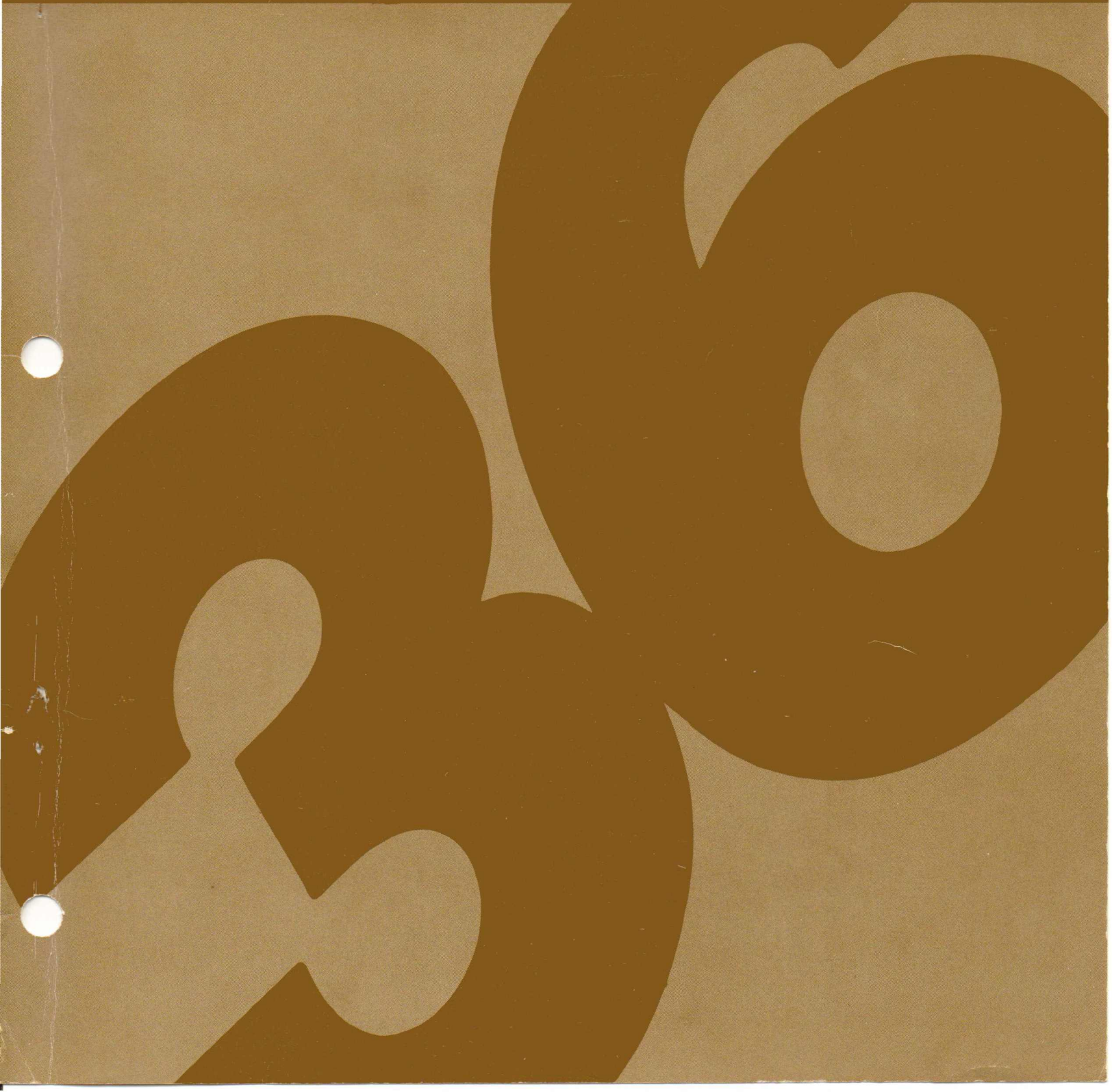IBM System/36

Programmer and Operator Productivity Aid Descriptions/ Operations Guide

IBM System/36

**Programmer and Operator Productivity Aid
Description/Operations Guide**

Program Number
5799-BRJ

File Number
S36-34

Order Number
SC21-9072-0

Changes are periodically made to the information herein; any such changes will be reported in subsequent revisions or Technical Newsletters.

This edition applies to Release 1, Modifications Level 0, of IBM System/36 Programmer and Operator Productivity Aid PRPQ (Program no. 5799-BRJ), and to all subsequent releases and modifications until otherwise indicated in new editions or Technical Newsletters. Also, this publication contains examples of data and reports used in daily operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

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PREFACE

Introduction to the Manual

The IBM System/36 Programmer and Operator Productivity Aid is an
integrated set of four utilities that provide a high level, easy to
use, menu driven, interactive interface to functions commonly
performed by application programmers and lead operators on disk and
diskette files, libraries, and library members. The support
eliminates the need to use system commands or operation control
language. In addition, a S/370-like full screen editor is provided
for editing S/36 source and procedure statements.

This manual provides the information needed to install and
operate the IBM System/36 Programmer and Operator Productivity
Aid. This manual is primarily for programmers and operators who
have the responsibility for maintaining files and libraries and
for assisting programmers in the writing of application programs.

This manual is divided as follows:

Chapter 1. Introduction: Highlights the functions provided.

Chapter 2. Installation and Operating Procedures: Provides the
            information needed to install the utilities and use
            the supported functions.

Chapter 3. Functional Description of the File, Library, and
            Diskette Utilities: Provides an overview of each of
            the supported functions.

Chapter 4. Functional Description of the Edit Utility: Provides
            the detail information on each of the supported
            functions.

Chapter 5. Program Modification Descriptions: Provides the
            information needed for adding new functions or
            modifying the functions supported by the utility.

Chapter 6. Procedure Descriptions: Provides documentation on
            the library procedure members supplied with the
            utility.

Chapter 7. Program Services and Problem Reporting: Provides
            information on the program services provided by IBM
            and the responsibilities of the users of this licensed
            program.

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CHAPTER 1

1.0 Introduction

This manual is organized to minimize the time needed to review
its contents prior to installing and using the IBM System/36
Programmer and Operator Productivity Aid. To accomplish this
objective, the information is ordered as follows:

- Chapter 1 (Introduction) and Chapter 2 (Installation and
  Operating Procedures) contain the material that should be
  reviewed before installing and using the System/36 Programmer
  and Operator Productivity Aid. After installing the utilities
  on the system, the user will find that the functions can
  easily be used by referring only to the available on-line
  help and tutorial information.

- Chapter 3 (Functional Description of the File, Library, and
  Diskette Utilities) and Chapter 4 (Functional Description of
  the Edit Utility) describe the facilities provided. The
  information in these chapters supplement the on-line help
  and tutorial information and can be reviewed if additional
  information on the functions is needed.

- Chapter 5 (Program Modification Descriptions) and Chapter 6
  (Procedure Descriptions) should be reviewed only if
  installation defined user functions are to be added or
  functions supported by the utility are to be modified.

- Chapter 7 (Program Services and Problem Reporting) contains
  the information on the program services provided by IBM and
  the responsibilities of the users of this licensed program.

1.1 File, Library, and Diskette Utilities

The File, Library, and Diskette Utilities provide a high-level
interface to operations commonly performed by operators or
programmers on files, libraries, or library members without
having to use IBM S/36 command statements and operation control
language (OCL) statements.

The utilities are designed for ease of installation and use.
After the utilities are copied from the distribution diskettes to
a library on the system, the utility functions are available for
immediate use. The functions can be executed from the menu
provided with the utility or from procedure commands. The
procedure command interface is provided for convenience at times
other than when the menu interface is available or to bypass the
menu interface and directly execute a specific function.

The File, Library, and Diskette Utilities provide the facilities
to display from the system disk or a diskette:

- the names of all libraries
- the names of all members within a library
- the names of all files
- the data within a file
- the data within a library member

The File, Library, and Diskette Utilities operate under the
System/36 security facilities. Access to files and libraries can
be controlled by using the resource security functions provided
on System/36.

The File, Library, and Diskette Utilities do not support KANJI
(System/36 Ideographic Support for Double Byte Characters (DBC)).

Up to 64 file names, library names, or library member names are
shown at one time. The displays also contain descriptive
information to guide the user in using the utility functions.
On-line help and tutorial is provided to aid the new user or
provide others with a quick review of the functions. Access to
the help information is provided by pressing the HELP key from
the files, libraries, or library members screens, and from the
library prompt screen. The tutorial information is available
from the Programmer and Operator Productivity Aid Menu Screen
(option 11).

When displaying the data within a data file or library member, a
full screen of data is provided. Function keys and simple
commands are used to assist in moving and searching through the
data. While viewing the data, information on the use of the
commands and function keys is available by pressing the HELP key.

When displaying the names of libraries, library members, or
files, operation codes are provided for requesting various
operations to be performed on a specific file, library, or
library member. If operation codes require additional
information to perform the function requested, prompts for this
information are provided. Where appropriate, default information
is supplied (which can be overridden).

These utilities support the use of the command keys for
requesting additional information about the files, libraries, or
library members being displayed, for selective control of the
information to be displayed, for changing the order (sorted
sequence) of the information to be displayed, and for requesting
system functions.

Support is provided for users to define their own operation codes and use of command keys to perform functions that are unique to their installation. Additional operation codes can be defined or operation codes supported by the utility can be changed. Unused command keys can be defined. Screen headings, tutorial menus, and the tutorial information can also be changed to correspond with the user modifications.

A command line is provided on the file, library, and library member display screens to allow the user to enter system or application commands. Any statement allowed in a procedure may be entered. Following execution of the command, control is returned to the display screen. This command line can also be used to scroll to a specific file, library, or library member name.

The File Utility allows a user, via a prompted interface, to generate test data files. This facility provides support for file definition (sequential, direct, or indexed), field definition (character, zoned, packed, or binary), and field initialization (ascending, descending, random, constant, or keyed value). During field initialization, initial values for the field can be entered. If values are not supplied, character fields will be defaulted to blanks and numeric fields will be defaulted to zeros. Following field initialization, the user will be prompted to enter the data for all fields defined as keyed. Optionally, RPG II or COBOL source specifications that define the file can be generated.

1.2 Edit Utility

The Edit Utility is an interactive facility that assists the user in creating and maintaining System/36 source and procedure members. Twenty-two (22) lines on the display are made available for displaying, entering, or editing information. In addition, Edit supports functions that allow for casual text entry and formatting.

The Edit Utility is designed for ease of installation and use. After the utility is copied from the distribution diskette to a library on the system, the utility functions are available for immediate use. The functions can be executed from the menu provided with the utility, from procedure commands, or from the LIBR Member Name Screen. The procedure command interface is provided for convenience use at times other than when the menu interface is available or to bypass the menu interface and directly execute the Edit Utility functions.

The Edit Utility operates under the System/36 security facilities. Access to libraries can be controlled by using the resource security functions provided on System/36.

The Edit Utility does not support KANJI (System/36 Ideographic Support for Double Byte Characters (DBC)).

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The Edit Utility simplifies the creation and changing of source or procedure members by:

- Maintaining a profile record for each user's previous Edit session
- Prompting the user for job information
- Setting default initialization values for use during data entry and as replacement options at end-of-job.
- Allowing the display of the names of all source and procedure members in a selected library.
- Allowing the display of individual members within the selected library.
- Allowing 22 lines of the display for use in entering and editing lines of data.
- Supporting job and screen level functions by command keys, function control keys, and simple commands.
- Providing the option to display and edit lines of data in single line mode under format control (similar to the S/36 Source Entry Utility).
- Providing both single line and multiple line commands for use in deleting, inserting, duplicating, and rearranging lines of data.
- Providing a search facility for locating occurrences of a specified character string and, if desired, to change those occurrences to another character string.
- Allowing statements from a member in the same or a different library to be copied into the member being edited.
- Prompting the user when editing has been completed for verification of the control information prior to placing the member back into the library. The request for printing of the source or procedure member is also allowed at this time.
- Allowing the user to request the printing only (no editing) of a source or procedure member.

All prompt screens contain descriptive information to guide the user when using the utility functions. Where appropriate, the prompt screens include default information (which can be overridden). Tutorial displays are also provided where needed to assist the user in entering the requested information. Access to these tutorial displays is obtained by pressing the HELP key.

While editing a library member, pressing the HELP key provides information on the Edit commands, the command and function control keys supported, and the format selection options allowed when editing is to be performed in single statement mode.

2.0 Installation and Operating Procedures.

The System/36 Programmer and Operator Productivity Aid is
designed for ease of installation. After the utility is copied
from the distribution diskette to a library on the system, the
utility functions are available for immediate use. Section 2.6,
Installation Planning, should be reviewed before installing the
utility.

2.1 Installation Procedures

The distribution diskettes contain three library files (POP,
#POPLIB, and POPMRI) created with the System/36 FROMLIBR
procedure. Insert the first diskette (or up to three diskettes
into slots 1, 2, and 3 if you have a magazine reader). You will
be prompted to insert the next diskette until the entire utility
is copied.

The following steps must be followed in installing the utility:

Step 1:   Enter the following command:

          TOLIBR POP,,,REPLACE,#LIBRARY

          This will cause the following load members and procedure
          members to be copied into the system library (#LIBRARY):

                    POPLOAD   Load member
                    LIBR   Procedure member
                    FILE   Procedure member
                    FILEG   Procedure member
                    DISKETTE   Procedure member
                    FSEDIT   Procedure member
                    FSEDITP   Procedure member
                    FSEDPF   Procedure member
                    POP   Procedure member
                    POPLOAD   Procedure member
                    POPPR   Procedure member

          These members are provided so that #POPLIB library will
          not have to be specified when using the utility.

STEP 2:   After Step 1 completes, enter the following command to
          begin the next step in the installation process:

          POPLOAD

          A prompt screen (Figure 1) will be displayed requesting
          information on the library which is to be used for
          installation. The information requested is the library
          size, and library directory size. The required library
          name is #POPLIB. If #POPLIB already exists, it will be
          reallocated to the sizes specified on the prompt screen.

```
.--------------------------------------------------------------------.
I                                                                    I
I                    S Y S T E M / 3 6                               I
I            P R O G R A M M E R   A N D   O P E R A T O R           I
I                P R O D U C T I V I T Y   A I D                     I
I                                                                    I
ITo install the Productivity Aid support, it must be copied from diskette to I
Idisk.  A minimum of 500 blocks of disk library space and 50 sectors of directoryI
Idirectory space are required to contain this support.              I
I                                                                    I
I                                                                    I
I     Library name for installation. . . . . . . . . . . . .    #POPLIB    I
I     Library size (blocks) if new . . . . . . . . . . . . .    500        I
I     Library directory size (sectors) if new. . . . . . . .    50         I
I                                                                    I
I          Press Command Key 7 to cancel installation               I
I                                                                    I
I                                                                    I
I                                                                    I
I                                                                    I
I                                                                    I
I                                                                    I
I                                                    (c) 1984 IBM Corp.I
I--------------------------------------------------------------------I
```

Figure 1

At the end of this step, the installation is complete.
The procedure POP will automatically be called to change
the menu at the command screen to the Programmer and
Operator Productivity Aid Menu Screen.

2.2 Sign-On Procedures

The System/36 Programmer and Operator Productivity Aid functions
are executed from the menu screen (Figure 2) provided with the
utility.

On any command display, enter the command POP (no parameters) to
request the Programmer and Operator Productivity Aid Menu Screen.

This menu screen can also be called by using the OCL statement
// MENU POP. The library parameter is not required. During the
installation procedures, load and procedure members required to
execute the utility were copied into the system library
(#LIBRARY).

2.3 Tutorial Facilities

Selecting option number 11 on the Programmer and Operator
Productivity Aid Menu Screen will cause the Tutorial Index
Menu Screen to be displayed (Figure 3).

The Tutorial Index Menu Screen allows the selection of a specific
section (LIBR, FILE, OR DISKETTE) of the tutorial.

Each of the tutorial sections is broken down further into individual topics (Figures 4,5,6). On these menus, entering a topic number as the option number on the menu screen and pressing the ENTER key causes the first page of the explanation for that topic to be displayed. Press the ENTER key to view subsequent pages. The ROLL keys may also be used if more convenient.

Tutorial is not provided for the Edit Utility. Help displays are provided where needed to assist the user in entering the requested information. Access to the Help displays is obtained by pressing the HELP key. While editing, pressing the HELP key provides information on the commands, the command and function control keys, and the format selection options.

PRODUCTIVITY AID MENU SCREEN

```
+----------------------------------------------------------------------+
| Command                         S Y S T E M / 3 6                    |
|                         P R O G R A M M E R  A N D  O P E R A T O R   |
|                             P R O D U C T I V I T Y  A I D            |
|                                                  \                    |
| Libraries            1.  Display list of all libraries.              |
|                      2.  Display members in current library.        |
|                      3.  Prompt for name of library to display.     |
|                                                                      |
| Files                4.  Display list of all data files.            |
|                      5.  Prompt for name of file to display.        |
|                                                                      |
| Diskettes            6.  Display list of files in Slot 1.           |
|                      7.  Display list of files in Magazine 1.       |
|                      8.  Prompt for location of diskette to display.|
|                                                                      |
| Editor               9.  Create or edit a source or procedure Member.|
|                     10.  Print a source or procedure member.        |
|                                                                      |
| Tutorial            11.  Display tutorial.                           |
|                                                                      |
| Ready for option number or command            Cmd 3-Previous Menu   |
|                                                                      |
|                                                (c) 1984 IBM Corp.    |
+----------------------------------------------------------------------+
```

Figure 2

TUTORIAL INDEX SCREEN

```
.----------------------------------------------------------------------.
|                                                                      |
|                SYSTEM/36 PROGRAMMER AND OPERATOR                     |
|                   PRODUCTIVITY AID TUTORIAL                          |
|                                                                      |
|                                                                      |
|                                                                      |
|                                                                      |
|                      1.   LIBR tutorial                              |
|                      2.   FILE tutorial                              |
|                      3.   DISKETTE tutorial                          |
|                                                                      |
|                                                                      |
|                                                                      |
|                                                                      |
|                                                                      |
|                                                                      |
|                                                                      |
|                                                                      |
|                                                                      |
| Enter option number:                                                 |
|                                                                      |
|                                                                      |
| Cmd 3-Previous menu                              (c) 1984 IBM Corp.  |
'----------------------------------------------------------------------'
```

Figure 3

TUTORIAL SCREEN FOR LIBRARY OPERATIONS

```
.----------------------------------------------------------------------.
|                       LIBR TUTORIAL TOPICS                           |
|                                                                      |
|                                                                      |
|  1. How to use the tutorial facility  13. Defining your own command keys |
|  2. Selecting a Library               14. Customizing the screen headings |
|  3. LIBR Members Screen               15. LIBR Names Screen          |
|  4. Entering SSP procedure commands   16. Entering LIBR operation codes |
|  5. LIBR member operation codes       17. LIBR operation codes B, H  |
|  6. LIBR member operation code B, F   18. LIBR operation codes J, K  |
|  7. LIBR member operation codes S, E  19. LIBR operation codes I, R  |
|  8. LIBR member operation codes D, P  20. LIBR operation codes D, P  |
|  9. LIBR member operation codes Y, X  21. Searching multiple library members |
| 10. LIBR member operation codes J, K  22. Browsing multiple library members |
| 11. LIBR member operation codes H, C  23.                           |
| 12. Defining your own operation codes 24.                           |
|                                                                      |
|                                                                      |
|                                                                      |
| Enter option number:                                                 |
|                                                                      |
|                                                                      |
| Cmd 3-Previous menu     Cmd 7-End tutorial       (c) 1984 IBM Corp.  |
'----------------------------------------------------------------------'
```

Figure 4

8

TUTORIAL SCREEN FOR FILE OPERATIONS

```
.----------------------------------------------------------------------.
|                     FILE TUTORIAL TOPICS                             |
|                                                                      |
|                                                                      |
|   1. How to use the tutorial facility    13. FILE operation code G   |
|   2. FILE Names Screen                    14. Defining your own operation codes |
|   3. Entering SSP procedure commands      15. Defining your own command keys    |
|   4. Entering FILE operation codes        16. Customizing the screen headings   |
|   5. FILE operation code B                17. Searching multiple files |
|   6. FILE operation code E                18. Browsing multiple files  |
|   7. FILE operation code I                19.                          |
|   8. FILE operation code P                20.                          |
|   9. FILE operation code D                21.                          |
|  10. FILE operation code K                22.                          |
|  11. FILE operation code J                23.                          |
|  12. FILE operation code Y                24.                          |
|                                                                      |
|                                                                      |
|                                                                      |
|                                                                      |
| Enter option number:                                                 |
|                                                                      |
| Cmd 3-Previous menu     Cmd 7-End tutorial         (c) 1984 IBM Corp.|
'----------------------------------------------------------------------'
```
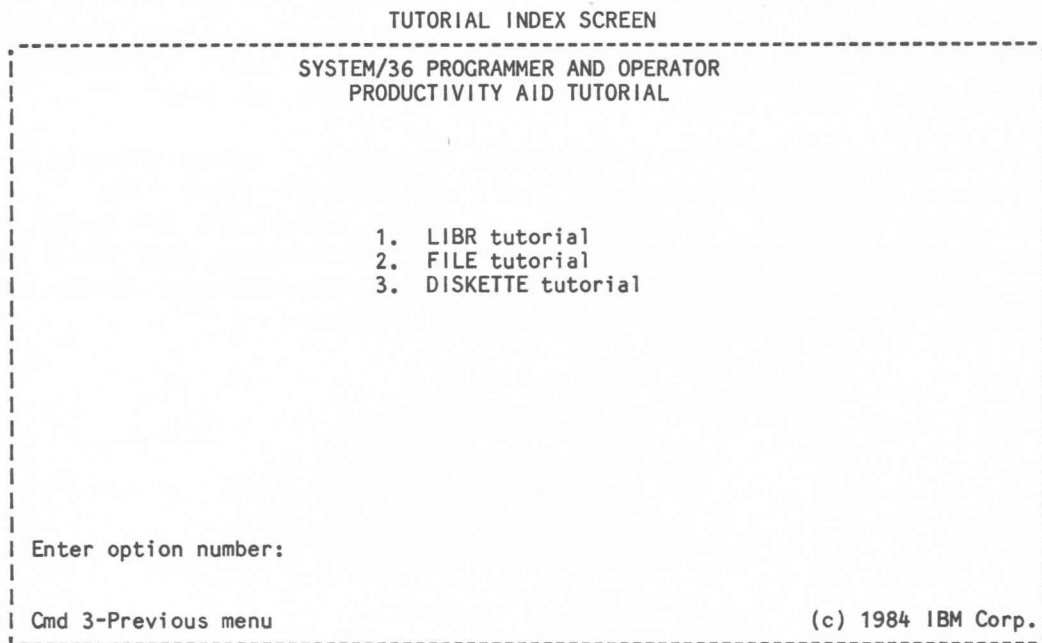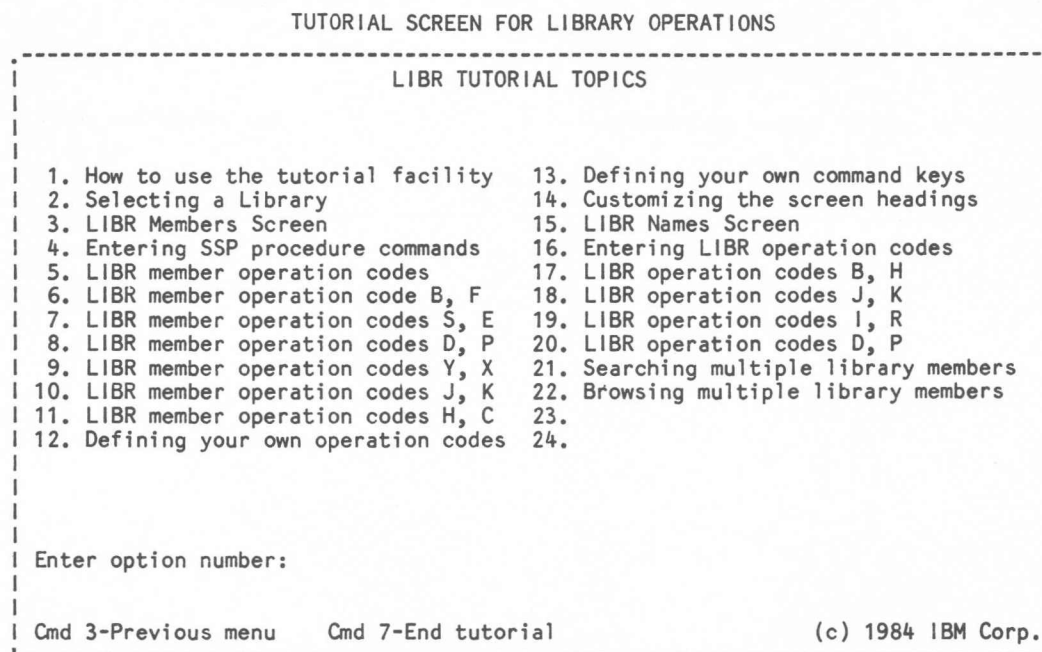
Figure 5

TUTORIAL SCREEN FOR DISKETTE OPERATIONS

```
.----------------------------------------------------------------------.
|                   DISKETTE TUTORIAL TOPICS                           |
|                                                                      |
|                                                                      |
|   1. How to use the tutorial facility    13. Defining your own command keys     |
|   2. DISKETTE Magazine Screen             14. Library Members Screen  |
|   3. DISKETTE Files Screen                15. Library member operation codes     |
|   4. Entering SSP procedure commands      16. Library member operation code B    |
|   5. DISKETTE file operation codes        17. Library member operation code J    |
|   6. DISKETTE file operation code B       18. Searching multiple library members |
|   7. DISKETTE file operation code J       19. Browsing multiple library members  |
|   8. DISKETTE file operation code P       20.                          |
|   9. DISKETTE file operation code D       21.                          |
|  10. Searching multiple diskette files    22.                          |
|  11. Browsing multiple diskette files     23.                          |
|  12. Defining your own operation codes    24.                          |
|                                                                      |
|                                                                      |
|                                                                      |
|                                                                      |
| Enter option number:                                                 |
|                                                                      |
| Cmd 3-Previous menu     Cmd 7-End tutorial         (c) 1984 IBM Corp.|
'----------------------------------------------------------------------'
```

Figure 6

2.4 File, Library, and Diskette Utility Procedure Commands

The File, Library, and Diskette Utilities can also be executed
from procedure commands. The procedure names and parameters
(all parameters are optional) used to initiate the utilities
are given below. The screen that will be displayed depends
upon the parameters entered with the procedure name.
Therefore, the name of the display screen is also shown:

- LIBR   Library Names Screen
- LIBR   library name   Library Member Names Screen
- FILE   File Names Screen
- FILE   filename   Browse Screen (data files)
- DISKETTE   File Names Screen (Defaulted to S1)
- DISKETTE S   Magazine Files Screen (For Diskette
                                          slots - S1, S2, and S3)
- DISKETTE M1   Magazine Files Screen (Magazine M1)
            M2   Magazine Files Screen (Magazine M2)
- DISKETTE S1   File Names Screen (Diskette Volume)
            S2   File Names Screen (Diskette Volume)
            S3   File Names Screen (Diskette Volume)
- DISKETTE M1.nn   File Names Screen (Diskette Volume)
            M2.nn   File Names Screen (Diskette Volume)
       where nn = 01 - 10

2.5 Edit Procedure Commands

The Edit Utility can also be executed from procedures. For
editing a source or procedure library member, use the FSEDIT
procedure. For printing a source or procedure member, use the
FSEDITP procedure. For printing the FSEDIT User Profile Report,
use the FSEDPF procedure.

The procedure parameter information entered is merged with the
profile information saved from each user's previous Edit
session. If any of the parameters are missing or invalid, the
member selection screen (FSEDIT) or the member print option
screen (FSEDITP) is displayed requesting the missing parameters.
If all parameters are provided and valid, the member is loaded
for editing or the member is printed.

The procedure names and parameters (all parameters are optional)
are as follows:

- FSEDIT | member name |,| member type |,| library name |

    where: - member name is the name of the member to be
             edited or created.
           - member type codes are:
                 - P = procedure member
                 - S = source member
                 - R = RPG II source member
                 - C = COBOL source member
                 - A = Assembler/Macro Processor source member
                 - V = FORTRAN source member

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```
                    - F = SFGR (specifications) source member
                    - T = Text source member (not TMS/36)
            - library name is the name of the library where
              the member to be updated can be found and where
              the updated or new member will be placed when
              editing has been completed.

  -  FSEDITP   | member name |,| member type (P/S) |,

             | library name |,| printer-id (SYSTEM/ws-id) |,

             | lines/page (1 - 112/66) |,| lpi (4/6/8) |,

             | cpi (10/15) |,| copies (1 - 99/1) |
```

where: - member name is the name of the member to be
         printed.
       - member type codes are:
            - P = procedure member
            - S = source member
       - library name is the name of the library where
         the member to be printed can be found.
       - lines/page is the number of print lines per page.
       - lpi is the vertical print density (lines per inch).
       - cpi is the horizontal print density (characters per
         inch).

```
  -  FSEDPF    | SYSTEM |,| nn |
               | ws-id  |
```

where: - SYSTEM indicates that the system printer is to be
         used. Default is SYSTEM.
       - ws-id is the work station ID of the printer to be
         used.
       - nn is the number of copies to be printed (1-99).
         Default is 1.

2.6 Installation Planning

2.6.1 System Requirements

This utility is designed to operate on an IBM System/36 with a minimum storage of 128K, a printer, and any System/36 Display Station.

The main storage region sizes required are:

- LIBR   24K
- FILE   24K
- FILEG   24K
- DISKETTE   24K
- FSEDIT   34K
- FSEDITP   14K

2.6.2 Programming System Requirements

This utility is designed to operate with the IBM System/36 System Support Program (5727-SS1).

The Edit Utility supports the facility to increase the work file space used by the utility for storing the records being processed.

Other System/36 program products are required by functions supported by the File and Library Utilities. To use the following library member operation codes, the following program products are required:

- S: Source Entry Utility (5727-UT1)
- C: For the compile operations, the source program type and the required program for processing the source are:

  - R = RPG II   (5727-RG1)
  - G = RPG II Auto Report   (5727-RG1)
  - C = COBOL   (5727-CB1)
  - V = FORTRAN   (5727-FO1)
  - A = Assembler/Macro Processor (5727-AS1)
  - F = Screen Format Generator - SFGR (5727-SS1)
  - M = Messages   (5727-SS1)
  - U = Menus   (5727-SS1)
  - O = Overlay Linkage Editor (5727-SS1)
- F: Screen Design Aid Utility (5727-UT1)

To use the following file operation code, the program product listed is required:

- E: Data File Utility (5727-UT1)

2.6.3 Library Space Requirements

The System/36 Programmer and Operator Productivity Aid Utility requires 500 blocks of disk library space and 50 directory sectors.

During installation of the utility, the following members will be placed in the system library (#LIBRARY):

POPLOAD	Load member
LIBR	Procedure member
FILE	Procedure member
FILEG	Procedure member
DISKETTE	Procedure member
FSEDIT	Procedure member
FSEDITP	Procedure member
FSEDPF	Procedure member
POP	Procedure member
POPLOAD	Procedure member
POPPR	Procedure member

The space required in #LIBRARY for these members is 30 sectors and 11 directory entries.

2.6.4 Data File Requirements

2.6.4.1 Diskette Utility

Diskette services provides the facility to save the work file created for each magazine location the last time the Diskette Utility was used to process a magazine of diskettes. If saved, the work file will be reused the next time the Diskette Utility is called with the same magazine location specified. The work file information is as follows:

- File label: (5 characters of user-ID) + (.) + (location)
      where location = M1, M2, or S
- Records allocated: 768
- Record length: 128
- Organization: Sequential
- Retention: Temporary
- Secured: User option

Only five characters of the user-ID are used (or less if the user-ID has less than five characters.)

2.6.4.2 Edit Utility

The Edit Utility requires a minimum of 40 blocks of disk ffile
space. An additional 30 blocks (minimum) of file space is
required for each additional (other than the first) Edit
session. The files will be extended automatically when
necessary.

Profile information is saved from each user's sign-on to Edit.
When a procedure command is used to call the utility, any
parameter information entered is merged with the profile
information. The file information is as follows:

- File label: EDITPROF
- Records allocated: 50   (Extend-50)
- Record length: 512
- Organization: Indexed
- Retention: Temporary
- Secured: User option

The Edit Utility uses a work file to temporarily store the
source, procedure, or text records being entered or edited until
the member is replaced in the library. If the member cannot be
replaced in the library (or if Edit is interrupted during its
operation), the work file is saved. At the next sign-on (same
user-ID) to Edit, the work file is presented with recovery
options provided.

The Edit Utility work file information is as follows:

- File label: FS + (4 characters of user-ID) + (ws-id)
- Records allocated: 600 minimum   (Extend-500)
- Record length: 128
- Organization: Direct
- Retention: Temporary
- Secured: User option

Only four characters of the user-ID are used (or less if the
user-ID has less than four characters.)

The number of records to be allocated is calculated as:

Records = $|1.3 \times (\text{\# of member statements})| + 32$

If the calculated number of records needed is greater than 600,
then the calculated value is used. The minimum number of records
allocated is 600.

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CHAPTER 3

3.0 Functional Description of the File, Library, and Diskette
    Utilities

The IBM System/36 File, Library, and Diskette Utilities provide
support in three major areas:

- Library services
- File services
- Diskette services

This support is intended for programmers and operators who have
the responsibility for maintaining files and libraries and for
assisting programmers in writing and maintaining applications.

3.1 Library Services

Library services are divided into two facilities:

- Display the names of all libraries on the system and
  perform operations on libraries.
- Display the member names within a selected library and
  perform operations on library members.

3.1.1 Library Operations

    The Library Names Screen displays the names of all libraries on
    the system. Up to 64 library names are shown at one time. Use
    the Programmer and Operator Productivity Aid Menu (option number
    1) or the LIBR procedure to display this screen. The HELP key
    can be used to display the Help information for library operations.

3.1.1.1 Library Names Screen Description

The Library Names Screen is logically divided into six areas as
follows:

- Displays the current space usage, in blocks, of the fixed
  disk as well as the number of new data files and libraries
  (available VTOC entries) that may be created.

- Lists the operations (and their corresponding codes) that can
  be performed on libraries. To perform an operation, the
  single character code is entered in the location provided to
  the left of the library name.

- Lists the functions supported through the use of command keys.

- Provides a command line that may be used for executing any
  statement that is valid in a System/36 procedure. If a
  procedure name and its parameters are entered on the command
  line, the procedure will be executed from the session library
  or from the system library. No operation codes on libraries
  will be processed if a procedure command is entered.

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LIBRARY NAMES SCREEN

```
.----------------------------------------------------------------------------.
I LIBR          Free disk blocks: 15408 of  30641   Free VTOC entries:  422 of  984 I
I Operation codes    B:Browse   D:Delete    P:Print    H:History   I:Backup library I
I                  K:Backup members        J:Restore members        R:Restore library I
I Command keys    1234:Column  7:End  8:Members  9:Blocks  12:Compress  19:Off       I
I                 HELP                                                                I
I                                                                                    I
I---------------------------------------------------------------------------         I
I                                                                                    I
I    #ASMLIB    180      LIBR11    40      LIBR27     10      LIBR43    1000 I
I    #COBLIB    200      LIBR12  S 200     LIBR28    750      LIBR44     800 I
I    #FORTLIB   150      LIBR13    25      LIBR29     60      LIBR45     800 I
I    #LIBRARY  5400      LIBR14    200     LIBR30     40      LIBR46     100 I
I    #POPLIB    500      LIBR15    450     LIBR31    100      LIBR47      75 I
I    #RPGLIB    250      LIBR16    1100    LIBR32    200      LIBR48      50 I
I    LIBR01     100      LIBR17  S 350     LIBR33    300      LIBR49      60 I
I    LIBR02     200      LIBR18    10      LIBR34     50      LIBR50      15 I
I    LIBR03     150      LIBR19    150     LIBR35     50      LIBR51      80 I
I    LIBR04     210      LIBR20    300     LIBR36   1000      LIBR52      10 I
I    LIBR05     400      LIBR21    10      LIBR37    150      LIBR53     350 I
I    LIBR06     700      LIBR22    500     LIBR38    250      LIBR54     350 I
I    LIBR07     500      LIBR23    50      LIBR39   1000      LIBR55     150 I
I    LIBR08     500      LIBR24    200     LIBR40    850      LIBR56      50 I
I    LIBR09      50      LIBR25    200     LIBR41    850      LIBR57      50 I
I    LIBR10      10      LIBR26    100     LIBR42     50      LIBR58      50 I
'----------------------------------------------------------------------------'
```

Figure 7

The command line may also be used for scrolling to a specific
library name by entering a question mark (?) followed by the
library name, or the starting characters of the library name,
to be displayed. Scrolling changes the displayed information
by displaying the requested library name in the first entry
of the first column followed by the remaining library names.

- Provides a blank entry at the top of each column of library
  names that can be used to specify an operation code and a
  library name. These entries can be used in place of
  scrolling to the desired library to perform an operation.
  They can also be used to create a new library.

  The format for the blank entries is the same as the column
  format. The operation code is entered first followed by the
  library name.

- Displays in ascending sequence up to four columns (sixteen
  names in each column) of library names. Secured libraries
  are identified by the character S following the library name.
  For each library, the total number of blocks allocated to
  that library is also shown. The number of members in each
  library can alternately be shown.

  To display additional library names, the ENTER key must be
  used. If no library names remain, the first group of library
  names is redisplayed.

3.1.1.1.1 Operation Code Summary

Operation codes are provided that can be used to request various operations to be performed on a library. The rules for using operation codes with libraries are as follows:

- Up to twelve library operations can be performed at one time.
- With the exception of browse (B), a different operation can be performed on each library selected.
- Browse (B) operation codes will be ignored if other operation codes are used.

A summary of the operation codes which can be performed are:

- B: The browse operation code displays the member names within the selected library. Multiple libraries can be selected for browsing. If more than one library is selected, the libraries will be displayed serially. Command key 6 is used to move to the next library.

- D: The delete operation code deletes a library from disk.

- P: The print operation code prints the directory for that library.

- H: The history operation code allows the altering of the history file logging attribute of procedure members in a library.

- I: The backup operation code uses the SAVELIBR procedure to save the entire contents of a library on a diskette file.

- K: The backup members operation code uses the FROMLIBR procedure to save some or all of the members in a library on diskette.

- J: The restore members operation code copies the contents of a diskette file created by the FROMLIBR procedure into a library. If the library already exists on disk, the contents of the diskette file will be added to and/or replace the existing members in the library. If the library does not already exist on disk, the BLDLIBR prompt screen will be displayed to create a new library and copy the contents of the diskette file into the new library.

- R: The restore library operation code uses the RESTLIBR procedure to restore a library copied onto diskette by the SAVELIBR procedure.

3.1.1.1.2 Command Key Summary

A summary of the command key functions are:

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- CMD 1-4: Select one of the four columns before moving the cursor down the column of names.
- CMD   7: End the library services session.
- CMD   8: Display the number of members in each library.
- CMD   9: Display the total number of blocks allocated to each library.
- CMD 12: Compress the disk. The SSP COMPRESS procedure is used. The user should be familiar with this procedure before using this function.
- CMD 19: End the library services session and sign off the system.
- HELP   : Use the Help facilities provided with library services.

3.1.2 Library Member Operations

The Library Member Names Screen displays the names of members in
a library. Up to 64 library member names are shown at one time.
Use the menu, the LIBR procedure, or select a library with the
browse operation code on the Library Names Screen to display this
screen. The HELP key can be used to display Help Information for
library operations.

LIBRARY MEMBER NAMES SCREEN

```
.---------------------------------------------------------------------------.
I Libr: #POPLIB    Free sectors: 1211/1211 of 5000    Free entries:  59 of 250 I
I Operation codes    B:Browse   S:SEU        E:Edit       D:Delete    Y:Copy   I
I P:Print    F:SDA   K:Backup   J:Restore   C:Compile   X:Execute    H:History I
I Command keys   1234:Column   5:Select   6:Library   7:End   11:Auto Browse   I
I 12:Condense    19:Off        HELP                                            I
I                                                                              I
I  _____   I
I                                                                              I
I  DKET@    0 27136   FSED1    0 31744   LIBRLIST 0 36864   RDLJ     0 1279  I
I  DKET@PRO 0 1792    FSED2    0 30464   LIBRNOOP 0 14      RDM      0 16127 I
I  FILE     0 11519   FSED2F   0 45824   LIBRPO   0 1836    RDV      0 3840  I
I  FILEB    0 5120    FSED3    0 30208   LIBRPU   0 1809    DISKETTE P 5     I
I  FILEG    0 20736   FSED3F   0 14080   LIBRV    0 3328    DKET+    P 2     I
I  FILEG@   0 20224   FSED4    0 23808   LIBRY    0 1791    DKET$    P 6     I
I  FILEI    0 1536    LIBR     0 11519   POP      0 6912    DKET#    P 16    I
I  FILEV    0 3840    LIBR##   0 0       POP##    0 0       DKET@    P 26    I
I  FSEDIT   0 6400    LIBR@F   0 36352   POPLD    0 5120    DKETAUTO P 10    I
I  FSEDMSG  0 0       LIBR@PRO 0 14336   POPMSG   0 0       DKETD    P 6     I
I  FSEDPR   0 11776   LIBR@SYS 0 7424    RD       0 12031   DKETJ    P 54    I
I  FSEDP1   0 11008   LIBRB    0 5120    RDF      0 5888    DKETP    P 51    I
I  FSEDRC   0 6400    LIBRB0   0 4608    RDGET    0 728     DKET0    P 1     I
I  FSEDWS   0 1312    LIBRC    0 2559    RDL      0 2816    DKET9    P 1     I
I  FSED0    0 28928   LIBRD    0 1024    RDLB     0 5375    FILE     P 2     I
I  FSED0F   0 15104   LIBRHL   0 1024    RDLB0    0 4608    FILE$    P 12    I
'---------------------------------------------------------------------------'
```

Figure 8

3.1.2.1 Library Member Names Screen Description

The Library Member Names Screen is logically divided into six
areas as follows:

- Displays the name of the library, the current usage of the
  space allocated to the library, and the number of available
  directory entries.

- Lists the operations (and their corresponding codes) that can
  be performed on library members. To perform an operation,
  the single character code is entered in the location provided
  to the left of the library member name.

- Lists the functions supported through the use of command keys.

- Provides a command line that may be used for executing any
  statement that is valid in a System/36 procedure. If a
  procedure name and its parameters are entered on the command
  line, the procedure will be executed from the library being
  displayed on the library member names screen or from the

system library. No operation codes on library members will
be processed if a procedure command is entered.

The command line may also be used for scrolling to a specific
library member name by entering a question mark (?) followed
by the member name, or the starting characters of the member
name, and optionally followed by the type (O, P, R, or S) of
the member name to be displayed. The type is assumed to be
(S) if not specified. Scrolling changes the displayed
information by displaying the requested member name in the
first entry of the first column followed by the remaining
member names.

- Provides a blank entry at the top of each column of names
  that can be used to specify an operation code, a member name,
  and the member type. These entries can be used in place of
  scrolling to the desired library member to perform an
  operation, to operate on multiple members with one operation
  code, or to create a new library member.

The format for the blank entries is the same as the column
format. The operation code is entered first followed by the
member name and ends with the member type code (O,R,P,S). An
exception to this format is when the (C) compile operation
code, (S) SEU operation code, or (E) Edit operation code is
used (see the discussion for these codes below).

When using a blank entry with the (D) delete operation code,
(Y) copy operation code, (P) print operation code, or (K)
backup operation code, characters.ALL, ALL, or DIR can be
used instead of the library member name. The name DIR is
only valid with the print operation code. The manner in
which library members are selected when a top column entry is
used with these operation codes is:

MEMBER NAME	MEMBER TYPE	RESULT
specified	not specified	Defaults to source member
specified	specified	Selects member by type
specified	L	Selects all types (O,R,P,S)
ALL	not specified	Selects all members and types
ALL	specified	Selects all members by type
DIR	not specified	Library directory will print
DIR	specified	Directory entries will print
characters.ALL	not specified	Selects all source members whose names begin with the specified characters
characters.ALL	specified	Selects all members by type whose names begin with the specified characters
characters.ALL	L	Selects all members and types whose names begin with the specified characters

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When using a blank entry with the (B) browse operation code, (J) restore operation code, (H) history operation code, (X) execute operation code, (S) SEU operation code, (E) Edit operation code, or (C) compile operation code, the use of the top column entry is as follows:

OPERATION CODE	MEMBER NAME	MEMBER TYPE	RESULT
B	specified	not specified	Defaults to source member
B	specified	specified	Selects member by type
J	specified	not specified	Defaults to source member
J	specified	specified	Selects member by type
H	specified	specified (P)	Selects procedure member
X	specified	specified (O,P)	Selects member by type
S	specified	specified (F,R,W,S,P)	Specifies member type
S	specified	not specified	Automatic recognition of member type
E	specified	specified (F,R,C,A,V,T,S,P)	Specifies member type
E	specified	not specified	Automatic recognition of member type
C	specified	specified (R,C,V,A,F,M,U,O)	Specifies member type
C	specified	not specified	Automatic recognition of member type (member type O must be specified for OLINK)

- Displays in ascending sequence up to four columns (sixteen names in each column) of library member names by member type. Each member name is followed by its type (O,R,P,S) and its size. For load (O) and subroutine (R) members, the size is the number of bytes of text. For procedure (P) and source (S) members, the size is the number of statements in the member.

  To display additional library member names, the ENTER key must be used. If no library member names remain, the first group of library member names is redisplayed.

3.1.2.1.1 Operation Codes Summary

Operation codes are provided that can be used to request various operations to be performed on library members. The rules for using operation codes with library members are as follows:

- Up to twelve operations on library members can be performed at one time.
- A different operation can be performed on each member selected.

The browse, delete, and copy operations are an exception to the above rules. There is no limit on the number of these operations that can be performed at one time.

A summary of the operation codes which can be performed are:

- B: The browse operation code displays the contents of and allows the user to browse through the library member. There is no limit to the number of library members that can be selected on one screen for browsing. The browse support is discussed further in the section on Browse Functions.

- S: The SEU operation code executes the System/36 Source Entry Utility. SEU may be used to update an existing source or procedure member or to create a new one. SEU cannot be used with load or subroutine members.

  Automatic recognition of the member type is provided (see Note below), or the top blank column entry can be used to specify the member name and the SEU member type parameter of a new or existing member. Valid member types are:

  - F   SFGR specifications
  - R   RPG II statements
  - G   RPG II auto report specifications (Changed to member type A for SEU)
  - W   WSU statements
  - S   Source statements not defined above
  - P   Procedure statements

  Note: When automatic recognition of the member type is not possible, member type S (source) is assigned.

- E: The Edit operation code executes the Edit Utility. Edit may be used to update an existing source or procedure member or to create a new one. A source member can be used with Edit for creating or updating a text document. Edit cannot be used with load or subroutine members.

  The user will be prompted for compilation of the edited member after replacing an RPG, COBOL, FORTRAN, Assembler, format, message, or menu member.

  Automatic recognition of the member type is provided (see Note below), or the top blank column entry can be used to specify the member name and the Edit member type parameter of a new or existing member. Valid Edit member types are:

  - F   SFGR specifications
  - R   RPG II statements
  - C   COBOL statements
  - A   Assembler statements
  - V   FORTRAN statements
  - T   Text statements
  - S   Source statements not defined above
  - P   Procedure statements

Note: When automatic recognition of the member type is not possible, member type T (text) is assigned.

See Figure 23 in Section 4.2, Member Selection Screen for an explanation of member type selection codes.

- D: The delete operation code deletes a library member. There is no limit to the number of delete operation codes that can be entered on one screen.

- Y: The copy operation code copies a library member to the same or a different library. The member can optionally be renamed. There is no limit to the number of copy operation codes that can be entered on one screen.

- P: The print operation code prints a library member. The top blank column entry must be used (member name of DIR) for printing part or all of the library directory.

- F: The SDA operation code executes the System/36 Screen Design Aid Utility. SDA can be used to create and maintain display formats, menus, WSU, and RPG programs.

- K: The backup operation code copies a library member from a library to a diskette file. A new diskette file can be created or the member can be added to an existing diskette file. If more than one member is selected for backup, the remaining members will be added to the file used for the first member.

- J: The restore operation restores a library member from a diskette to disk. The library member must already exist in the library or a blank column entry must be used to specify the member name. IF THE LIBRARY MEMBER DOES NOT EXIST IN THE DISKETTE FILE, NO DIAGNOSTIC MESSAGE WILL BE ISSUED. To verify that the library member does exist in the diskette file, use diskette services (See Section 3.3). Library member operation code J is also available from the Diskette Library Member Names Screen (See Section 3.3.2.2).

- H: The history operation code allows the altering of the history file logging attribute of a procedure member in a library.

- C: The compile operation code compiles source programs, display format specifications, message source members, menus, and subroutine members. The option is provided to wait or not wait for the compilation to complete. Automatic recognition of the type of source program to be compiled is provided (see Note below), or the blank column entry (member type entry) can be used to identify the compiler to be used. The source program type codes that can be entered and the programs that will be called for processing the source are:

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```
-  R    RPG II     (5727-RG1)
-  G    RPG II Auto Report
-  C    COBOL      (5727-CB1)
-  V    FORTRAN    (5727-FO1)
-  A    Assembler/Macro Processor (5727-AS1)
-  F    Screen Format Generator - SFGR (5727-SS1)
-  M    Message Build -  $MGBLD  (5727-SS1)
-  U    Menu Build - $BMENU   (5727-SS1)
-  O    Overlay Linkage Editor - OLE (5727-SS1)
```

Note: When automatic recognition of the member type is not possible, the user is prompted to specify the compiler to be used. Member type O can be used with a blank column entry to compile a subroutine member into a load member using OLINK.

- X: The execute operation code executes a procedure or load member.

3.1.2.1.2 Command Key Summary

A summary of the command key functions are:

- CMD 1-4: Select one of the four columns before moving the cursor down the column of names.
- CMD   5: Specify a pattern consisting of leading, trailing, or imbedded characters to be used for selecting the names of library members to be displayed. The type of library member (object, subroutine, procedure, and source) to be displayed may also be selected.
- CMD   6: Select a new library for displaying the members within that library, or display list of all of all libraries on disk.
- CMD   7: End the library services session.
- CMD 11: Automatically select all the member names that are currently displayed, and that would be displayed on subsequent screens, for browsing.
- CMD 12: Condense the library. The SSP CONDENSE procedure is used. The user should be familiar with this procedure before using this function.
- CMD 19: End the library services session and sign off the system.
- HELP   : Use the Help facilities provided with library services.

3.2 File Services

File services are used to display the names of all files on the system and to perform operations on individual files. The File Names Screen displays the names of the files. Up to 64 file names can be displayed at one time. Use the menu or the FILE procedure to display this screen. The HELP key can be used to display Help information for file operations.

FILE NAMES SCREEN

```
.-------------------------------------------------------------------.
I FILE        Free disk blocks: 15408 of  30641   Free VTOC entries:  422 of 984  I
I Operation codes    B:Browse     D:Delete     E:Edit(DFU)     G:Generate     I:Info   I
I                    J:Restore    K:Save       P:Print         Y:Copy                  I
I Command keys    1234:Column   5:Select   7:End  8:Records  9:Allocation  10:Date  I
I                 12:Compress   19:Off     HELP                                        I
I                                                                                      I
I                                                                                      I
I   FILE01  D 938     FILE17  D 85     FILE33  D 56     FILE49  D 113  I
I   FILE02  D 967     FILE18  D 56     FILE34  D 56     FILE50  D 56   I
I   FILE03  D 967     FILE19  D 113    FILE35  D 142    FILE51  D 28   I
I   FILE04  D 56      FILE20  D 56     FILE36  D 142    FILE52  D 56   I
I   FILE05  D 56      FILE21  D 28     FILE37  D 426    FILE53  D 56   I
I   FILE06  D 56      FILE22  D 56     FILE38  D 85     FILE54  D 28   I
I   FILE07  D 56      FILE23  D 56     FILE39  D 56     FILE55  D 56   I
I   FILE08  D 85      FILE24  D 28     FILE40  D 56     FILE56  D 28   I
I   FILE09  D 56      FILE25  D 56     FILE41  D 56     FILE57  D 56   I
I   FILE10  D 56      FILE26  D 28     FILE42  D 56     FILE58  D 28   I
I   FILE11  D 56      FILE27  D 56     FILE43  D 56     FILE59  D 28   I
I   FILE12  D 170     FILE28  D 28     FILE44  D 56     FILE60  I 541  I
I   FILE13  D 56      FILE29  D 28     FILE45  D 85     FILE61  I 541  I
I   FILE14  D 170     FILE30  S 67     FILE46  D 85     FILE62  I 541  I
I   FILE15  D 85      FILE31  S 320    FILE47  D 85     FILE63  I 541  I
I   FILE16  D 85      FILE32  D 320    FILE48  D 56     FILE64  I 541  I
'-------------------------------------------------------------------'
```

Figure 9

3.2.1 File Names Screen Description

The File Names Screen is logically divided into six areas as follows:

- Displays the current space usage of the fixed disk as well as the number of new data files and libraries that may be created.

- Lists the operations (and their corresponding codes) that can be performed on files. To perform an operation, the single character code is entered in the location provided to the left of the file name.

- Lists the functions supported through the use of command keys.

- Provides a command line that may be used for executing any statement that is valid in a System/36 procedure. If a procedure name and its parameters are entered on the command line, the procedure will be executed from the session library or from the system library. No operation codes on files will be processed if a procedure command is entered.

The command line may also be used for scrolling to a specific
file name by entering a question mark (?) followed by the
file name, or the starting characters of the file name, to be
displayed. Scrolling changes the displayed information by
displaying the requested file name in the first entry of the
first column followed by the remaining file names.

- Provides a blank entry at the top of each column of file
  names that can be used to specify an operation code and a
  file name. These entries can be used in place of scrolling
  to the desired file to perform an operation or can be used to
  create a new file.

  The format for the blank entries is the same as the column
  format. The operation code is entered first followed by the
  file name.

- Displays in ascending sequence up to four columns (sixteen
  names in each column) of file names. In addition to the file
  name, the file type (S = sequential, D = direct, I = indexed)
  and the number of records (active and deleted) currently used
  are also shown. The number of blocks or records allocated to
  the file or the creation date of the file can alternately be
  shown by using a command key.

  To display additional file names, the ENTER key must be used.
  If no file names remain, the first group of file names is
  redisplayed.

3.2.1.1 Operation Codes Summary

A set of operation codes are provided that can be used to
request various operations to be performed on files. The rules
for using operation codes with files are as follows:

- Up to twelve file operations can be performed at one time.
- A different operation can be performed on each file selected.

The browse and info operations are an exception to the above
rules. There is no limit on the number of these operations that
can be performed at one time.

A summary of the operation codes that can be performed are:

- B: The browse operation code displays the records within a
  file and allows the user to browse through the file.
  There is no limit to the number of files that can be
  selected on one screen for browsing. The browse support
  is discussed further in the section on Browse Functions.

- E: The Edit operation code executes the System/36 Data File
  Utility. DFU may be used to update an existing data file
  or to create a new file. Use a blank top column position
  to create a new file.

- I: The info operation code displays the information shown
    below about a file. There is no limit to the number of
    files that can be selected with the info operation code.
    The following information is provided:

    - The label of the file.
    - The creation date of the file.
    - Latest date of the file with this label (YES/NO).
    - The file type (data file, trace file, dump file, etc.).
    - The file organization type (sequential,direct,indexed,
      alternative index).
    - The record length.
    - The number of records or blocks allocated to the file.
    - The number of records currently containing data in
      the file.
    - The number of records currently available in the file.
      This is always zero for direct files.
    - For indexed files:
      - Starting position of the key field in the records.
      - Length of the key field in the records.
      - Duplicate keys allowed (YES/NO)
      - Update of keys allowed (YES/NO)
      - Parent file (YES/NO/label of parent file)
      - Disk address of the start of the index area.
    - The security status of the file.
    - Whether or not the file was defined as delete-capable
      when the file was created.
    - Rebuild index required (YES/NO).
    - Non-formatted file (YES/NO).
    - Active extent (YES/NO).
    - Extent value.
    - Disk address of the start of the data area.
    - Disk address of the VTOC entry.
    - Spindle preference

- D: The delete operation code deletes a file from disk.

- Y: The copy operation code copies records from an existing
    file to a new disk file. During copying, records can be
    omitted (including deleted records) from the new file.

- P: The print operation code prints some or all of the records
    in a file.

- K: The backup operation code copies a file from disk to a
    diskette file.

- J: The restore operation code copies a file from diskette
    to disk storage.

- G: The generate operation code generates a skeleton file that
    can be used for testing purposes. Optionally, RPG II or
    COBOL source specifications that define the file can be
    generated. To generate a file, use one of the blank

entries at the top of each column to enter the operation
code and the name of the file to be created.

3.2.1.2 Command Key Summary

A summary of the command key functions are:

- CMD 1-4: Select one of the four columns before moving the
        cursor down the column of names.
- CMD   5: Specify a pattern consisting of leading, trailing,
        or imbedded characters to be used for selecting the
        names of files to be displayed.
- CMD   7: End the file services session.
- CMD   8: Display the number of records (active and deleted)
        currently used.
- CMD   9: Display the total number of blocks or records
        allocated to the file.
- CMD 10: Display the creation date of the file (year/
        month/day).
- CMD 12: Compress the disk. The SSP COMPRESS procedure is
        used which the user should be familiar with before
        using this function.
- CMD 19: End the file services session and sign off
        the system.
- HELP   : Use the Help facilities provided with file services.

3.2.2 Data File Generation Facility

File services provides an operation code (see Section 3.2.1.1, Operation Codes Summary) for generating a test data file. The following file options can be specified:

- Name of the file to be created.
- Record length.
- Number of records to be allocated.
- Number of records to be generated.
- File organization (sequential, direct, or indexed).
- Key starting position and length for indexed files.
- Delete-capable file.
- Generate the RPG II or COBOL data record specifications.

FILE DEFINITION SCREEN

```
.--------------------------------------------------------------------------.
|                        Generate a Skeleton File                          |
|                                                                          |
|Name of file to be created ........................................ SAMPLE  |
|                                                                          |
|Record length ..................................................... 80      |
|                                                                          |
|Key position (Starting position of key if indexed file) ..............     |
|                                                                          |
|Key length (Number of positions in key if indexed file) ..............     |
|                                                                          |
|Number of records to be allocated ................................. 0000010 |
|                                                                          |
|Number of records to be generated ................................. 0000010 |
|                                                                          |
|If no key position/length given, sequential (S) or direct (D) ........ S    |
|File capable of record delete (Y=Yes/N=No) ........................... N    |
|Generate COBOL record description (Y=Yes/N=No) ....................... N    |
|Generate RPG record description (Y=Yes/N=No) ......................... N    |
|                                                                          |
|                                                                          |
|                                                                          |
|                                                                          |
|                    Cancel request with command key 7                     |
'--------------------------------------------------------------------------'
```

Figure 10

3.2.2.1 Field Definition Screen

Data fields are defined by prefixing each group of columns to be defined as a field with a one character code indicating the data type of the field. Fields can be defined as:

- Character
- Zoned decimal
- Packed decimal
- Binary

For data records with a record length larger than 100, the ROLL UP key key is used to display the next 100 (or less) positions of the record. The ROLL DOWN key can be used to display the previous record positions. The end of the record is shown with the character '|'.

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FIELD DEFINITION SCREEN

```
---------------------------------------------------------------------------
I                          Field Definition                               I
I                                                                         I
I File Name:      SAMPLE                                                   I
I Record Length: 00000080                                                 I
I Key Position:  00000000                                                 I
I Key Length:    00000000                                                 I
I                                                                         I
I                                                                         I
I                     1 2 3 4 5 6 7 8 9 . 1 2 3 4 5 6 7 8 9 .  Prefix the first I
IColumns 0001-0020    C _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _  position of each I
I                                                              field with code: I
I                     1 2 3 4 5 6 7 8 9 . 1 2 3 4 5 6 7 8 9 .                 I
IColumns 0021-0040    _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _  C Character    I
I                                                              Z Zoned (1-16)  I
I                     1 2 3 4 5 6 7 8 9 . 1 2 3 4 5 6 7 8 9 .  P Packed (1-8)  I
IColumns 0041-0060    _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _  B Binary (1-16) I
I                                                                             I
I                     1 2 3 4 5 6 7 8 9 . 1 2 3 4 5 6 7 8 9 .                 I
IColumns 0061-0080    _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _                 I
I                                                                             I
I                     1 2 3 4 5 6 7 8 9 . 1 2 3 4 5 6 7 8 9 .                 I
IColumns              I                                                       I
I                                                                             I
ICommand Keys  1:Field Def  2:Field Init  3:Field Def and Init  7:Done  HELP  I
'----------------------------------------------------------------------------'
```

Figure 11

FIELD INITIALIZATION SCREEN

```
---------------------------------------------------------------------------
I                          Field Initialization                           I
I                                                                         I
I File Name:      SAMPLE                                                   I
I Record Length: 00000080                                                 I
I Key Position:  00000000                                                 I
I Key Length:    00000000                                                 I
I                                                                         I
I                                                                         I
I                     1 2 3 4 5 6 7 8 9 . 1 2 3 4 5 6 7 8 9 .  Fillin the first I
IColumns 0001-0020    _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _  position of each I
I                                                              field with code: I
I                     1 2 3 4 5 6 7 8 9 . 1 2 3 4 5 6 7 8 9 .                 I
IColumns 0021-0040    _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _  + Ascending    I
I                                                              - Descending   I
I                     1 2 3 4 5 6 7 8 9 . 1 2 3 4 5 6 7 8 9 .  ? Random       I
IColumns 0041-0060    _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _  = Prompt       I
I                                                                  Spaces/Zeros I
I                     1 2 3 4 5 6 7 8 9 . 1 2 3 4 5 6 7 8 9 .                 I
IColumns 0061-0080    _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _  Or literal value I
I                                                              for entire field I
I                     1 2 3 4 5 6 7 8 9 . 1 2 3 4 5 6 7 8 9 .                 I
IColumns              I                                                       I
I                                                                             I
ICommand Keys  1:Field Def  2:Field Init  3:Field Def and Init  7:Done  HELP  I
'----------------------------------------------------------------------------'
```

Figure 12

3.2.2.2 Field Initialization Screen

For defined data fields, the first position of each field is used to specify how the field is to be initialized (ascending, descending, random, literal, or prompt). Fields defined as prompt fields allow their values to be entered from the keyboard. If any character other than + - ? = is found in the first position of a field, a literal (constant) is assumed.

The starting value for ascending and descending fields can be specified in the remaining positions of the field. If a value is not supplied for a literal field, character fields will be blank and numeric fields (zoned, packed, or binary) will be zero.

For data records with a record length larger than 100, the ROLL UP key key is used to display the next 100 (or less) positions of the record. The ROLL DOWN key can be used to display the previous record positions. The end of the record is shown with the character '|'.

3.2.2.3 Field Prompt Screen

For each record to be generated, the data is requested for each field defined as a prompted input field.

When data is requested for a prompted input field, one of the other four methods of initialization (ascending, descending, random or literal) can be substituted for that field for the next and all remaining records to be generated.

```
                         FIELD PROMPT SCREEN
.-----------------------------------------------------------------------.
|                       Initial Field Value                             |
|                                                                       |
|                                                                       |
|Field defined at record positions      thru       for record number   |
|                                                                       |
|Field type is                                                          |
|                                                                       |
|                                                                       |
|          1         2         3         4         5         6         7         8|
|123456789 123456789 123456789 123456789 123456789 123456789 123456789 123456789 |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|   is the character from the list below that indicates how this field will be |
|   initialized in subsequent records                                   |
|                                                                       |
|+ Ascending                                                            |
|- Descending                                                           |
|? Random                                                               |
|= Prompt                                                               |
|  Constant                                                             |
|                                                                       |
'-----------------------------------------------------------------------'
```
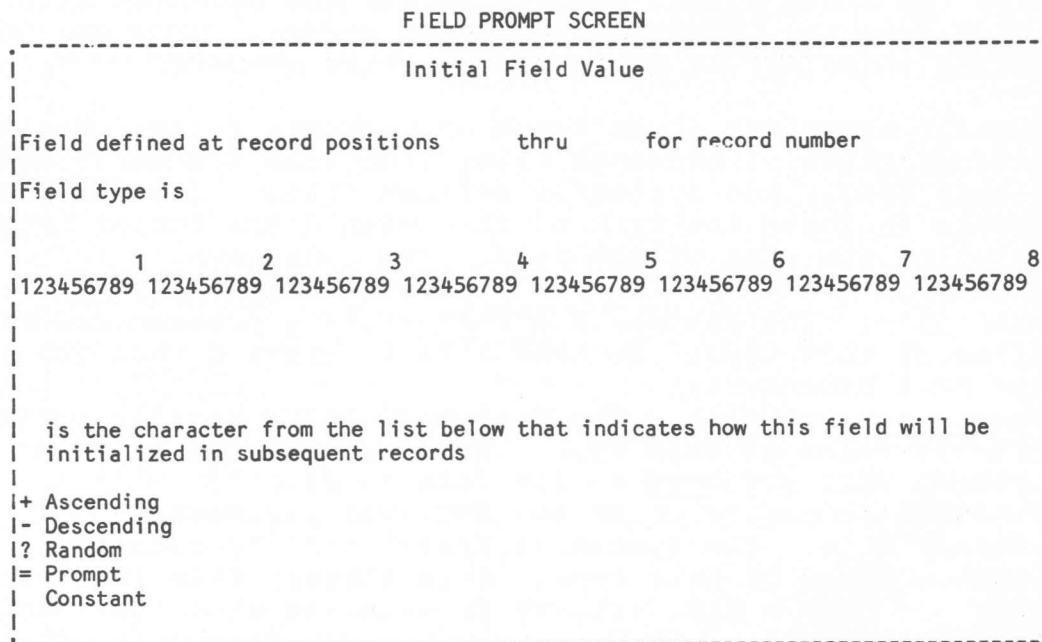
Figure 13

3.3 Diskette Services

Diskette services is provided primarily to create copies of files and libraries for off-line storage or for backup and recovery of vital information. Diskette services can also be used to create new files from data files on diskettes or to add new applications from library files on diskettes.

Diskettes containing files and libraries can be assigned to individual slots (S1, S2, S3, M1.nn, M2.nn where nn = 01 - 10) or a magazine location (M1, M2). The slot locations (S1, S2, S3) can also be used as a magazine by specifying (S) only as the location for the diskette.

Diskette services are divided into three facilities:

- Display the names of all files on the diskettes in the selected magazine (M1, M2, or S). From this display, a single volume can be selected to perform operations on that specific volume.
- Display the names of all the files on the selected volume (S1, S2, S3, M1.nn, or M2.nn). From this display, a library file can be selected for displaying the names of members within the library, or a data file can be selected for browsing. Also from this display, a diskette file can be selected for printing, for deleting from the diskette, or for restoring from the diskette to disk.
- Display the names of all members within the library file selected from the Diskette File Names Screen. From this display, library members can be selected for browsing or restoring from diskette to disk.
- Display the names of all members within the SAVELIBR file selected from the Diskette File Names screen. However, no operation codes may be performed on these members.

The System/36 processes three types of diskette files: basic data exchange files, I exchange files (requires System/36 SSP feature code 6000), and System/36 defined files. The diskette file screens indicate the type of file with a one letter type code following the name of the file. The codes are:

- A: APAR file. The System/36 $FEAPR utility program creates files of this type. An APAR file is created when you run the APAR procedure.
- B: Basic exchange file. The System/36 $BICR utility program creates files of this type. A basic exchange file is created when you copy a disk file to diskette with the TRANSFER procedure using the EXCHANGE parameter.
- F: Library file. The System/36 $MAINT utility program creates files of this type. This library file is created when you copy a disk library to diskette with the FROMLIBR procedure.
- I: I exchange file. The System/36 $BICR utility program creates files of this type. An I exchange file is created when you copy a disk file to diskette with the TRANSFER

procedure using the IFORMAT parameter.
- L: SAVELIBR file. The System/36 $MAINT utility program
  creates files of this type. This file is create when you
  copy a disk library to diskette with the SAVELIBR
  procedure.
- M: System/34 off-line multi-volume file.
- R: Copy file. The System/36 $COPY utility program creates
  files of this type. A copy file is created when you copy
  a disk data file to diskette with the SAVE procedure.
- S: System/34 security file. The System/34 $PRSV utility
  program creates files of this type. A security file is
  created when you copy the system security file(s) to
  diskette with the PRSAVE procedure.
- U: System/34 backup file. The System/34 $BACK utility
  program creates files of this type. A backup file is
  created when you copy the system library (#LIBRARY) to
  diskette with the BACKUP procedure.
- X: IGC extended character file.
- Y: Library copy file. The System/36 $MAINT utility program
  creates files of this type. A library copy file is
  created when you copy a disk library member to diskette
  with the RECL parameter specified on the $MAINT // COPY
  utility control statement.
- ?: The file type is not recognized.

3.3.1 Diskette Magazine Operations

The Diskette Magazine File Names Screen displays the names of all
files on the diskettes in the selected magazine. Up to 64 file
names can be displayed at one time. Use the menu or the DISKETTE
procedure with M1, M2, or S specified for the diskette location
to display this screen. The HELP key can be used to display Help
information for Diskette Magazine operation.

3.3.1.1 Diskette Magazine File Names Screen Description

The Diskette Magazine File Names Screen displays all the
diskette files on the diskettes in the selected magazine
(M1, M2) or multiple slots (S).

WHEN PROCESSING A MAGAZINE OF DISKETTES AND DISKETTE SERVICES IS
EXITED FROM THE MAGAZINE FILE NAMES SCREEN, THE OPTION TO SAVE
THE WORK FILE CREATED FOR THAT MAGAZINE LOCATION IS SUPPORTED
(THE MAGAZINE WORK FILE IS AUTOMATICALLY SAVED IF DISKETTE
SERVICES IS EXITED FROM ANY OF THE OTHER DISKETTE SCREENS). THE
NEXT TIME THE SAME USER (user-ID) INSERTS A MAGAZINE OF
DISKETTES IN THAT SAME MAGAZINE LOCATION, THE DISKETTE MAGAZINE
FILES INFORMATION WILL BE TAKEN ONLY FROM THE WORK FILE IF A
WORK FILE FOR THAT USER IS AVAILABLE FOR THAT MAGAZINE LOCATION.
IF THE MAGAZINE OF DISKETTES INSERTED AND THE WORK FILE
INFORMATION DO NOT MATCH, IT WILL BE NECESSARY TO DELETE THE
WORK FILE BY USING COMMAND KEY 7 FROM THE DISKETTE MAGAZINE FILE
NAMES SCREEN AND REINITIATE THE DISKETTE UTILITY.

```
.-----------------------------------------------------------------------.
I Diskette files in magazine M1                                         I
I Operation codes    B:Browse diskette                                  I
I Command keys    1234:Column    5:Select    7:End (delete work file)  8:Location   I
I                 9:Sectors     10:Date    11:VOLID    12:Sort       13:List files I
I                14:Expl of file types   19:End (save work file)    HELP           I
I                                                                       I
I_____I
I                                                                       I
I                                                                       I
I    POPLOAD  L M1.01                                                   I
I    #POPLIB +L M1.01                                                   I
I    #POPLIB +L M1.02                                                   I
I    #POPLIB .L M1.03                                                   I
I    FILE1   +F M1.03                                                   I
I    FILE1   .F M1.04                                                   I
I    FILE2    F M1.04                                                   I
I                                                                       I
I                                                                       I
I                                                                       I
I                                                                       I
I                                                                       I
I                                                                       I
I                                                                       I
'-----------------------------------------------------------------------'
```

Figure 14

The Diskette Magazine File Names Screen is logically divided
into six areas as follows:

- The top line of the diskette files screen shows the magazine
  selected.

- Lists the operations (and their corresponding codes) that can
  be performed on diskette magazines. To perform an operation,
  the single character code is entered in the location provided
  to the left of the file name.

  The browse (B) operation code only is supported on this screen.

- Lists the functions supported through the use of command keys.

- Provides a command line that may be used for executing any
  statement that is valid in a System/36 procedure. If a
  procedure name and its parameters are entered on the command
  line, the procedure will be executed from the session library
  or from the system library. No operation codes on diskette
  magazines will be processed if a procedure command is
  entered.

  The command line may also be used for scrolling to a specific
  file name by entering a question mark (?) followed by the file
  name, or the starting characters of the file name, to be
  displayed. Scrolling changes the displayed information by
  displaying the requested file name in the first entry of the
  first column followed by the remaining file names. Prior to
  scrolling, the file names must be in sorted sequence (CMD 12).

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- Displays in location sequence up to four columns (sixteen
  names in each column) of file names. In addition to the file
  name, the file type and the location (slot or magazine
  location) are also shown. The number of sectors allocated to
  the file, the creation date of the file, or the volume ID can
  alternately be shown by using a command key.

The character immediately preceding the file type is:

- the character (+) if the diskette file is continued on
  another diskette volume.
- the character (.) if the diskette file was continued from
  another diskette volume, but ends on the current volume.
- the character (blank) if the diskette file begins and ends
  on the current diskette volume.

The diskette file names are displayed in the sequence that
they occur on the diskettes within the magazine. The
diskette file names can alternately be displayed in sorted
sequence by name, date, and location by using a command key.

To display additional file names, the ENTER key must be used.
If no file names remain, the first group of file names is
redisplayed.

3.3.1.1.1 Operation Codes Summary

The browse (B) operation code is used to select one of the
diskette volumes. To select a diskette volume, any one of the
files on that volume can be selected with the browse operation
code. Only one diskette volume can be selected at a time. If
more than one volume is selected, only the volume selected by
the first browse operation code will be processed. All other
browse operation codes will be ignored. The names of the files
on the volume selected are displayed on the Diskette Files Names
Screen (see Section 3.3.2.1).

3.3.1.1.2 Command Key Summary

A summary of the command key functions are:

- CMD 1-4: Select one of the four columns before moving the
           cursor down the column of names.
- CMD   5: Specify a pattern consisting of leading, trailing,
           or imbedded characters to be used for selecting the
           names of files to be displayed.
- CMD   7: End the diskette services session and delete the
           work file.

           The work file created for this magazine location
           will not be available the next time the Diskette
           Utility is initiated with the same magazine location
           specified. Saving the work file can make initiation
           considerably faster if additional operations are to
           be performed on the same diskettes in the same

magazine location the next time the Diskette Utility is called.

- CMD 8: Display the location of each diskette file.
- CMD 9: Display the number of diskette sectors allocated to each file.
- CMD 10: Display the creation date of the file (year/month/day).
- CMD 11: Display the volume ID of the diskette containing the file.
- CMD 12: Display the names of the diskette file names sorted by name, date, and location or redisplay the diskette file names in the sequence that they occur on the diskette within the magazine.
- CMD 13: Print a list of all the files on the diskettes in the selected magazine.
- CMD 14: Display an explanation of the file type code that is shown along with the name of the file.
- CMD 19: End the diskette services session and save the work file.

  The work file will be saved under the magazine location and user-ID for the next time the Diskette Utility is called by the same user with the same magazine location specified.
- HELP Use the Help facilities provided with Diskette Magazine services.

3.3.2 Diskette Volume Operations

The Diskette File Names Screen displays the names of all the files on the selected diskette volume. Up to 64 file names can be displayed at one time. Use the menu, the DISKETTE procedure, or select a file with the browse operation code on the Diskette Magazine File Names Screen to display this screen. The HELP key can be used to display the Help information for diskette operations.

DISKETTE FILE NAMES SCREEN

```
.--------------------------------------------------------------------.
I Diskette volume IBMIRD in slot M1.01    Free sectors:  0 of 592  each 1024  I
I Operation codes   B:Browse    D:Delete    P:Print    J:Restore             I
I Command keys   1234:Column   5:Select  6:Slot  7:End  8:Reclen  9:Sectors  I
I                10:Date       12:Sort   13:List files  14:Expl of file types I
I                19:Off        HELP                                          I
I                                                                            I
I----------------------------------------------------------------------------I
I                                                                            I
I                                                                            I
I                                                                            I
I  POPLOAD  L 32                                                             I
I  #POPLIB +L 560                                                            I
I                                                                            I
I                                                                            I
I                                                                            I
I                                                                            I
I                                                                            I
I                                                                            I
I                                                                            I
I                                                                            I
I                                                                            I
I                                                                            I
'--------------------------------------------------------------------'
```

Figure 15

3.3.2.1 Diskette File Names Screen Description

The Diskette File Names Screen is logically divided into six areas as follows:

- Displays the volume ID and the diskette location.

- Displays the current space usage of the diskette as well as the diskette sector size.

- Lists the operations (and their corresponding codes) that can be performed on files. To perform an operation, the single character code is entered in the location provided to the left of the file name.

- Lists the functions supported through the use of command keys.

- A command line that may be used for executing any statement that is valid in a System/36 procedure. If a procedure name and its parameters are entered on the command line, the procedure will be executed from the session library or from

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the system library. No operation codes on files will be
processed if a procedure command is entered.

The command line may also be used for scrolling to a specific
file name by entering a question mark (?) followed by the
file name, or the starting characters of the file name, to be
displayed. Scrolling changes the displayed information by
displaying the requested file name in the first entry of the
first column followed by the remaining file names. Prior to
scrolling, the file names must be in sorted sequence (CMD 12).

Displays in location sequence up to four columns (sixteen
names in each column) of file names. In addition to the file
name, the file type and the number of sectors allocated to
the file are shown. The record length of each file or the
creation date of the file can alternately be shown by using a
command key.

The character immediately preceding the file type is:

-   the character (+) if the diskette file is continued on
    another diskette volume.
-   the character (.) if the diskette file was continued from
    another diskette volume, but ends on the current volume.
-   the character (blank) if the diskette file begins and ends
    on the current diskette volume.

The diskette file names are displayed in the sequence that
they occur on the diskette volume. The diskette file names
can alternately be displayed in sorted sequence by name and
date by using a command key.

To display additional file names, the ENTER key must be used.
If no file names remain, the first group of file names is
redisplayed.

3.3.2.1.1 Operation Codes Summary

Operation codes are provided that can be used to request various
operations to be performed on files. The rules for using
operation codes with files are as follows:

-   Up to twelve file operations can be performed at one time.
-   A different operation can be performed on each file selected.

The browse operation code is an exception to the above rules.
See the definition on the browse operation code below.

A summary of the operation codes which can be performed are:

-   B: The browse operation code lets you browse any of the
       following diskette file types:

        -   F: The browse (B) operation code when used to select
               a diskette library file, displays the members of the

selected library on the Diskette Library Member
Names Screen.

Only one library can be selected with the browse
operation code. No other operation codes will be
performed after browsing a diskette library file.

If the library spans multiple diskettes, only
members contained entirely on one diskette can be
browsed.

- L: Same as for type F.

- R: The browse (B) operation code, when used to select a
  diskette copy file, displays the records contained
  in the file on the Diskette File Browse Screen.
  There is no limit on the number of copy files that
  can be selected for browsing.

- I: Same as for type R.

- Y: Same as for type R.

- B: Same as for type R.

- Other diskette file types will be displayed as a type
  R diskette file, with the record length equal to the
  diskette sector size.

The browse support is discussed further in the section on
Browse Functions.

- D: The delete operation code deletes a file from diskette.

- P: The print operation code prints a diskette file.

  If a diskette copy (type R) file is selected, the $COPY
  utility program will print some or all of the file. You
  will be prompted for more information.

  If a diskette basic exchange (type B) or I exchange (type
  I) file is selected, the $BICR utility program will print
  the file without further prompting.

  If a diskette library (type F or type L) or library copy
  (type Y) file is selected, the $MAINT utility program
  will print the directory information (member list) for
  the library without further prompting.

  If a diskette APAR (type A) file is selected, the $FEAIDS
  utility program will print the MAIN storage portion of the
  file using the DUMP procedure. You will be prompted for
  more information.

  Other diskette file types cannot be printed.

- J: The restore operation code restores a diskette file to
  disk. Either a data file, a FROMLIBR library file
  (type F), or a SAVELIBR library file (type L) can be
  selected.

  If a diskette copy (type R) file is selected, the $COPY
  utility program will copy the file to disk without further
  prompting.

  If a diskette basic exchange (type B) file or I exchange
  (type I) file is selected, the $BICR utility program will
  copy the file to disk without further prompting.

  If a diskette library (type F) file or a diskette library
  copy (type Y) file is selected, the TOLIBR prompt screen
  will be displayed. If the library name specified on this
  screen does not already exist on disk, you will be prompted
  for library size information by the BLDLIBR procedure.

  If a SAVELIBR diskette library (type L) file is selected,
  the $MAINT utility program will restore the library with
  the RESTLIBR procedure.

3.3.2.1.2 Command Key Summary

A summary of the command key functions are:

- CMD 1-4: Select one of the four columns before moving the
           cursor down the column of names.
- CMD   5: Specify a pattern consisting of leading, trailing,
           or imbedded characters to be used for selecting the
           names of files to be displayed.
- CMD   6: Select a new diskette for processing. When a
           diskette slot is being used, a prompt for a new
           diskette location appears. When a diskette magazine
           is being used, the Diskette Magazine File Names
           Screen is redisplayed.
- CMD   7: End the diskette services session.

           If processing a diskette magazine, the work file
           will be saved under the magazine location and
           user-ID for the next time the Diskette Utility is
           called by the same user with the same magazine
           location specified.

- CMD   8: Display the record length of each diskette file.
           For library files, the record length is always 8.
- CMD   9: Display the number of sectors allocated to each
           diskette file.
- CMD 10: Display the creation date of the file (year/
           month/day).
- CMD 12: Display the names of the diskette file names sorted
           by name and date or redisplay the diskette files
           names in the sequence that they occur on the

diskette volume.
- CMD 13: Print a list of all the files on the selected diskette volume.
- CMD 14: Display an explanation of the file type code that is shown along with the name of the file.
- CMD 19: End the diskette services session and sign off the system.

  If processing a diskette magazine, the work file will be saved under the magazine location and user-ID for the next time the Diskette Utility is called by the same user with the same magazine location specified.

- HELP : Use the Help facilities provided with Diskette file services.

3.3.2.2 Diskette Library Member Names Screen Description

The Diskette Library Member Names Screen displays the names of
all the members in the diskette library file selected. Up to
64 library member names can be displayed at one time. Select
a file with the browse operation code on the Diskette File
Names Screen to display this screen. The HELP key can be used
to display the Help information for diskette operations.

```
                  DISKETTE LIBRARY MEMBER NAMES SCREEN
.---------------------------------------------------------------------------.
I Diskette volume: IBMIRD        Diskette library file: #POPLIB            I
I                                                                           I
I Operation codes   B:Browse     J:Restore                                  I
I Command keys    1234:Column     5:Select     6:Return to VTOC disp  7:End  I
I                 10:Diskette addresses        11:Auto browse        19:Off    HELP I
I                 _____  I
I                 |                                                       |  I
I     DKET@     0 27136    FSED1    0 31744                                  I
I     DKET@PRO 0 1792     FSED2    0 30464                                  I
I     FILE     0 11519    FSED2F   0 45824                                  I
I     FILEB    0 5120                                                       I
I     FILEG    0 20736                                                      I
I     FILEG@   0 20224                                                      I
I     FILEI    0 1536                                                       I
I     FILEV    0 3840                                                       I
I     FSEDIT   0 6400                                                       I
I     FSEDMSG  0 0                                                          I
I     FSEDPR   0 11776                                                      I
I     FSEDP1   0 11008                                                      I
I     FSEDRC   0 6400                                                       I
I     FSEDWS   0 1312                                                       I
I     FSEDO    0 28928                                                      I
I     FSEDOF   0 15104                                                      I
'---------------------------------------------------------------------------'
```

Figure 16

The Diskette Library Member Names Screen is logically divided
into six areas as follows:

- Displays the volume ID of the diskette containing the library
  being displayed.

- Displays the name of the diskette library file selected.

- Lists the operations (and their corresponding codes) that can
  be performed on library members. To perform an operation,
  the single character code is entered in the location provided
  to the left of the library member name.

- Lists the functions supported through the use of command keys.

- A command line that may be used for executing any statement
  that is valid in a System/36 procedure. If a procedure name
  and its parameters are entered on the command line, the
  procedure will be executed from the session library or from
  the system library. No operation codes will be performed on
  library members if a procedure command is entered.

The command line may also be used for scrolling to a specific
library member name by entering a question mark (?) followed
by the member name, or the starting characters of the member
name, and optionally followed by the type (O, P, R, or S) of
the member name to be displayed. The type is assumed to be
(S) if not specified. Scrolling changes the displayed
information by displaying the requested member name in the
first entry of the first column followed by the remaining
member names.

- Displays in ascending sequence up to four columns (sixteen
  names in each column) of library member names by member type.
  Each member name is followed by its type (O,R,P,S) and its
  size. For load (O) and subroutine (R) members, the size is
  the number of bytes of text. For procedure (P) and source
  (S) members, the size is the number of statements in the
  member.

  To display additional library member names, the ENTER key
  must be used. If no library member names remain, the first
  group of library member names is redisplayed.

3.3.2.2.1 Operation Codes Summary

Operation codes are provided that can be used to request
operations to be performed on library members. A different
operation can be performed on each member selected.

A summary of the operation codes that can be performed are:

- B: The browse operation code displays the contents of and
     allows the user to browse through the library member.
     There is no limit to the number of library members that
     can be selected on one screen for browsing. The browse
     function is discussed further in the section on Browse
     Functions.

- J: The restore operation restores a library member from a
     diskette to disk. The library member cannot span diskette
     volumes. If IBM library members are restored to the
     system library, end the diskette services session as soon
     as all members have been restored. This allows the cross
     reference lists in the system library to be updated.

3.3.2.2.2 Command Key Summary

A summary of the command key functions are:

- CMD 1-4: Select one of the four columns before moving the
           cursor down the column of names.
- CMD   5: Specify a pattern consisting of leading, trailing,
           or imbedded characters to be used for selecting the
           names of library members to be displayed. The type
           of library member (object, subroutine, procedure,
           and source) to be displayed may also be selected.

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- CMD   6: The Diskette File Names Screen is redisplayed to
            allow the selection of a new library (or file).
- CMD   7: End the diskette services session.

            If processing a diskette magazine, the work file
            will be saved under the magazine location and
            user-ID for the next time the Diskette Utility is
            called by the same user with the same magazine
            location specified.

- CMD 10: Display the diskette address of the library members.
- CMD 11: Automatically select all the member names that are
            currently displayed and that would be displayed on
            subsequent screens for browsing.
- CMD 19: End the diskette services session and sign off
            the system.

            If processing a diskette magazine, the work file
            will be saved under the magazine location and
            user-ID for the next time the Diskette Utility is
            called by the same user with the same magazine
            location specified.

- HELP   : Use the Help facilities provided with Diskette
            library services.

3.3.2.3 Diskette SAVELIBR Member Names Screen Description

The Diskette SAVELIBR Member Names Screen displays the names of all the members in the diskette SAVELIBR library file selected. Up to 64 library member names can be displayed at one time. The HELP key can be used to display the Help information for diskette operations.

```
                DISKETTE SAVELIBR MEMBER NAMES SCREEN
.------------------------------------------------------------------.
| Diskette volume: IBMIRD       Diskette library file: #POPLIB      |
|                                                                  |
|                                                                  |
| Command keys    6:Return to VTOC disp   7:End    19:Off    HELP   |
|                                                                  |
|  _____  |
|                                                                  |
|                                                                  |
|    DKET@     0 27136    FSED1    0 31744                          |
|    DKET@PRO  0 1792     FSED2    0 30464                          |
|    FILE      0 11519    FSED2F   0 45824                          |
|    FILEB     0 5120                                               |
|    FILEG     0 20736                                              |
|    FILEG@    0 20224                                              |
|    FILEI     0 1536                                               |
|    FILEV     0 3840                                               |
|    FSEDIT    0 6400                                               |
|    FSEDMSG   0 0                                                  |
|    FSEDPR    0 11776                                              |
|    FSEDP1    0 11008                                              |
|    FSEDRC    0 6400                                               |
|    FSEDWS    0 1312                                               |
|    FSEDO     0 28928                                              |
|    FSEDOF    0 15104                                              |
'------------------------------------------------------------------'
```

Figure 17

The Diskette SAVELIBR Member Names Screen is logically divided into five areas as follows:

- Displays the volume ID of the diskette containing the library being displayed.

- Displays the name of the diskette library file selected.

- Lists the functions supported through the use of command keys.

- A command line that may be used for executing any statement that is valid in a System/36 procedure. If a procedure name and its parameters are entered on the command line, the procedure will be executed from the session library or from the system library.

- Displays in ascending sequence up to four columns (sixteen names in each column) of library member names by member type. Each member name is followed by its type (O,R,P,S) and its size. For load (O) and subroutine (R) members, the size is the number of bytes of text. For procedure (P) and source (S) members, the size is the number of statements in the member.

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To display additional library member names, the ENTER key must be used. If no library member names remain, the first group of library member names is redisplayed.

3.3.2.3.1 Operation Codes Summary

No operation codes are allowed on this screen.

3.3.2.3.2 Command Key Summary

A summary of the command key functions are:

- CMD   6: The Diskette File Names Screen is redisplayed to
           allow the selection of a new library (or file).
- CMD   7: End the diskette services session.

           If processing a diskette magazine, the work file
           will be saved under the magazine location and
           user-ID for the next time the Diskette Utility is
           called by the same user with the same magazine
           location specified.

- CMD 19: End the diskette services session and sign off
           the system.

           If processing a diskette magazine, the work file
           will be saved under the magazine location and
           user-ID for the next time the Diskette Utility is
           called by the same user with the same magazine
           location specified.

- HELP   : Use the Help facilities provided with Diskette
           library services.

3.4 Browse Functions

The Browse Screen is displayed when the browse operation code is used to select a library member or a file from the following screens:

- Library Operations
    - Library Member Names Screen
- File Operations
    - File Names Screen
- Diskette Operations
    - File Names Screen
    - Library Member Names Screen

If more than one browse operation code was entered, use the browse exit command (X) to pass to the next member or file. To return to the Library Member Names Screen or File Names Screen, use command key 7.

The HELP key can be used to display the Browse Command Summary and Browse Function Key Summary Help screens (see Section 3.4.3).

3.4.1 Library Members Browse Screen

The display screen is essentially the same for all types of library members. The browse screen for source and procedure members will be discussed first followed by the variations for load and subroutine members.

The display screen format presented by the browse function for source and procedure members has the following format:

- The top line of the screen shows:
    - the name of the library and library member
    - the member type (S or P)
    - the number of the statement displayed on the first line available for scrolling
    - the number of statements in the member
    - the first and last position of the statements displayed

- The second line of the screen contains an input area for entering browse commands. To the right of the input area is the command entry mode (UPPER or LOWER) which is used when specifying scan data in upper or lower case.

- The remaining twenty-two lines contain statements from the library member, 80 positions of each statement per line.

The display screen presented by the browse function for load and subroutine members has the following format:

- The top line of the screen shows:
    - the name of the library and library member
    - the type of library member (O or R)
    - the number of the first line displayed in the scrolling area.
    - the number of displayable lines in the member.
    - the number of bytes of text for the member.
    - the total number of bytes for the member.

- The second line of the screen is an input area for entering the browse commands.

- The remaining twenty-two lines display the library member text in the following format:

    - The hexadecimal location of the first byte on that line. For object members, this is offset by the start address.
    - The hexadecimal representation of 16 bytes of text.
    - The EBCDIC representation of the 16 bytes of text.

BROWSE SCREEN FOR SOURCE AND PROCEDURE MEMBERS

```
.------------------------------------------------------------------------------.
| Library: #POPLIB  Member: POPLOAD  P     Statement    1 of 73   Columns  1-80 |
|                                                                         LOWER |
|// SWITCH 00000000    ?10F''? ?11F''?                                          |
|// MEMBER USER1-POPMSG  ?3'325'? ?4'40'? ?5F''? ?1F'?3??4?'?                    |
|// TAG PROMPT                                                                  |
|// PROMPT MEMBER-POP,FORMAT-POPLOAD,UPSI-YES                                   |
|// IF ?CD?/2007 RETURN                                                         |
|// SWITCH 00000000  ?5F''?                                                     |
|// IF ?2?/ SWITCH X1XXXXXX  ?5F'0001'?                                         |
|// ELSE IFF ?3?¶324 SWITCH XX1XXXXX  ?5F'0002'?                                |
|// ELSE IFF ?4?¶39 SWITCH XXX1XXXX  ?5F'0003'?                                 |
|// IFF ?5?/ GOTO PROMPT                                                        |
|*                                                                             |
|// SWITCH 00000000                                                            |
|// IFF DATAF1-?2? SWITCH 10000000                                             |
|// ELSE IFF LOAD-'POP,?2?' SWITCH X1000000                                    |
|// IFF SWITCH-00XXXXXX GOTO NOWARN                                            |
|*                                                                             |
|// * 'WARNING: The System/36 Programmer and Operator Productivity Aid '       |
|// * '         Already Exists in Library ?2? And Will Be REPLACED With'        |
|// * '         a New Version If You Continue!                                  |
|// * ' '                                                                       |
|// TAG OPTION                                                                 |
|// IF ?10R'0010'?/3 RETURN                                                    |
'------------------------------------------------------------------------------'
```

Figure 18

BROWSE SCREEN FOR LOAD AND SUBROUTINE MEMBERS

```
.------------------------------------------------------------------------------.
| Library: #SPALIB  Member: SPAM## 0   Line    1 of 16   Text: 0    Total: 256 |
|                                                                              |
|0000    FFFF000B  00010000  00D3C9C2  D9001200      .......LIBR...            |
|0010    02000000  D3C9C2D9  406FC3D3  C9C26F00      ....LIBR ?CLIB?.          |
|0020    19000300  0000D7D6  D7D7D940  406FE6E2      ......POPPR  ?WS          |
|0030    6F6BD3C9  C2D96BF3  000B0004  000000C6      ?,LIBR,3.......F          |
|0040    C9D3C500  19000500  0000D7D6  D7D7D940      ILE.......POPPR          |
|0050    406FE6E2  6F6BC6C9  D3C56BF5  001D0006      ?WS?,FILE,5....          |
|0060    000000C4  C9E2D2C5  E3E3C540  E2F16B6B      ...DISKETTE S1,,          |
|0070    6B6B6B6B  6B6B6B6B  5C001D00  07000000      ,,,,,,,,*.......          |
|0080    C4C9E2D2  C5E3E3C5  40D4F16B  6B6B6B6B      DISKETTE M1,,,,,          |
|0090    6B6B6B6B  6B5C001D  00080000  00D7D6D7      ,,,,,*.......POP          |
|00A0    D7D94040  6FE6E26F  6BC4C9E2  D2C5E3E3      PR  ?WS?,DISKETT          |
|00B0    C56BF800  1F000900  0000C4C9  E2D2C5E3      E,8.......DISKET          |
|00C0    E3C540C8  C5D3D76B  6B6B6B6B  6B6B6B6B      TE HELP,,,,,,,,,          |
|00D0    6B5C000D  00100000  00C6E2C5  C4C9E300      ,*.......FSEDIT.          |
|00E0    0E001100  0000C6E2  C5C4C9E3  D70013FF      ......FSEDITP..          |
|00F0    FF404040  40404040  40404040  40404040                              |
|----------------------  END OF LIBRARY MEMBER  --------------------------      |
|                                                                              |
|                                                                              |
|                                                                              |
|                                                                              |
|                                                                              |
'------------------------------------------------------------------------------'
```

Figure 19

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3.4.2 Files Browse Screen

The display screen format presented by the browse function for
data file records has the following format:

- The top line of the screen shows:
  - the file label
  - the file creation date
  - the relative record number of the record currently
    displayed on the first line available for scrolling.
  - the number of records used (active and deleted).
  - the first record position (column) shown.
  - the last record position (column) shown.

- The second line of the screen is an input area for entering
  the browse commands.

- The third through the last lines of the screen display
  records from the file in one of two modes:

  - Multi-record mode: Each line displays one record.
    The EBCDIC representation of any 80 consecutive
    positions of the records may be displayed.

  - Single record mode: Only one record is displayed.
    Each of the successive four lines display 80
    consecutive positions of the record. A column scale
    and the EBCDIC and hexadecimal representations of the
    record compose each four lines. The first column
    displayed is controlled by scrolling left or right.

3.4.2.1 Deleted Records in Files

The browse function scrolls by relative record numbers. If
there are deleted records in a file you may observe that you are
unable to scroll to the Nth record. Instead, a non-deleted
record following N is displayed (eg N+1). This is due to gaps
in the relative record numbers caused by deleted records.

These scrolling anomalies can be eliminated by displaying
deleted records. Press command key 3 to display deleted
records.

When a deleted record is displayed in multi-record display
mode:

- A pound sign (#) is displayed at the leftmost column.
- The relative record number of the deleted record follows the #.
- (DELETED) is displayed at the rightmost column.

In single record display mode, all record positions are shown as
hex FF.

3.4.2.2 Multi-volume Considerations

Diskette files that span multiple diskettes are subject to the following:

- The first through next to last diskette volumes end with the message "END OF VOLUME". The last diskette volume ends with the message "END OF FILE".

- Records that span diskettes are not displayed (intentionally).

- The records displayed from the second through next to last diskette volumes may be shifted from the actual record boundaries. The file is not damaged and may be restored to disk without loss of data integrity. (This problem is caused by a partial record at the start of the volume. The size of this partial record cannot be determined because each volume of a multi-volume file is processed independently.)

  If a diskette copy file (type R), a diskette I exchange file (type I), or a diskette library copy file (type Y) is being displayed, you can adjust the displayed records to align them on actual record boundaries with the following browse commands (# stands for a number):

  - >># shifts the displayed record boundary right by # positions (eg >>10).
  - <<# shifts the displayed record boundary left by # positions (eg <<1).

BROWSE SCREEN FOR FILES (MULTI-RECORD MODE)

```
.-------------------------------------------------------------------------.
I File: INVSTAT  80/01/20     Record       1 of 5       Columns   1 thru 80  I
I                                                                            I
I 01 040 ROLLER SKATES       1500  10000  465    1107     1 1 00             I
I 02 070 STEEL BEARINGS      0250   1667   25    0512     1 3 00             I
I#3.................................................................(DELETED)I
I 04 150 LEATHER STRAPS      1200   8000  656    1212     7 1 00             I
I 05 090 SKATE KEYS          1100   7333   46    0109     8 1 00             I
I----------------------------------- END OF FILE ----------------------------I
I                                                                            I
I                                                                            I
I                                                                            I
I                                                                            I
I                                                                            I
I                                                                            I
I                                                                            I
I                                                                            I
I                                                                            I
I                                                                            I
I                                                                            I
I                                                                            I
I                                                                            I
I                                                                            I
'-------------------------------------------------------------------------'
```

Figure 20

BROWSE SCREEN FOR FILES (SINGLE-RECORD MODE)

```
.-------------------------------------------------------------------------.
I File: EDITPROF 81/06/30     Record      18 of 25      Columns   1 thru 80  I
I                                                                            I
I----+---10----+---20----+---30----+---40----+---50----+---60----+---70----+---80I
IMWS     19171003288200103BROWSEDTTMWSLIBR 001000100101P2   66 610BROWSEDTTMWSLII
IDEE44444FFFFFFFFFFFFFFFFFFCDDEECCEEDEEDCCD4FFFFFFFFFFFFFDF4444FF4FFFCDDEECCEEDEEDCI
I4620000019171003288200103296625433462392900010001001017200006606102966254334623 9I
I----+---90----+--100----+--110----+--120----+--130----+--140----+--150----+--160I
IBR                                                                          I
ICD44444444444444444444444444444444444444444444444444444444444444444444444444I
I290000000000000000000000000000000000000000000000000000000000000000000000000000I
I----+--170----+--180----+--190----+--200----+--210----+--220----+--230----+--240I
I                                                                            I
I444444444444444444444444444444444444444444444';444444444444444444444444444444I
I00000000000000000000000000000000000000000000000000000000000000000000000000000I
I----+--250----+--260----+--270----+--280----+--290----+--300----+--310----+--320I
I                                                                            I
I44444444444444444444444444444444444444444444444444444444444444444444444444444I
I00000000000000000000000000000000000000000000000000000000000000000000000000000I
I----+--330----+--340----+--350----+--360----+--370----+--380----+--390----+--400I
I                                                                            I
I44444444444444444444444444444444444444444444444444444444444444444444444444444I
I00000000000000000000000000000000000000000000000000000000000000000000000000000I
I                                                                            I
'-------------------------------------------------------------------------'
```

Figure 21

3.4.3 Browse Commands and Function Keys

In addition to the ROLL keys, commands may be used to browse through a file or library member. Enter the command on the input line (second line on the screen) and press the ENTER key to execute the command. The command need not be retyped to be re-executed. If a browse command is entered which is syntactically incorrect or impossible to perform, the command line will be shown in reverse image.

With files, the browse commands may be used in both single and multi-record display modes. When in single record display mode, the page size changes to one record. This effects the paging commands (F, F#, B, B#), the ROLL keys, and the ENTER key (when no command is specified).

Multiple library members and multiple files may be searched for the same character string or browsed with the same browse command. Information on performing these functions is available through the Help Topic Menus provided.

In the following description, the symbol # is used to designate the use of a number. The browse commands are:

F   Scrolls forward one page.
F#   Scrolls forward the specified number of pages.
B   Scrolls backward one page.
B#   Scrolls backward the specified number of pages.
+#   Scrolls forward the specified number of statements or
        records.
-#   Scrolls backward the specified number of statements or
        records.
Scrolls to the specified statement or record.
>   Scrolls to the rightmost column (see note 1).
>#   Scrolls the specified number of columns to the right (see
        note 1).
<   Scrolls to the leftmost column (see note 1).
<#   Scrolls the specified number of columns to the left (see
        note 1).
C   Scrolls to column 1 for source or procedure members. (see
        note 1).
        Displays a column scale for load and subroutine members.
C#   Scrolls to the column specified (see note 1).
S   Displays a column scale on the 1st line available for
        scroll. For load and subroutine members, the column
        scale is shown as hexadecimal displacement.
S#   Displays a column scale on the #th line available for
        scroll.
?string   Searches for the specified character string (see
            note 3). The search is performed on all DISPLAYED
            positions of each statement for library members
            and all positions of each record for files. The
            search begins with the first statement or record
            currently displayed. When a successful search has
            been performed, the next search begins with the

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following statement or record so that successive searches can be performed by repeatedly pressing the ENTER key. The search stops when the string is found or at the end of the library member or end of the file. See Note 2.

?string #   Searches for the specified character string (see note 3). Performs the same function as ?string except that each statement or record is searched for the character string starting only at the specified column. See note 2.

?string # #   Searches for the specified character string (see note 3). Performs the same function as ?string except that the search for the character string is performed only within the specified range of columns. The range must not exceed 80 columns for library members. See note 2.

K#   Keeps the specified number of statements or records at the top of the screen, while scrolling through the library member or file. Note that this reduces the page size for scrolling.

K   Keeps one statement or record.

R   Releases all kept statements or records. Note that this restores the page size.

R#   Releases the specified number of kept statements or records.

;   Separates two browse commands. Multiple browse commands may be entered at the same time, separated by semicolons.

L   Loops on the preceding sequence of browse commands. An example of a loop command is ?JONES;K1;L. The loop ends when the top or bottom of the member or file is passed. If an infinite loop is specified (eg R;L), use the ATTN key to cancel.

P   Prints the screen on the session printer.

X   Exits the browse function.

X_   Exits the browse function and reselects the library member or file with operation code _.

Note 1:   These commands are meaningful only for library members or files with a statement or record length of more than 80 characters.

Note 2:   If the range of columns shown on the display does not contain the range of columns specified to be searched, a left/right scroll is automatically performed.

Note 3:   Strings that contain blanks must be enclosed in either single (') or double (") quotes (e.g. 'MR. SMITH'). Only a string that exactly matches the specified string will be found unless the specified string is enclosed in double (") quotes. In this case, the string will be found regardless of case (upper, lower, or mixed, e.g. "Mr. Smith").

BROWSE FUNCTION KEYS - LIBRARY MEMBERS

The command and function keys that are assigned a browse
function are:

- CMD   1: Releases all kept lines, without altering the
                browse command.
- CMD   7: Exits the browse function for the library member,
                and cancels any other B operation codes that were
                entered.
- CMD   8: Switches between upper and lower case command entry
                modes.
- CMD   19: Ends library operations for library services or
                returns to the Diskette File Names Screen for
                diskette services.
- ENTER   : Performs the browse command currently displayed, or
                a page forward if no command is provided.
- ROLL UP   : Pages forward one page, without altering the browse
                command.
- ROLL DOWN: Pages backward one page, without altering the
                browse command.
- HELP   : Presents a summary of the browse commands and
                function keys.

BROWSE FUNCTION KEYS - FILES

The command and function keys that are assigned a browse
function are:

- CMD   1: Releases all kept lines, without altering the
                browse command.
- CMD   2: Alternates between multi-record (EBCDIC) and single
                record (hex) display modes.
- CMD   3: Alternates between displaying deleted records, and
                omitting deleted records from the display.
- CMD   7: Exits the browse function for the file, and cancels
                any other B operation codes that were entered.
- CMD   19: Ends file or diskette services.
- ENTER   : Performs the browse command currently displayed, or
                a page forward if no command is provided.
- ROLL UP   : Pages forward one page, without altering the browse
                command.
- ROLL DOWN: Pages backward one page, without altering the
                browse command.
- HELP   : Presents a summary of the browse commands and
                function keys.

3.5 Select Functions (CMD 5)

The Select Function is displayed when command key 5 is pressed on
the following screens:

- Library Operations
    - Library Member Names Screen
- File Operations
    - File Names Screen
- Diskette Operations
    - Magazine File Names Screen
    - File Names Screen
    - Library Member Names Screen

3.5.1 File Name Selection

Command key 5 can be used to select a group of file names based
upon the specified pattern. See Figures 22, 23, and 24.

The pattern may be used to either include or omit matching names
from display.

To include or omit file names that are the same as the specified
characters, enter the characters only (XX)

To include or omit file names beginning with the specified
characters, enter the characters followed by a period (XX.).

To include or omit all file names ending with the specified
characters, enter the characters preceded by a period (.XX).

To include or omit all file names containing the specified
characters, enter the characters preceded by and followed by a
period (.XX.).

To re-display all file names, blank out the pattern field and
press the Enter key.

The initial default values for file name selection cause all file
names to be included. For information on how to change these
default values, see chapter 5.

FILE NAMES SELECTION

```
.------------------------------------------------------------------------.
I                                                                        I
I                                                                        I
I       Select file names to be displayed, press ENTER to continue.      I
I                                                                        I
IFile names must be the same as (eg XT), start with (eg XT.), end with (eg .XT), I
Ior contain (eg .XT.) the following pattern _____   to be Included/Omitted I  I
I                                                                        I
I                                                                        I
I                                                                        I
I                                                                        I
I                                                                        I
I                                                                        I
I                                                                        I
I                                                                        I
I                                                                        I
I                                                                        I
I                                                                        I
I                                                                        I
I                                                                        I
I                                                                        I
I                                                                        I
I                                                                        I
IENTER-FILE screen   Cmd7-End FILE                                       I
I                                                    (c) 1984 IBM Corp.I
!------------------------------------------------------------------------!
```

Figure 22

DISKETTE MAGAZINE FILE NAMES SELECTION

```
.------------------------------------------------------------------------.
I Diskette files in magazine M1                                          I
I                                                                        I
I          Select file names to display.  Press ENTER to continue.       I
I                                                                        I
IEnter file name selection pattern (e.g. XY, XY., .XY, or .XY.):  _____ I
IInclude (I)/Omit (O):  I                                                I
I                                                                        I
I                                                                        I
I                                                                        I
I                                                                        I
I                                                                        I
I                                                                        I
I                                                                        I
I                                                                        I
I                                                                        I
I                                                                        I
I                                                                        I
I                                                                        I
I                                                                        I
ICmd 7-Exit DISKETTE                                 (c) 1984 IBM Corp. I
!------------------------------------------------------------------------!
```

Figure 23

DISKETTE FILE NAMES SELECTION

```
,--------------------------------------------------------------------------,
I Diskette volume IBMIRD in slot 1        Free sectors: 1064 of 1184 each 1024  I
I                                                                          I
I         Select file names to display.  Press ENTER to continue.         I
I                                                                          I
IEnter file name selection pattern (e.g. XY, XY., .XY, or .XY.):  _____  I
IInclude (I)/Omit (O):  I                                                   I
I                                                                          I
I                                                                          I
I                                                                          I
I                                                                          I
I                                                                          I
I                                                                          I
I                                                                          I
I                                                                          I
I                                                                          I
I                                                                          I
I                                                                          I
I                                                                          I
I                                                                          I
ICmd 7-Exit DISKETTE                                (c) 1984 IBM Corp.  I
'--------------------------------------------------------------------------'
```

Figure 24

3.5.2 Library Member Name Selection

Command key 5 can be used to select a group of library member names based upon the specified pattern and member type. See Figures 25, and 26.

The pattern may be used to either include or omit matching names from display.

To include or omit member names that are the same as the specified characters, enter the characters only (XX).

To include or omit member names beginning with the specified characters, enter the characters followed by a period (XX.).

To include or omit all member names ending with the specified characters, enter the characters preceded by a period (.XX).

To include or omit all member names containing the specified characters, enter the characters preceded by and followed by a period (.XX.).

To re-display all member names, blank out the pattern field and press the Enter key.

The initial default values for library member name selection cause all member names to be included. For information on how to change these default values, see chapter 5.

DISKETTE LIBRARY MEMBER NAMES SELECTION
```
----------------------------------------------------------------------
I Diskette volume: FILE         Diskette library file: FILE@F         I
I                                                                     I
I            Select members to display.  Press ENTER to continue.     I
I Display load (O) members?          Y                                I
I Display subroutine (R) members?    Y     Enter selection pattern     I
I Display procedure (P) members?     Y     (e.g. XY, XY., .XY, or .XY.):I
I Display source (S) members?        Y     _____        Include/Omit (I/O): I I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I Cmd 7-Exit                                    (c) 1984 IBM Corp.    I
----------------------------------------------------------------------
```

Figure 25

LIBRARY MEMBER NAMES SELECTION
```
----------------------------------------------------------------------
I Libr: #POPLIB    Free sectors: 5505/5505 of 10000   Free entries:   16 of 250 I
I                                                                     I
I            Select members to display.  Press ENTER to continue.     I
I Display load (O) members?          Y                                I
I Display subroutine (R) members?    Y     Enter selection pattern     I
I Display procedure (P) members?     Y     (e.g. XY, XY., .XY, or .XY.):I
I Display source (S) members?        Y     _____        Include/Omit (I/O): I I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I                                                                     I
I Cmd 7-Exit                                    (c) 1984 IBM Corp.    I
----------------------------------------------------------------------
```

Figure 26

CHAPTER 4

4.0 Functional Description of the Edit Utility

The System/36 Edit Utility is an interactive facility that
assists the user in creating and maintaining System/36 source
and procedure members. The Edit Utility also supports functions
that allow for casual text entry and formatting. Twenty-two
(22) lines on the display are made available for displaying,
entering, or editing lines of data.

The editor can be initiated from the menu screen by selecting
option 10, by using the FSEDIT procedure command, or by
selecting a source or procedure member with the (E) Edit
operation code on the Library Member Names Screen.

Refer to Section 2.2, Sign-On Procedures, for information on the
menu screen and Section 3.1.2, Library Member Operations, for
information on library member operation codes.

The FSEDIT procedure supports the following input parameters:

        Parameter 1 - Name of member to edit.
        Parameter 2 - Type of member being edited.
                      (P, S, R, C, A, V, F, T)
        Parameter 3 - Library name where member exists or is to be
                      replaced.

If any one of these three parameters is omitted when FSEDIT is
called, the Member Selection Screen will be displayed.

If all three parameters are specified, the Member Selection
Screen will not be displayed unless one or more of the
parameters provided is specified incorrectly.

The first time FSEDIT is used, a user profile file EDITPROF is
created. This file is used to save information about how each
user last used FSEDIT.

A profile record will be created for each unique user ID. The
following are examples of information saved in this record:

-    Last member, type, and library edited
-    Last Find/Change command
-    Insert Mask record
-    Tabs definition
-    Last used print options
     -    Printer ID
     -    Lines per page
     -    Lines per inch
     -    Characters per inch

A FSEDIT User Profile Report may be generated with the FSEDPF
procedure. The FSEDPF procedure and a description of the report
it produces is discussed later in this chapter.

WORK FILE RECOVERY SCREEN

```
,--------------------------------------------------------------------------,
I                      System/36 Full Screen Editor                        I
I                            Work File Recovery                            I
I                                                                          I
I   A work file already exists with the following specifications:          I
I                                                                          I
I             User ID - XXX                                                I
I                                                                          I
I             Member Being Edited - RPGPGM1                                I
I                                                                          I
I             Member Type - R                                             I
I                                                                          I
I             Member Library - MYLIBR                                     I
I                                                                          I
I   Select one of the following options - 0                                I
I                                                                          I
I      0. Continue - recover the work file and return to the editor.       I
I                                                                          I
I      1. Continue - recover the work file and display replacement options. I
I                                                                          I
I      2. Continue - delete the work file. Edited data is lost.            I
I                                                                          I
I      3. Cancel   - leave the work file unchanged.                        I
I                                                                          I
I                                                                          I
'--------------------------------------------------------------------------'
```

Figure 27

MEMBER SELECTION SCREEN

```
,--------------------------------------------------------------------------,
I                      System/36 Full Screen Editor                        I
I                             Member Selection                             I
I                                                                          I
I                                                                          I
I  Member Name .........            (Blank For Member List)                I
I                                                                          I
I  Member Type ......... S          (P-Proc,S-Source,R-RPG,C-COBOL,A-ASM)   I
I                                   (V-FORTRAN,F-SFGR,T-Text)               I
I  Library Name ........ MYLIBR                                            I
I                                                                          I
I                                                                          I
I                                                                          I
I                                                                          I
I              Press COMMAND KEY 7 to CANCEL FSEDIT                         I
I              Press HELP KEY to Display Help Text                          I
I                                                                          I
I                                                                          I
I                                                                          I
I                                                                          I
I                                                                          I
'--------------------------------------------------------------------------'
```

Figure 28

4.1 Work File Recovery Screen

If a work file is found to already exist when FSEDIT is called, a work file recovery screen will be displayed. This screen will show the user ID of the user who was editing the member, the name of the member being edited, the member type, and the name of the library to be used for replacement of the member at the time of a failure.

The following recovery options are available on the work file recovery screen:

Option 0 - Recover the work file and return to the editor.

> This option will return to the FSEDIT editor at the same display and with the same status that existed prior to the time of the failure.

Option 1 - Recover the work file and display replacement options.

> This option will cause the Replacement Options Screen to be displayed. From this screen, the member being edited can be replaced into the library.

Option 2 - Delete the work file. Edited data is lost.

> This option will delete the existing work file and display the Member Selection Screen.

Option 3 - Cancel FSEDIT and leave the work file unchanged.

> This option will cancel FSEDIT and leave the existing work file intact.

4.2 Member Selection Screen

The Member Selection Screen is used to specify the member name, the member type, and the name of the library to be used for creating or updating a member. This screen is displayed when the the editor is initiated from the menu screen by selecting option 9 or when the FSEDIT procedure command is used and all the required parameters were not provided (or were specified incorrectly).

The display of this screen will cause the parameters entered to be merged with the specifications used with the last edited member. The specifications previously used were stored in an FSEDIT profile record for each unique user ID.

To create a new member or edit an existing member, enter the member name, member type selection code, and library name.

The library name parameter must always be entered. If not entered, an error message will be issued.

If a member name is entered, member type must also be entered.

If the member name is blank when the Enter key is pressed, a member selection list will be displayed. This list will display the names of all the members of the specified type in the library. If the member type is other than P or S, all source members will be displayed.

If both the member name and member type are blank when the Enter key is pressed, the member selection list will display the names of all the procedure and source members in the library.

See Figure 29 titled MEMBER TYPE SELECTION CODES for an description of the member selection codes.

Command and Function Keys Supported:

- CMD   7: Use this key to cancel FSEDIT.

- HELP   : Use this key to display Help text describing the various options supported.

MEMBER TYPE SELECTION CODES

The following chart shows the valid member type selection codes, their meanings, and initialization values:

Type Selection Code	P	S	R	C	A	V	F	T
Meaning	PROC	SOURCE	RPG	COBOL	ASM	FORTRAN	SFGR	TEXT
Upper/Lower Case	U	-	U	U	U	U	U	L
Format Number	1	-	-	11	15	10	-	1
Auto Format Selection	N	N	Y	N	N	N	Y	N
RPG Tables Preserved	-	N	Y	N	N	N	N	N
Member Reserialization	N	N	N	N	N	N	N	N
Starting Column	73	73	1	1	73	73	1	-
Length	8	8	4	6	8	8	4	-
Member Name Duplication	N	N	N	N	N	N	N	N
Duplication Name	-	-			-	-	-	-
Starting Column	-	-	75	73	-	-	-	-
Procedure Logging	N	-	-	-	-	-	-	-
Procedure Program Data	N	-	-	-	-	-	-	-
MRT Procedure	N	-	-	-	-	-	-	-
Print Member	N	N	N	N	N	N	N	N
Printer ID	P1	P1	P1	P1	P1	P1	P1	P1
Lines Per Page	66	66	66	66	66	66	66	66
Lines Per Inch	6	6	6	6	6	6	6	6
Characters Per Inch	10	10	10	10	10	10	10	10
Number of Copies	1	1	1	1	1	1	1	1

Note: Values shown for Printer Id, Lines Per Page, Lines Per Inch, and Characters Per Inch are initial values ONLY. These values can be changed when a member is printed. The changed values will then be saved in the user profile record and used for subsequent initialization.

Figure 29

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4.3 Member Selection List Screen

This screen is displayed when blanks are entered instead of the member name on the Member Selection Screen. If the member type is specified on the Member Selection Screen, the names of all members of this type in the specified library will be displayed. If blanks are entered for both the member name and member type on the Member Selection Screen, the member selection list will display the names of all the procedure and source members in the library.

To browse a member, enter a browse (B) command to the left of the member name.

To select a member for editing, enter a selection code to the left of the member name. Only a 'P' can be used to select a procedure member. The other selection codes are used to select a source member. Only one selection code can be entered. If more than one selection code is entered, only the first one specified will be selected. See Figure 29 titled MEMBER TYPE SELECTION CODES for an explanation of the member selection codes.

To create a new member, press command key 7 to return to the Member Selection Screen. The member name, member type, and library name for a new member can be entered on this screen.

To reposition the display to member names that begin with certain characters, enter the list beginning name or partial name in the space provided.

To display member names of a different type, enter an 'S' or a 'P' in the space provided. To display member names of both procedure and source members, enter a blank in the space provided.

To display members from a different library, enter the new library name in the space provided.

Command and Function Keys Supported:

- CMD   7: Use this key to return to Member Selection Screen.
- HELP   : Use this key to display Help text describing the various options supported.

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MEMBER SELECTION LIST SCREEN

```
.------------------------------------------------------------------.
I                 System/36 Full Screen Editor                     I
I                   Member Selection List                          I
I Enter selection code                                             I
I to left of member name to select member:    KEYS: ENTER - Page forward    I
I   B - Browse        R - RPG      V - FORTRAN      CMD 7 - Select new member I
I   P - Procedure     C - COBOL    F - SFGR         HELP  - Display Help Text I
I   S - Source        A - ASM      T - Text                        I
I Starting Characters for list..          Library Type/Name.. S / #POPLIB   I
I   DKET01   S 19     DKET24   S 13    FILE16   S 52    LIBR12   S 22   I
I   DKET02   S 152    DKET30   S 47    FILE17   S 27    LIBR13   S 49   I
I   DKET03   S 163    DKET31   S 96    FILE18   S 42    LIBR14   S 19   I
I   DKET05   S 15     FILE01   S 16    FILE30   S 48    LIBR15   S 90   I
I   DKET06   S 19     FILE03   S 118   FILE31   S 92    LIBR16   S 69   I
I   DKET07   S 283    FILE05   S 18    LIBRFMTS S 203   LIBR17   S 31   I
I   DKET08   S 27     FILE06   S 27    LIBR01   S 15    LIBR18   S 51   I
I   DKET09   S 21     FILE07   S 226   LIBR02   S 16    LIBR19   S 70   I
I   DKET10   S 8      FILE08   S 13    LIBR03   S 111   LIBR22   S 22   I
I   DKET14   S 50     FILE09   S 51    LIBR05   S 29    LIBR23   S 19   I
I   DKET15   S 93     FILE10   S 7     LIBR06   S 44    LIBR24   S 8    I
I   DKET16   S 56     FILE111  S 6     LIBR07   S 194   LIBR25   S 15   I
I   DKET17   S 34     FILE12   S 9     LIBR08   S 49    LIBR26   S 15   I
I   DKET19   S 79     FILE13   S 11    LIBR09   S 38    LIBR27   S 6    I
I   DKET22   S 15     FILE14   S 18    LIBR10   S 30    LIBR28   S 23   I
I   DKET23   S 187    FILE15   S 12    LIBR11   S 45    LIBR30   S 47   I
'------------------------------------------------------------------'
```

Figure 30

MEMBER SELECTION BROWSE SCREEN

```
.------------------------------------------------------------------.
I  Browse: RPGPGM1  S MYLIBR        UPPER   1-79                    I
I                                              :                    I
I0001 H      0241                    B         02           LIST    I
I0002 H*                                                    LIST    I
I0003 H***                                                  LIST    I
I0004 H*                                                    LIST    I
I0005 FWORKSTN CP   F    1128              WORKSTN          LIST    I
I0006 F                                         KNUM    01  LIST    I
I0007 F                                         KFMTS  LISTFM  LIST  I
I0008 FSUMMARY IC  F 740  74R          DISK                 LIST    I
I0009 FPRINTER O       132 132    OF      PRINTER           LIST    I
I0010 E* DISPLAY KEYWORDS AND USE COUNTS                    LIST    I
I0011 E*                                                    LIST    I
I0012 E              KYD       80 14          KEYWDS & COUNTS LIST  I
I0013 E              ACNA       4  1          Z SUPPRES COUNTSLIST  I
I0014 IWORKSTN NS  01   1 CO   2 C1   3 CO                  LIST    I
I0015 I* FORMAT- KEYWD010                                   LIST    I
I0016 I                            1   3 SCRNID             LIST    I
I0017 IWORKSTN NS   C9                                      LIST    I
I0018 ISUMMARY NS   11                                      LIST    I
I0019 I                            1  10 KEYWD              LIST    I
I0020 I                           11 140LOG#               LIST    I
I0021 I                           15  74 DSCRIP             LIST    I
I0022 I* LDA CONTENTS                                       LIST    I
'------------------------------------------------------------------'
```

Figure 31

4.4 Member Selection Browse Screen

This screen is displayed when a member is selected from the
Member Selection List Screen with a browse (B) command. This
function allows a procedure or source member to be viewed prior
to being selected for editing.

The display screen presented has the following format:

-   The top line of the screen shows:

    -   Browse:
    -   Name of member being browsed
    -   Member type code (P/S)
    -   Name of library containing member
    -   Shift mode (upper/lower)
    -   Horizontal columns being displayed

-   The second line of the screen is divided into two areas.
    The first is an input area for entering Primary commands,
    Scrolling commands, and Find commands.

    A message area is the right portion of the second line and is
    preceded by a colon (:). It is used to display error and
    status messages. Error messages will be displayed in reverse
    image. Status messages will be displayed normally.

-   The remaining twenty-two lines are used to display lines of
    data from the library member, 79 positions per line.

4.4.1 Primary Commands

Primary commands are entered on the command line. Commands will
be accepted in either upper or lower case. The Primary commands
supported are:

    TOP - Position display to first page of member.

    BOT - Position display to last page of member.

    C   - Cancel FSEDIT.

4.4.2 Scrolling Commands

Scrolling commands are entered on the command line. Commands
will be accepted in either upper or lower case.

To scroll either forward or backward by 22-line pages, enter an
'F' (forward) or a 'B' (backward) on the command line followed
by up to a 5-digit number specifying the number of pages to
scroll. If a number is not entered, the number of pages to
scroll defaults to one page.

To scroll either forward or backward by lines, enter a '+'
(forward) or a '-' (backward) on the command line followed by up

to a 5-digit number specifying the number of lines to scroll.
If a number is not entered, the command is ignored.

To scroll to a specific line number, enter the line number only
on the command line. This will cause the desired line to be
displayed as the first line on the screen.

4.4.2.1 Find Command

The Find command is used to locate a specified character string
within the data being browsed.

Find commands are entered on the command line. Commands will be
accepted in either upper or lower case. The Find command must
be entered in the following form:

    X....X<F,L

    'X....X' is the character string to be located. The string
    may contain any upper or lower case characters including
    blanks, but cannot contain a '<' (less than symbol).

    '<' (less than symbol) is used to indicate the end of
    string 'X....X', and must be specified.

    'F' is the column number in which the character string must
    begin. The value can be any number from 1 to 120. If a
    '?' is specified, the character string can begin in any
    column. If neither a column number or a '?' is specified,
    the character string must begin in column 1.

    'L' is the last column number in which the character string
    can end. The value can be any number from 1 to 120. If a
    '?' is specified, the character string can end in any
    column. An 'L' value is optional. If neither a column
    number or '?' is specified, the default will be the length
    of the character string plus the column number in which the
    character string must begin (F) minus one.

    If the specified character string is found, the cursor will
    be positioned to the first character of the string. In
    addition, the line containing the string will be displayed
    in high intensity.

4.4.3 Command and Function Keys Supported

    - CMD   2: Use this key to alternate between entry of
                 upper and lower case characters.

    - CMD   3: Use this key to alternately display the
                 left or right 79 characters of the member
                 being browsed. The top line of the
                 display will show either '1-79' if
                 displaying the left side of the member or
                 '42-120' if displaying the right side.

- CMD   7: Use this key to return to the Member
            Selection List Screen.

- CMD   8: Use this key to repeat a previously
            entered Find command.

- CMD   20: Use this key to display the last Find
            command entered.

- ROLL   : Use these keys to scroll 22 lines forward
            or backward through the member.

- HOME   : Use this key to reposition the cursor to
            the command line.

- HELP   : Use this key to display Help text
            describing the various commands, command
            function keys, and options associated with
            this function.

4.5 Editing a Member

The FSEDIT editor is a general purpose editor that can readily
be used to create or modify System/36 source or procedure data,
such as RPG II, COBOL, FORTRAN, and Assembler programs,
procedure statements, and SFGR specifications. In addition, the
editor supports several functions to allow for casual text entry
and formatting.

The display screen used to create or modify a source or
procedure member is initiated by the following:

- FSEDIT procedure
- Member Selection Screen
- Selecting a member with a member selection type code on the
  Member Selection List Screen
- Selecting a member with the Edit (E) operation code on the
  Library Member Names screen. (See Section 3.1.2, Library
  Member Operations, for information on library operation
  codes.)

The first line on the screen is used to display information
about the member being edited and the status of the editor. The
display screen presented has the following format:

- The top line of the screen shows:

    -   Name of member being edited
    -   Member selection type code
    -   Name of library for the member
    -   Member record length
    -   Editor shift mode (upper/lower)
    -   Horizontal columns being displayed
    -   Single line mode format number

- Relative record number of 1st line in data area
- Asterisk indicating column 72

- The second line of the screen is divided into two areas.
  The left portion of the line is an input area for entering
  Primary commands, Scrolling commands, and Find or Change
  commands.

  The right portion of the second line is preceded by a colon (:)
  and is used as a message area to display error and status
  messages. Error messages will be displayed in reverse image.
  Status messages will be displayed normally.

- The remaining twenty-two lines are used to enter or update
  the member being edited, and to specify line commands.

EDIT SCREEN

```
.----------------------------------------------------------------------------.
I  RPGPGM1   R  MYLIBR    080  UPPER   1-79   FMT01  00001              *      I
I                                      _____: _____ I
I0001 H     0241                   B               02                  LIST  I
I0002 H*                                                               LIST  I
I0003 H***                                                             LIST  I
I0004 H*                                                               LIST  I
I0005 FWORKSTN CP  F    1128             WORKSTN                       LIST  I
I0006 F                                           KNUM      01         LIST  I
I0007 F                                           KFMTS  LISTFM        LIST  I
I0008 FSUMMARY IC  F 740  74R            DISK                          LIST  I
I0009 FPRINTER O    132 132      OF      PRINTER                       LIST  I
I0010 E* DISPLAY KEYWORDS AND USE COUNTS                               LIST  I
I0011 E*                                                               LIST  I
I0012 E             KYD        80 14              KEYWDS & COUNTS LIST  I
I0013 E             ACNA        4  1              Z SUPPRES COUNTSLIST  I
I0014 IWORKSTN NS  01    1 CO    2 C1   3 CO                           LIST  I
I0015 I* FORMAT- KEYWD010                                              LIST  I
I0016 I                                    1    3 SCRNID               LIST  I
I0017 IWORKSTN NS  09                                                  LIST  I
I0018 ISUMMARY NS  11                                                  LIST  I
I0019 I                                    1   10 KEYWD                LIST  I
I0020 I                                   11  140LOG#                  LIST  I
I0021 I                                   15   74 DSCRIP               LIST  I
I0022 I* LDA CONTENTS                                                  LIST  I
'----------------------------------------------------------------------------'
```

Figure 32

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4.5.1 Editing Operations

The command line is checked for entry of a Primary, Scrolling, Find, or Change command whenever the Enter key, a command key, or a function key is pressed. Data line updates and line commands will be processed before performing a Find or Change command. The processing that will occur if both a Primary or Scrolling command and data lines updates have been entered on the same screen is shown in the Figure below:

```
.--------------------------------------------------------------------.
|                                    |                                |
|    Primary and Scrolling Commands  |       Edit Processing          |
|------------------------------------|--------------------------------|
|                                    |                                |
| C ...... Request Cancel Verification |  Command and changed lines.  |
| CANCEL . Cancel FSEDIT             |  Command only.                 |
| R ...... Request Replace Verification |  Command and changed lines. |
| REPLACE. Replace member in library |  Command and changed lines.    |
| SAVE ... Save Member in Library    |  Command and changed lines.    |
| MASK ... Display/Update Insert Mask |  Command only.                |
| TABS ... Display/Update Tab Columns |  Command only.                |
| NO ..... Reset Delete/Copy/Flow    |  Command and changed lines.    |
| TOP .... Display First Page of Member |  Changed lines only.        |
| BOT .... Display Last Page of Member |  Changed lines only.         |
| Fnn/Bnn  Scroll Fwd/Bkwd nn Pages  |  Changed lines only.           |
| +nn/-nn  Scroll Fwd/Bkwd nn Lines  |  Changed lines only.           |
| nn ..... Scroll to Line Number nn  |  Changed lines only.           |
|                                    |                                |
`------------------------------------`--------------------------------`
```

Figure 33

Data line updates and line commands cannot be entered on the same line.

Each data line will be checked for changes whenever the Enter key, a command key, or a function key is pressed.

If a line has changed and the line does not contain a line command, the associated work file will be updated to reflect the change.

If a changed line contains a line command symbol, a further check will be performed to determine if a line command was actually entered.

- If the data line previously contained one of the symbols defined for a line command, it is assumed that a line command was not entered. The work file record will be updated with the changed data line.

- If the data line did not previously contain one of the symbols defined for a line command, it is assumed that the entry of the line command was the only reason for the change. In this case, the line command will be processed and the work file record will not be updated (any updates on the line will be ignored).

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- With some line commands, a number can be entered as part of the command. If the number entered is the same as the data already on the line, a blank must be entered after the number.

    Note: If column 2 of the data line contains a ? (question mark), the same symbol as defined for the Delete command, an attempt to delete this line will cause Delete pending to be set. The ? (question mark) in column 2 must first be blanked out before attempting to delete the line.

    If column 2 of the data line contains a | (split vertical mark), the same symbol as defined for the Text Split command, entering of the Text Split command in column 1 of this line will cause Flow pending to be set. The expected result can be accomplished by using an Insert command instead of the Text Split command.

LINE COMMANDS

<div style="display:flex">

? ...... Single Line Delete
?? ..... Multiple Line Delete
< ...... Copy/Move Start/End Line
<nn .... Repeat line nn times
= ...... Edit Line Under Format
=nn .... Edit Line Under Format nn
=? ..... Show List/Edit Under Format

> ...... Insert/Copy Destination Line
>nn .... Insert Mask/Copy Data nn Times
>> ..... Copy Member Destination Line
>M ..... Move Destination Line
>✱ ..... Insert Column Scale After Line
¦ ...... Split Text Line at ¦ Symbol
¦¦ ..... Text Flow (Right Margin = 72)
¦¦nn ... Text Flow (Right Margin = nn)

</div>

Line commands can be entered together on the same screen (before pressing
the Enter key or a command key) to perform editing functions. The line
commands that can be entered together are shown below. In this chart, the
line commands are shown both at the top and down the right side. To
determine when one command can be used with another, select the command
from the left side and look across the page for an entry (x) on the chart.
Where there is an entry (x), the command at the top of the chart directly
above the (x) can be used together with the command selected from the left
side of the chart.

	?	??	<	<nn	=	=nn	=?	>	>nn	>>	>M	>✱	¦	¦¦	¦¦nn
?	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
??	x	x			x	x	x							x	x
<	x		x					x	x		x				
<nn	x														
=	x	x													
=nn	x	x													
=?	x	x													
>	x		x												
>nn	x		x												
>>	x														
>M	x		x												
>✱	x														
¦	x												x		
¦¦	x	x													
¦¦nn	x	x													

Note: If both a Block Delete operation and a Text Flow operation are being
      performed, and the Block Delete operation cannot be completed on the
      current screen, the Text Flow operation will be performed but the
      Block Delete operation is dropped (delete pending will not be set).

      If both a Block Delete operation and an Edit under Format operation is
      being performed, and the Block Delete operation cannot be completed
      on the current screen, the Edit under Format operation will be
      performed but the Block Delete operation is dropped (delete pending
      will not be set).

      If both a Block Delete operation and a Text Flow operation are being
      performed, and the Text Flow operation cannot be completed on the
      current screen, the Block Delete operation will be performed, and
      Flow pending will be set.

Figure 34

4.5.2 Primary Commands

Primary commands are entered on the command line. Commands will be accepted in either upper or lower case. The Primary commands supported are:

TOP   - Position display to first page of member.

BOT   - Position display to last page of member.

C   - Request cancel verification.

R   - Request replace verification.

CANCEL   - Cancel FSEDIT. Edited data is not replaced.

REPLACE - Replace edited member into library. The Replacement Options Screen will be displayed.

SAVE   - Replace edited member into library. The Replacement Options Screen will be displayed. After replacement is complete, the editor is recalled with the same display screen on which the SAVE command was initially entered.

NO   - Resets a Copy, Delete, Flow, or Member Copy pending operation.

MASK   - Causes the Insert Mask record to be displayed.

             The Insert Mask record is used to initialize all inserted records. This record normally contains all blanks and therefore all inserted records are blank. However, if data is entered into the Insert Mask record, all subsequent inserted records will contain this data.

             Press the Enter key to continue editing. The Insert Mask record is saved in the user profile record.

TABS   - Causes the Tab Columns record to be displayed.

             The Tab Columns record is used to provide tab control when editing. To set tab positions, enter a tab character at the positions desired. The first (leftmost) character entered becomes the actual tab character. If any other characters are entered, they are used only to indicate additional tab positions.

             When editing, place the tab character in front of each field to be tabbed. When the Enter key is pressed, the first tab character in the input line is located. All of the data after that tab

character is moved to the right so that it begins at the next tab position defined in the Tab Columns record. The next tab character in the input line is then located and the process is repeated until either no more tab characters are found or until no additional tab positions exist in the Tab Columns record. Tab characters in excess of those defined will be ignored and blanked out.

If a tab character is specified which is beyond the tab definition position, the next higher tab definition position will be used. Therefore, only forward tabbing will be performed.

To skip a tab column, simply enter two tab characters in a row.

CAUTION: The tab function causes all of data to the right of the tab symbol to moved to the right. This causes the line to be truncated on the right. Normally only blanks are truncated. However, depending on the amount of data contained in the line and on the tab position specified, it is possible to truncate data other than blanks.

Tab characters can appear on any number of lines at the same time.

A character that previously existed on a line which is the same as the defined tab character, will not be considered a TABS command and tabbing will not be performed.

After entering or updating the Tab Columns record, press the Enter key to continue editing. The Tab Columns record is saved in the user profile record.

4.5.3 Scrolling Commands

Scrolling commands are entered on the command line. Commands will be accepted in either upper or lower case.

To scroll either forward or backward by 22-line pages, enter an 'F' (forward) or a 'B' (backward) on the command line followed by up to a 5-digit number specifying the number of pages to scroll. If a number is not entered, the number of pages to scroll defaults to one page.

To scroll either forward or backward by lines, enter a '+' (forward) or a '-' (backward) on the command line followed by up

to a 5-digit number specifying the number of lines to scroll.
If a number is not entered, the command is ignored.

To scroll to a specific line number, enter the line number only
on the command line. This will cause the desired line to be
displayed on the first data line of the screen.

4.5.3.1 Find Command

The Find command is used to locate a specified character string
within the data being edited.

Find commands are entered on the command line. Commands will be
accepted in either upper or lower case. The Find command must
be entered in the following form:

    X....X<F,L

    'X....X' is the character string to be located. The string
    may contain any upper or lower case characters including
    blanks, but cannot contain a '<' (less than symbol).

    '<' (less than symbol) is used to indicate the end of
    string 'X....X', and must be specified.

    'F' is the column number in which the character string can
    begin. The value can be any number from 1 to 120. If a
    '?' is specified, the character string can begin in any
    column. If neither a column number or a '?' is specified,
    the default is column 1.

    'L' is the last column number in which the character string
    can end. The value can be any number from 1 to 120. If a
    '?' is specified, the character string can end in any
    column. An 'L' value is optional. If neither a column
    number or '?' is specified, the default will be the length
    of the character string plus the column number in which the
    character string must begin (F) minus one.

    If the specified character string is found, the cursor will
    be positioned to the first character of the string. In
    addition, if in 79 character line mode, the line containing
    the string will be displayed in high intensity.

4.5.3.2 Change Command

The Change command is used to find a specified character string
and to change this character string to another specified
character string.

Change commands are entered on the command line. Commands will
be accepted in either upper or lower case. The Change command
must be entered in the following form:

    X....X<F,L<Y....Y<O

be changed if required for your system. The information on changing the symbols for commands or the printer defaults is documented in Chapter 5, Program Modification Descriptions, Section 5.2, Edit Utility.

4.5.4.1 Delete Commands

There are two commands supported for deleting lines.

To delete one or more single lines, a ? (single question mark) must be entered in column 1 of each line being deleted. When the Enter key or an allowed command or function key is pressed, those lines will be deleted.

To delete a group or block of lines, a ?? (double question mark) must be entered in column 1 of the first and the last line of the group. The first line and the last line of a group are not required to be on the same screen. If only one ?? command is entered, the message 'Delete Pending' will be displayed in the message area of the screen. In addition, if in 79 character line mode, the line containing the ?? command will be displayed in high intensity.

The second ?? command can be entered either on the same screen as the first command or on any other screen. When the second ?? command is entered, all of the lines between this line and the line where the first command was entered will be deleted.

Multiple Delete commands can be entered on a screen. When multiple sets of Block Delete commands are entered at the same time, they are performed in order from the top of the screen to the bottom.

A delete command cannot be used to delete all of the lines in a member. At least one line must remain in order to specify other line commands.

Single line deletes (?) can be specified while block commands (Delete, Copy, or Text Flow) are pending. However, an error message will be issued if an attempt is made to delete the line on which a pending command was specified.

If a Copy, Text Flow, or Member Copy operation is pending when a Block Delete command is entered, this pending operation is cancelled and Delete pending is set.

Single line Delete commands can be used with data line updates and all other line commands.

Block Delete commands, data line updates, and single line Delete commands can be entered at the same time on the screen. Text Flow commands or Edit under Format commands can also be used with Block Delete on the same screen with some restrictions (see Note at the bottom of Figure 34).

See the section, Editing Operations, for more information on the updating of data lines and the use of line commands.

4.5.4.2 Repeat Line Command

The Repeat Line command will duplicate a single line up to 99 times.

To repeat a line, a < (less than symbol) immediately followed by a 1 or 2 digit number from 1 to 99 must be entered in column 1 of the line to be duplicated. If the number entered is the same as the data already on the line, a blank must be entered after the number.

If a Copy, Text Flow, Delete, or Member Copy operation is pending when a Repeat Line command is entered, the pending operation is cancelled.

Only one Repeat Line command can be entered on the screen. Data line updates and single line Delete commands can be entered on the same screen with a Repeat Line command. If other line commands are entered, they will be ignored.

See the section, Editing Operations, for more information on the updating of data lines and the use of line commands.

4.5.4.3 Copy/Move Commands

This section discusses how to specify the lines to be copied or moved. See the section, Copy/Move/Member Copy/Insert Command, for information on how to specify the insert point for a Copy or Move operation.

The Copy/Move Command allows any number of data lines to be either copied or moved to another location in the member. If the operation is a Copy, a copy of the data lines are inserted at the new location in the member. If the operation is a Move, the data lines are moved to the new location in the member (the data is deleted from its original location).

To specify the lines to be copied or moved, a < (less than symbol) must be entered in column 1 of the first and last lines to be operated upon. If only one line is to be copied or moved, only one < can be entered. The first line and the last lines are not required to be on the same screen.

After specifying the first and last lines to be copied or moved, the message 'Copy Pending' will be displayed in the message area of the screen. In addition, if in 79 character line mode, the first and the last line will be displayed in high intensity.

If a Text Flow, Delete, or Member Copy operation is pending when a Copy/Move command is entered, this pending operation is cancelled and Copy Pending is set.

If a Text Flow, Delete, or Member Copy operation is pending when an Copy/Move command is entered, this pending operation is cancelled and Copy Pending is set.

Only one pair of Copy/Move commands (<) and one Copy/Move/Member Copy/Insert command (>) can be entered on the screen. Data line updates and single line Delete commands can also be entered on the same screen. If other line commands are entered, they will be ignored.

See the section, Editing Operations, for more information on the updating of data lines and the use of line commands.

4.5.4.4 Copy/Move/Member Copy/Insert Command

This section discusses how to specify the insert point for a Copy/Move/Member Copy/Insert operation. See the sections, Copy/Move Commands and Member Copy Command, for information on how to specify the lines to be copied or moved.

To specify the insert point for a Copy operation, a > (greater than symbol) must be entered in column 1 of the line preceding the line where the data is to be inserted. If multiple copies of the data are required, a 1 or 2 digit number from 1 to 99 can be entered directly after the > symbol. If the number entered is the same as the data already on the line, a blank must be entered after the number. If a number is not entered, only one copy is made.

To specify the insert point for a Move operation, a >M (greater than symbol followed by the letter M) must be entered in column 1 of the line preceding the line where the Move data is to be inserted.

To specify the insert point for a Member Copy operation, a > (greater than symbol) must be entered in column 1 of the line preceding the line where the Member Copy data is to be inserted.

See command key 10 and the section titled Copy/Browse Member Selection Screen for additional information about Member Copy.

The > symbol is recognized as an Copy/Move insert point only when Copy is pending. The > symbol is recognized as a Member Copy insert point only when Member Copy is pending. If a Copy or Member Copy operation is not pending, then the > symbol specifies an Insert command (see the section titled Insert Command).

One Copy/Move/Member Copy/Insert command (>) and one pair of Copy/Move commands (<) can be entered on the screen. Data line updates and single line Delete commands can also be entered on the same screen. If other line commands are entered, they will be ignored.

See the section, Editing Operations, for more information on the updating of data lines and the use of line commands.

4.5.4.5 Member Copy Command

The Member Copy command allows data from another source or procedure member to be copied into the member being edited.

To specify the Member Copy command, a >> (double greater than symbol) must be entered in column 1 of the line preceding the line where the data from another member is to be inserted.

After the Member Copy command is entered, the Copy/Browse Member Selection Screen will be displayed. From this screen, a source or procedure member can be selected. Lines of data from this member can be selected for copying into the member being edited.

If one or more lines of data were selected while in Copy/Browse mode, they will be inserted after the line on which the Member Copy command was specified. Control is then returned to the editor.

If no lines were selected when control is returned to the editor, the Member Copy operation is cancelled.

See command key 10 and the section titled Copy/Browse Screen for additional information.

Only one Member Copy command can be entered on the screen. Data line updates and single line Delete commands can be entered on the same screen with a Member Copy command. If other line commands are entered, they will be ignored.

See the section, Editing Operations, for more information on the updating of data lines and the use of line commands.

4.5.4.6 Insert Command

The Insert command allows up to 99 lines to be inserted into a member.

The Insert Mask record is used to initialize all inserted records. This record normally contains all blanks and therefore all inserted records are blank. However, if data is entered into the Insert Mask record, all subsequent inserted records will contain this data.

To specify an Insert command, a > (greater than symbol) must be entered in column 1 of the line preceding the line where the new lines are to be inserted. If multiple lines are to be inserted, a 1 or 2 digit number from 1 to 99 can be entered directly after the > symbol. If the number entered is the same as the data already on the line, a blank must be entered after the number. If a number is not entered, only one copy is made.

The > symbol is recognized as an Insert command only when Copy or Member Copy is not pending. If a Copy or Member Copy operation is pending, then the > symbol specifies the insert point.

If a Text Flow or Delete operation is pending when an Insert command is entered, the pending operation is canceled.

Only one Insert command can be entered on the screen. Data line updates and single line Delete commands can be entered on the same screen with an Insert command. If other line commands are entered, they will be ignored.

See the section, Editing Operations, for more information on the updating of data lines and the use of line commands.

4.5.4.7 Text Split Command

The Text Split command allows one or more data lines to be split into two separate lines, allowing insertion of new data on the original line.

To specify the Text Split command, a ¦ (split vertical mark) symbol should be placed at the position where the split is to occur on each line. When the Enter key or an allowed command key is pressed, a new data line will be inserted following the line that contained the Text Split command. All of the data to the right of the command, including the character overlayed by the command, will be moved to the new inserted line. The cursor will then be positioned to the split point to allow new data to be entered.

If the line being split was indented from the left, that indentation will be preserved for the data moved to the new inserted line.

Only one Text Split command can be entered on a line. If more than one Text Split command is entered on a line, all commands except the first command will be ignored.

Any number of lines can each contain a Text Split command. However, the cursor will be positioned at the split point specified on the first line.

Data line updates and single line Delete commands can be entered on the same screen with a Text Split command. If other line commands are entered, they will be ignored.

See the section, Editing Operations, for more information on the updating of data lines and the use of line commands.

4.5.4.8 Text Flow Command

The Text Flow command allows the data within paragraphs to be rejoined following deletions, insertions, or splitting.

4.5.4.9 Edit Under Format Command

The Edit Under Format command causes the specified line to be
displayed in single line mode. To return to full screen mode
after editing lines of data in single line mode, use command
key 5.

To specify the Edit Under Format command, an = (equal sign) must
be entered in column 1 of the line to be displayed. The editor
will then enter single line mode and display the selected line
under format.

If the member selection type code specified during FSEDIT sign
on was an 'R' (RPG) or 'F' (SFGR), the editor will attempt to
automatically select the correct format.

If the member selection type code was not an 'R' or 'F', the
format selected will be the one assigned to the member selection
code or the last one used. See the Figure titled MEMBER
TYPE SELECTION CODES for an explanation of the member selection
codes.

If a line must be displayed under a particular format and the
format number is known, the 1 or 2 digit format number from 1 to
20 can be entered directly after the = symbol. If the number is
the same as the data already on the line, a blank must be
inserted after the number.

If a line must be displayed under a particular format but the
format number is not known, a ? (question mark) can be entered
directly after the = symbol. This will cause the Format
Selection List Screen to be displayed. This screen allows
manual selection of formats. After a format selection is made,
the originally selected line will be displayed under that
format.

If a format number was manually specified either with the =
command or from the selection screen, automatic selection of
formats will be suppressed until the next time single line mode
is entered.

See command key 5, command key 17, and the section titled Single
Line Mode for additional information.

Only one Edit under Format command can be entered on the screen.
Data line updates and single line Delete commands can be entered
on the same screen with an Edit under Format command. If other
line commands are entered, they will be ignored.

See the section, Editing Operations, for more information on the
updating of data lines and the use of line commands.

4.5.4.10 Insert Column Scale Command

The Insert Column Scale command causes a special 120 character
column scale record to be inserted into the work file.

To specify an Insert Column Scale command, a ># (greater than
symbol followed by a pound sign symbol) must be entered in
column 1 of the line after which the column scale should be
inserted.

The column scale record, once inserted, is treated exactly the
same as any other inserted record. That is, it can be deleted,
copied, or moved. It cannot however, be updated, flowed, or
split, and it will not be replaced when the member is replaced
into a library.

If in 79 character line mode, the line containing the column
scale will be displayed in high intensity.

Only one Insert Column Scale command can be entered on the
screen. Data line updates and single line Delete commands can
be entered on the same screen with an Insert Column Scale
command. If other line commands are entered, they will be
ignored.

See the section, Editing Operations, for more information on the
updating of data lines and the use of line commands.

4.5.5 Command and Function Keys Supported

- CMD   1: Use this key to redisplay the last screen
              displayed. For example, if the Field Exit
              key is inadvertently pressed while editing
              and data is erased from the screen,
              pressing command key 1 will restore the
              screen to its previous status.

- CMD   2: Use this key to alternate between upper
              and lower case.

- CMD   3: Use this key to alternately display the
              left or right 79 or 80 characters of the
              member being edited. See the command key
              4 for a description of 79 and 80 character
              line mode.

- CMD   4: Use this key to alternate between 79 and
              80 character line mode.

              In 79 character line mode, the data area is
              divided into twenty-two 79 characters lines.
              Characters can be inserted or deleted (using
              the Insert/Delete function key) without
              affecting the other lines on the screen. The
              top line of the display will show either

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'1-79' if displaying the left side of the member or '42-120' if displaying the right side.

In 80 character line mode, the data area is one 1760 character data line. Therefore, when characters are inserted or deleted (using the Insert/Delete function key), all of the data from that point to the bottom of the screen is also affected. This mode can be useful when constructing illustrations or drawings that must be moved around the screen. The top line of the display will show either '1-80' if displaying the left side of the member or '41-120' if displaying the right side.

- CMD   5: Use this key to alternate between full screen mode and single line mode.

    This key, if pressed when in full screen mode, will cause the 1st line on the screen to be displayed under format. The format used will be the last one selected or used if the member selection type code was not an 'R' (RPG) or 'F' (SFGR). If the member selection type code was an 'R' or 'F', the editor will attempt to automatically select the correct format.

    This key, if pressed when in single line mode, will return the editor to full screen mode.

    See command key 17, the '=' line command, and the section titled Single Line Mode for additional information.

- CMD   6: Use this key to extend the work file by 500 records.

    Pressing command key 6 will cause an attempt to enlarge the capacity of the FSEDIT work file. If insufficient space exists on the disk, an error message will be issued.

- CMD   7: Use this key to replace an edited member into a library. When this key is pressed, the Replacement Options Screen will be displayed.

- CMD   8: Use this key to repeat a previously entered Find command or the Find portion of a previously entered Change command.

See the section on the Change command for
more information on the use of this command
key.

- CMD   9: Use this key to repeat a previously
            entered Change command.

            See the section on the Change command for
            more information on the use of this command
            key.

- CMD 10: Use this key to request the Copy/Browse
            function. When this key is pressed, the
            Copy/Browse Member Selection Screen will
            be displayed.

            See the '>>' command and the section titled
            Copy/Browse Member Selection Screen for
            additional information.

- CMD 17: Use this key to display the Format
            Selection List Screen. This screen allows
            manual selection of formats. The use of
            this key is supported only in single line
            mode.

- CMD 19: Use this key to replace an edited member
            into a library without replacement
            options. When this key is pressed, the
            Replacement Options Screen will not be
            displayed.

- CMD 20: Use this key to display the last Find or
            Change command entered.

- ROLL   : Use these keys to scroll 22 lines forward
            or backward through the member (one line
            in single line mode).

- HOME   : Use this key to reposition the cursor to
            the command line.

- HELP   : Use this key to display Help text
            describing the various commands, command
            function keys, and options associated with
            this function.

4.5.6 Single Line Mode

In single line Mode, a line of data can be displayed for editing
under format control rather than in free form as in full screen
mode. In addition, the lines before and after the line of data
to be edited are also displayed.

Single line mode is especially valuable when working with fixed column specifications such as are necessary for RPG II and SFGR.

For information about how screen formats are selected, see command key 17 and the section titled Edit Under Format Command.

When in single line mode, most of functions available in full screen mode are also available. The functions supported differently are as follows:

- Command Keys

    Command Keys 3 and 4 are not supported in single line mode.

    Command Key 17 is supported only in single line mode.

- Primary Commands

    All Primary commands are supported the same in single line mode as in full screen mode.

- Scrolling Commands

    All Scrolling commands are supported in single line mode. However, if a command for scrolling pages (Fnnnnn,Bnnnnn) is entered, lines instead of pages will be scrolled.

- Line Commands

    All line commands are ignored in single line mode.

    If a symbol defined for a line command must be entered into a data line, single line mode must be used.

- Find/Change Commands

    The Find and Change Command is supported the same in single line mode as in full screen mode. However, the cursor will not be positioned to the first character of the string and the line will not be displayed in high intensity.

COPY/BROWSE MEMBER SELECTION SCREEN

```
.-------------------------------------------------------------------------.
I                   System/36 Full Screen Editor                          I
I                          Copy/Browse                                    I
I                                                                         I
I                                                                         I
I Member Name .........          (Blank For Member List)                  I
I                                                                         I
I Member Type .......... S       (P-Proc,S-Source)                        I
I                                                                         I
I Library Name ......... #POPLIB                                          I
I                                                                         I
I                                                                         I
I                                                                         I
I                                                                         I
I                                                                         I
I              Press COMMAND KEY 7 to CANCEL Copy/Browse                   I
I              Press HELP KEY to Display Help Text                        I
I                                                                         I
I                                                                         I
I                                                                         I
I                                                                         I
I                                                                         I
I                                                                         I
I                                                                         I
'-------------------------------------------------------------------------'
```

Figure 35

COPY/BROWSE MEMBER SELECTION LIST SCREEN

```
.-------------------------------------------------------------------------.
I                   System/36 Full Screen Editor                          I
I                          Member Selection List                          I
I Enter selection code                                                    I
I to left of member name to select member:   KEYS: ENTER - Page forward   I
I   B - Browse                                      CMD 7 - Cancel Copy/Browse I
I                                                   HELP  - Display Help Text  I
I                                                                         I
I Starting Characters for list..           Library Type/Name.. S / #POPLIB I
I   DKET01  S 19      DKET24  S 13      FILE16   S 52    LIBR12  S 22      I
I   DKET02  S 152     DKET30  S 47      FILE17   S 27    LIBR13  S 49      I
I   DKET03  S 163     DKET31  S 96      FILE18   S 42    LIBR14  S 19      I
I   DKET05  S 15      FILE01  S 16      FILE30   S 48    LIBR15  S 90      I
I   DKET06  S 19      FILE03  S 118     FILE31   S 92    LIBR16  S 69      I
I   DKET07  S 283     FILE05  S 18      LIBRFMTS S 203   LIBR17  S 31      I
I   DKET08  S 27      FILE06  S 27      LIBR01   S 15    LIBR18  S 51      I
I   DKET09  S 21      FILE07  S 226     LIBR02   S 16    LIBR19  S 70      I
I   DKET10  S 8       FILE08  S 13      LIBR03   S 111   LIBR22  S 22      I
I   DKET14  S 50      FILE09  S 51      LIBR05   S 29    LIBR23  S 19      I
I   DKET15  S 93      FILE10  S 7       LIBR06   S 44    LIBR24  S 8       I
I   DKET16  S 56      FILE111 S 6       LIBR07   S 194   LIBR25  S 15      I
I   DKET17  S 34      FILE12  S 9       LIBR08   S 49    LIBR26  S 15      I
I   DKET19  S 79      FILE13  S 11      LIBR09   S 38    LIBR27  S 6       I
I   DKET22  S 15      FILE14  S 18      LIBR10   S 30    LIBR28  S 23      I
I   DKET23  S 187     FILE15  S 12      LIBR11   S 45    LIBR30  S 47      I
'-------------------------------------------------------------------------'
```

Figure 36

4.6 Copy/Browse Member Selection Screen

The Member Selection Screen is used to specify the member name, the member type, and the name of the library of a member to be copied from or browsed. This screen is displayed by the editor when command key 10 is pressed or when a Member Copy command (>>) is entered on a data line.

The screen will be displayed with the same library name and member type (only procedure (P) and source (S) member type codes are used) as the member being edited.

To browse or copy from a member, enter the member name, member type code, and library name.

The library name parameter must always be entered. If not entered, an error message will be issued.

If a member name is entered, member type must also be entered.

If the member name is blank when the Enter key is pressed, a member selection list will be displayed. This list will display the names of all the members of the specified type in the library.

If both the member name and member type are blank when the Enter key is pressed, the member selection list will display the names of all the procedure and source members in the library.

Command and Function Keys Supported:

- CMD   7: Use this key to return to the editor.

- HELP   : Use this key to display Help text describing the various options supported.

4.7 Copy/Browse Member Selection List Screen

The Member Selection List Screen displays the names of all the members of the specified type (or the names of all procedure and source members) in the library.

To browse or copy from a member, enter a browse (B) command to the left of the member name. Only one selection code can be entered. If more than one is entered, only the first will be processed.

To reposition the display to member names that begin with certain characters, enter the list beginning name or partial name in the space provided.

To display member names of a different type, enter an 'S' or a 'P' in the space provided. To display member names of both procedure and source members, enter a blank in the space provided.

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To display members from a different library, enter the new
library name in the space provided.

Command and Function Keys Supported:

     Command Key 7 - Use this key to return to the editor.

     HELP Key   - Use this key to display Help text
                    describing the various options supported.

<div align="center">COPY/BROWSE SCREEN</div>

```
.-----------------------------------------------------------------------.
I  Edit: RPGPGM1  R MYLIBR    Copy/Browse: RPGPGM2  S MYLIBR    UPPER   1-79    I
I                                                        :                       I
I0022 C    U1        'AT ENTRY'DEBUGPRINTER                               PGM2  I
I0023 C                       SETOF                      40               PGM2  I
I0024 C                       SETOF                      09               PGM2  I
I0025 C                       SETOF                      120F             PGM2  I
I0026 C   N10                 SETON                      0910             PGM2  I
I0027 C    09                 Z-ADDO        LNCTR   10                    PGM2  I
I0028 C    09       OPTION    COMP 3                1414  DISPLAY ONLY    PGM2  I
I0029 C    14                 SETON                      LR               PGM2  I
I0030 C    14                 GOTO EXIT                     OPTION NOT ALWDPGM2 I
I0031 C    09                 Z-ADDO        #KEY    50                    PGM2  I
I0032 C   N92                 GOTO SHOWMO                   SHOW ADDITIONALPGM2 I
I0033 C    92                 SETON                      LR               PGM2  I
I0034 C    LR                 GOTO EXIT                                   PGM2  I
I0035 C*                                                                  PGM2  I
I0036 C            'CRASH..!'DEBUGPRINTER                                 PGM2  I
I0037 C                       SETON                      LR               PGM2  I
I0038 C                       GOTO EXIT                                   PGM2  I
I0039 C*                                                                  PGM2  I
I0040 C****************************************                           PGM2  I
I0041 C            SHOWMO    TAG                                          PGM2  I
I0042 C                       MOVE *BLANKS   KYD                          PGM2  I
I0043 C                       EXSR SHOWIT                READ/SUMMARIZE/PGM2  I
'-----------------------------------------------------------------------'
```

<div align="center">Figure 37</div>

4.8 Copy/Browse Screen

This screen display is initiated from the Copy/Browse Member
Selection Screen or when a member is selected from the
Copy/Browse Member Selection List Screen with a browse (B)
command. This function allows a procedure or source member to
be browsed or copied from while the same member or a different
member is being edited.

The display screen has the following format:

- The top line of the screen shows:

    -    Edit:
    -    Name of member being edited
    -    Member type selection code
    -    Name of library in which to replace member
    -    Copy/Browse:
    -    Name of member being copied/browsed
    -    Member type code (P/S)

4.8.2 Scrolling Commands

Scrolling commands are entered on the command line. Commands will be accepted in either upper or lower case.

To scroll either forward or backward by 22-line pages, enter an 'F' (forward) or a 'B' (backward) on the command line followed by up to a 5-digit number specifying the number of pages to scroll. If a number is not entered, the number of pages to scroll defaults to one page.

To scroll either forward or backward by lines, enter a '+' (forward) or a '-' (backward) on the command line followed by up to a 5-digit number specifying the number of lines to scroll. If a number is not entered, an error message will be issued.

To scroll to a specific line number, enter the line number only on the command line. This will cause the desired line to be displayed as the first line on the screen.

4.8.2.1 Find Command

The Find command is used to locate a specified character string within the data being edited.

Find commands are entered on the command line. Commands will be accepted in either upper or lower case. The Find command must be entered in the following form:

    X....X<F,L

    'X....X' is the character string to be located. The string may contain any upper or lower case characters including blanks, but cannot contain a '<' (less than symbol).

    '<' (less than symbol) is used to indicate the end of string 'X....X', and must be specified.

    'F' is the column number in which the character string must begin. The value can be any number from 1 to 120. If a '?' is specified, the character string can begin in any column. If neither a column number or a '?' is specified, the character string must begin in column 1.

    'L' is the last column number in which the character string can end. The value can be any number from 1 to 120. If a '?' is specified, the character string can end in any column. An 'L' value is optional. If neither a column number or '?' is specified, the default will be the length of the character string plus the column number in which the character string must begin (F) minus one.

    If the specified character string is found, the cursor will be positioned to the first character of the string. In

addition, the line containing the string will be displayed in high intensity.

4.8.3 Line Commands

The only line commands supported during Copy/Browse are the commands required to copy data from the member being browsed to the member being edited.

Member Copy Commands

To copy a group of lines, a < (less than symbol) must be entered in column 1 of the first and last lines of the group. The first line and the last line of a group are not required to be on the same screen. If only one < command is entered, the message 'Member Copy Pending' will be displayed in the message area of the screen. In addition, the line containing the < command will be displayed in high intensity.

The second < command can be entered either on the same screen as the first command or on any other screen. When the second < command is entered, all of the lines between this line and the line where the first command was entered will be selected to be copied.

If only one line is to be selected for copying, a << (double less than symbol) can be entered in column 1 of the line to be copied.

If a Member Copy command (>>) was entered to initiate the member copy operation, the selected lines will be inserted immediately following the data line containing the Member Copy command and control returned to the editor.

If command key 10 was used to initiate the member copy operation, control will be returned to the editor and the selected lines will not be inserted until an Member Copy Insert Command is specified.

4.8.4 Command and Function Keys Supported

- CMD   2: Use this key to alternate between upper and lower case.

- CMD   3: Use this key to alternately display the left or right 79 characters of the member being browsed. The top line of the display will show either '1-79' if displaying the left side of the member or '42-120' if displaying the right side.

- CMD   7: Use this key to return to the previous display, Copy/Browse Member Selection Screen or Copy/Browse Member Selection List Screen.

- CMD 8: Use this key to repeat a previously
          entered Find command.

- CMD 20: Use this key to display the last Find
          command entered.

- ROLL : Use these keys to scroll 22 lines forward
          or backward through the member.

- HOME : Use this key to reposition the cursor to
          the command line.

- HELP : Use this key to display Help text
          describing the various commands, command
          function keys, and options associated with
          this function.

4.9 Replacing a Member

When editing is complete, the edited member must be replaced
into a library. This process is initiated by entering the
Replace or Save command, or by pressing command key 7 or 19
(upper case 7). Except for command key 19, a Replacement
Options Screen appropriate to the type of member being edited
will then be displayed.

REPLACEMENT OPTIONS SCREEN

```
.-------------------------------------------------------------------------.
I                    System/36 Full Screen Editor                         I
I                    Source Replacement Options                           I
I                                                                         I
ISerialize Member? ............ N        (Y/N)      Press: ENTER KEY to   I
I Starting Column Number ...... 1                          REPLACE Member I
I Length ...................... 4        (4 to 8)                         I
I                                                    COMMAND KEY 1 to     I
IPrint Member? ................ N        (Y/N)       RETURN to Editor     I
I Printer ID .................. P2       (ID/SYSTEM)                      I
I Lines Per Page .............. 66       (1 to 112)  COMMAND KEY 19 to    I
I Lines Per Inch .............. 6        (4/6/8)      CANCEL FSEDIT        I
I Characters Per Inch ........ 10        (10/15)                          I
I Number of Copies ............ 1        (1 to 99)                        I
I                                                                         I
IDuplicate Member Name? ....... N        (Y/N)                           I
I Duplication Name ............ PGM1                                     I
I Starting Column Number ...... 75                                      I
I                                                                         I
INew Member Name .............. RPGPGM1                                  I
I New Library Name ............ MYLIBR                                   I
I New Record Length ........... 080      (40 to 120)                     I
I                                                                         I
I                                                                         I
'-------------------------------------------------------------------------'
```

Figure 38

Replacement Options Screen

The Replacement Options Screen allows various options to be
selected that affect a member as it is being replaced into a
library. The default replacement values are based upon the
member type being edited (see Figure 29).

Setting Procedure Attributes

The history file logging, program data, and MRT attributes can
be specified when replacing a procedure member.

If OCL statements should be logged to the history file, enter a
'Y' in the appropriate field. If OCL statements should not be
logged, enter an 'N'.

If data specified on the INCLUDE OCL statement is to be
considered program data, enter a 'Y' in the appropriate field.
If the data is to be considered procedure parameters, enter an
'N'.

If the procedure being replaced is an MRT procedure, enter a 'Y'
in the appropriate field. If it is not an MRT procedure, enter
an 'N'.

Reserializing a Member

Edited data such as RPG II or COBOL source programs often need
to be serialized as they are being replaced into a library.

If member serialization is required, enter a 'Y' in the serialize
member response field. In addition, the starting column number
(1 to 120) and length (4 to 8) must also be entered.

If serialization is not required, enter an 'N' in the serialize
member response field. The starting column number and length
fields are then ignored.

CAUTION: Serialization of a procedure member is not recommended.

Member Name Duplication

Edited data such as an RPG II source program can have up to an
eight character name added to each record as they are being
replaced into a library.

If member name duplication is required, enter a 'Y' in the
duplicate member name response field. In addition, the name and
the starting column number must also be entered.

If member name duplication is not required, enter an 'N' in the
duplicate member name response field. The name and the starting
column number are then ignored.

Printing the Member

If the member should be printed as it is being replaced, enter a
'Y' in the print member response field. If it should not be
printed, enter an 'N'. If an 'N' was entered, the remainder of
the print parameters will be ignored.

If a 'Y' was entered, the printer ID, lines per page, lines per
inch, characters per inch, and number of copies must also be
entered.

The printer ID field must contain the ID of the printer to which
the output should be directed. If 'SYSTEM' is entered, printing
will be directed to the system printer.

The lines per page field must contain a number from 1 to 112.

The lines per inch field must contain a 4, 6, or 8. This
specification is supported only on the 5224 and 5225 printers.
It is ignored for all other types of printers.

The characters per inch field must contain a 10 or 15. This specification is supported only on the 5224 (models 1 and 2) and 5225 (models 1 through 4) printers. It is ignored for all other types of printers.

The number of copies field must contain a number from 1 to 99.

See the section titled Controlling Printed Output for additional information about printing a member.

Changing Library Replacement Options

If a member must be replaced into a library with a member name that is different from the originally specified name, the new name must be entered into the member name response field. If the replacement name is not different, the field should not be changed.

If a member must be replaced into a library that is different from the originally specified library, the new library name must be entered into the library name response field. If the replacement library is not different, the field should not be changed.

If a member must be replaced into a library with a record length that is different from the originally specified length, the new record length must be entered into the record length response field. If the replacement record length is not different, the field should not be changed.

Any combination of new member name, new library name, or new record length is allowed when replacing or saving a member.

Returning to the Editor

To disregard a replace or save request and return to the editor, press command key 1. The editor will then redisplay the screen that was being displayed when the replace or save request was entered.

Cancelling the Editor

To cancel the entire edit session, press command key 19. This will cause the FSEDIT work file to be deleted, and will not replace the member being edited.

4.10 Controlling Printed Output

When a member such as a letter or document is to be printed, it
is often necessary to be able to specify heading lines, line
spacing, page ejects, and page numbering.

Several commands are supported by FSEDIT which allow heading
lines to be printed, lines to be spaced, page ejects to occur,
and page numbering to be performed.

These commands are only recognized when printing is performed
utilizing FSEDIT or FSEDITP. Commands can be entered in either
upper or lower case.

See the sections titled Replacing a Member and Printing a Member
Without Editing for additional information about printing a
member.

Heading Command

To specify that one or more heading lines should be printed at
the top of each page, insert a blank line before the first data
line and enter a Heading command '.HDn ' in position 1 of that
line. The data for the heading is entered in column 6. The 'n'
in the Heading command can be any number from 1 to 6, and
indicates the number of the heading line being defined.

If data is specified with a Heading command, it is printed on
the line corresponding to the heading number plus 3. For
example, .HD1 will cause the heading data to be printed on line
4 (1 + 3), and .HD4 will cause the heading data to be printed on
line 7 (4 + 3).

In addition, since the data for a heading is entered starting in
column 6 it will be offset to the left by 5 positions when
actually printed. For example, if the following was specified:

    .HD3 HEADING DATA

HEADING DATA would be printed starting in column 1.

Only non-blank headings are printed. A previously specified
heading definition can therefore be canceled by specifying the
Heading command followed only by blanks.

After all heading lines have been printed, 3 blank lines will be
inserted before the next data line is printed.

If no heading lines are to be printed, the first data line will
be printed on line 6.

Different headings are sometimes required from one page to next.
For example, consider a letter with no heading on the first page
but with a heading on all subsequent pages. This can be
specified by entering the Heading commands after the first line

of the letter but before the point where a new page would begin.
This is because any previously defined headings would have been
printed before the first line. Therefore, new headings defined
after the first line will not print until the next page break
occurs.

A page break normally will occur when 6 lines or less remain
before the page ends. However, if a Page Eject command (.EJ) is
specified, or a Space command (.SP) is specified which causes 6
lines or less to remain on a page, a page break will also occur.

Once a page break has occurred, heading lines including three
blank lines will be printed. Blank lines are skipped. Only the
next non-blank line will be printed on the new page. If no
heading lines are defined, then a skip to line 6 will be
performed before the next non-blank line will be printed.

Space Command

To specify that one or more vertical spaces should be generated
in the data being printed, insert a blank line before where the
space should occur and enter the Space command '.SP' in position
1 of that line.

If only '.SP' is specified, one space is generated. However, if
the Space command is specified in the form '.SP nn', where nn is
the number of spaces, any number of spaces from 1 to 99 can be
generated.

If a Space command is specified which causes 6 lines or less to
remain on a page, a page break will occur.

If a page break occurs while spacing, any spaces remaining as
part of a Space command will not be generated. Heading lines,
including three blank lines, and the next non-blank line will be
printed on the new page. If no heading lines are defined, then
a skip to line 6 will be performed before the next non-blank
line will be printed.

If a Space command is encountered before any printing has been
done (1st page), a page break will be forced to occur. Heading
lines, including three blank lines, will be printed before the
Space command is executed. If no heading lines are defined,
then a skip to line 6 will be performed before the Space command
is executed.

Page Eject Command

To specify a page break or skip to a new page, insert a blank
line before where the eject should occur and enter the Page
Eject command '.EJ' in position 1 of that line.

Once a page break has occurred, heading lines including three
blank lines will be printed. Blank lines are skipped. Only the
next non-blank line will be printed on the new page. If no

heading lines are defined, then a skip to line 6 will be performed before the next non-blank line will be printed.

Page Numbering Command

To specify that page numbering should be done, insert a blank line and enter the page numbering command '.PG' in position 1 of that line.

When the next page break occurs, the page number will begin printing on the bottom of the page. The page number will print in positions 37 through 40 on the third from the last line of the page.

Once page numbering has begun, it cannot be stopped.

Page numbering can be deferred to start on a specific page. This is done by specifying the command after a page break on the previous page has occurred. Also, at least one data line must have been printed on the page where the line numbering is to start.

4.11 Printing a Member Without Editing

The printing of a source or procedure member without having to
first edit it can be initiated from the menu screen by selecting
option 10 or by using the FSEDITP procedure.

```
                    MEMBER PRINT OPTION SCREEN
,--------------------------------------------------------------------,
|                    System/36 Full Screen Editor                    |
|                       Member Print Option                          |
|                                                                    |
|                                                                    |
|        Member Data                                                 |
|                                                                    |
|            Member Name ................. RPGPGM1                    |
|            Member Type ................. S        (P-Proc/S-Source) |
|            Member Library .............. MYLIBR                     |
|                                                                    |
|        Printer Data                                                |
|                                                                    |
|            Printer ID ................. P2        (ID/SYSTEM)       |
|            Lines Per Page ............. 66        (1 to 112)        |
|            Lines Per Inch ............. 6         (4/6/8)           |
|            Characters Per Inch ........ 10        (10/15)           |
|            Number of Copies ........... 1         (1 to 99)         |
|                                                                    |
|                                                                    |
|                                                                    |
|            Press COMMAND KEY 7 to CANCEL FSEDITP                    |
|                                                                    |
|                                                                    |
'--------------------------------------------------------------------'
```

Figure 39

The FSEDITP procedure supports the following input parameters:

Parameter 1 - Name of member to print.

Parameter 2 - Type of member being printed.
              (P-Procedure, S-Source)

Parameter 3 - Library name where member exists.

Parameter 4 - ID of printer for printing member.
              (ID or SYSTEM)

Parameter 5 - Lines per page value.
              (1 to 112)

Parameter 6 - Lines per inch value.
              (4, 6, or 8)

Parameter 7 - Characters per inch value.
              (10 or 15)

Parameter 8 - Number of copies to be printed.
              (1 to 99)

4.12 Printing the FSEDIT User Profile Report

The FSEDIT User Profile Report lists the contents of various
fields contained in the user profile file EDITPROF. The report
can be produced by running the FSEDPF procedure.

The FSEDPF procedure supports the following parameters:

    Parameter 1 - ID of the printer where the report is to be
                  printed. Default value is SYSTEM.
                  (ID or SYSTEM)

    Parameter 2 - Number of copies to be printed. Default value
                  is 1.
                  (1 to 99)

The report produced will contain one line for each unique user ID
in the profile file. For each user ID the following information
will be listed:

    DATE   - Date of the last edit session.

    TIME   - Time of the last edit session.

    SESSIONS - Total number of edit sessions.

    MEMBER   - Name of the last member edited.

    TYPE   - Type of the last member edited.

    LIBRARY - Name of the library the last member was edited
               from.

    FMT#   - Number (nn) of the last format used when editing
               under format.

    PRNT ID - ID of printer last used when printing.

    LPP   - Lines per page last used when printing.

    LPI   - Line per inch last used when printing.

    CPI   - Characters per inch last used when printing.

At the end of the report, the total number of edit sessions and
the total number of edit users is also listed.

CHAPTER 5

5.0 Program Modification Descriptions

5.1 File, Library, and Diskette Utilities

5.1.1 Defining New Operation Codes

The facility is provided for users to define their own operation codes to perform functions that are unique to their installation. Operation codes can be defined for the following screens:

- Library Names Screen
- Library Member Names Screen
- File Names Screen
- Diskette File Names Screen

Operation codes cannot be defined for:

- Diskette Magazine File Names Screen
- Diskette Library Member Names Screen
- Diskette SAVELIBR Member Names Screen

To define an operation code, create a procedure member named LIBRx, FILEx, or DKETx, where "x" is the operation code being defined.

The new procedure member must be placed in #POPLIB library. (see Section 2.1, Installation Procedures).

The process to be followed in defining operation codes is described in the tutorial information (see Section 2.3, Tutorial Facilities) provided with the utility or by printing the source members (LIBR12, FILE14, or DKET12) from #POPLIB library.

5.1.2 Defining New Command Key Functions

The facility is provided for users to define the use of command keys not used by the utility. Command key functions can be defined for the following screens:

- Library Names Screen
- Library Member Names Screen
- File Names Screen
- Diskette File Names Screen
- Diskette Library Member Names Screen

Command key functions cannot be defined for:

- Diskette Magazine File Names Screen
- Diskette SAVELIBR Member Names Screen

To define a command key function, create a procedure member named LIBRKYx, FILEKYx, or DKETKYx, where "x" is the number of the command key being defined.

The new procedure member must be placed in #POPLIB library. (see Section 2.1, Installation Procedures).

The process to be followed in defining command key functions is described in the tutorial information (see Section 2.3, Tutorial Facilities) provided with the utility or by printing the source members (LIBR13, FILE15, or DKET13) from #POPLIB library.

5.1.3 Customizing the Screen Headings

The facility is provided for users to change the screen heading information that displays on the top six lines of the display screens. Screen headings can be changed on the following screens:

- Library Names Screen
- Library Member Names Screen
- File Names Screen

Screen headings cannot be changed for:

- Diskette Magazine File Names Screen
- Diskette File Names Screen
- Diskette Library Member Names Screen
- Diskette SAVELIBR Member Names Screen

The process to be followed in changing the screen headings is described in the tutorial information (see Section 2.3, Tutorial Facilities) provided with the utility or by printing the source members (LIBR14 or FILE16) from #POPLIB library.

5.1.4 Changing Selection Criteria for Displaying Names

Default values are provided for the parameters used to select
the library member names and file names that are displayed. The
selection parameters can be changed temporarily by the user for
individual use through command key functions from the following
displays:

- Library Member Names Screen
- File Names Screen
- Diskette Library Member Names Screen
- Diskette File Names Screen

The selection parameters for the Library Member Names Screen and
the File Names Screen are reinitialized to their default values
only when file or library services are initiated.

The selection parameters for the Diskette Library Member Names
Screen and the Diskette File Names Screen are reinitialized to
their default values each time these screens are initiated.

The facility is provided to change the default selection
parameters for all users for the following screens:

- Library Member Names Screen
- File Names Screen

The default selection parameters cannot be changed for:

- Diskette Library Member Names Screen
- Diskette File Names Screen

The process to be followed in changing the selection parameters
described in the tutorial information (see Section 2.3, Tutorial
Facilities) provided with the utility under the topic headings of
Library Members Screen and File Names Screen or by printing the
source members (LIBR03 or FILE02) from #POPLIB library.

5.2 Edit Utility

5.2.1 Changing Edit Command Symbols and Printer Defaults

The symbols used by the Edit Utility for line commands, Find
commands, Change commands, and the initial printer defaults can
be changed if required for your system.

These changes require modifying the FSEDIT procedure in the
library where the utility is installed (see Section 2.1,
Installation Procedures).

Five special symbols are used to specify the various line
commands. They are ?, <, >, =, and |. Two special symbols are
used by the Find and Change commands. They are <, ?. Since all
of these symbols are not supported on every keyboard, it may be
necessary to change the symbols used for an installation. This

can be accomplished by changing a LOCAL OCL statement contained in the FSEDIT procedure (#POPLIB library) . The statement to be changed is identified by a comment statement preceding the LOCAL OCL statement as follows:

```
*   THE FOLLOWING STATEMENT DEFINES THE COMMAND SYMBOLS AND
    INITIAL PRINTER DEFAULTS
// LOCAL OFFSET-201,BLANK-58,+
   DATA-'?><=|                                      <? P1     66 610
```

If any of these command symbols for the line commands (local data area locations 201 through 205) or for the Find/Change commands (local data area positions 239 and 240) are changed, the Edit Utility will automatically respond to the new symbols.

Any non-blank character or symbol which can be entered on a keyboard can be specified when changing the command symbols.

CAUTION: Changing of these command symbols can only be done on a installation basis. Once the symbols are changed, the change is effective for all users of the Edit Utility.

Initial printer defaults are assigned to first time users of the Edit Utility. These defaults can be changed as necessary for an installation. This can be accomplished by changing the same LOCAL OCL statement shown above (local data area locations 242 through 253). In the order shown, the parameters are the printer id (positions 242-247), the number of lines per page (positions 248-250), the number of lines per inch (position 251), and the number of characters per inch (positions 252 and 253).

6.0 Procedure Descriptions

The following is a list of all procedure members supplied with
the File, Library, Diskette, and Edit Utilities. A brief
description of the function each procedure performs is also
given.

DISKETTE   Executes the Diskette Utility
DKET$ Executes the command entered on command line of
           the diskette display screens.
DKET#   Processes the Diskette Utility queued operation codes.
DKET@   Processes the Diskette Utility command key functions.
DKETAUTD   Deletes the diskette magazine work file.
DKETAUTO   Loads the Diskette Utility to handle a magazine request.
DKETD   Deletes a file from a diskette.
DKETJ   Restores a file from diskette to disk.
DKETP   Prints the contents or directory of a diskette file.
DKET0   Ends queued operation code processing and returns to
           the Diskette Utility.
DKET9   Ends queued operation code processing and ends the
           Diskette Utility.

FILE   Executes the File Utility.
FILE$ Executes the command entered on command line of
           the file display screens.
FILE#   Processes the File Utility queued operation codes.
FILE@   Processes the File Utility command key functions.
FILED   Deletes a file from disk.
FILEE   Calls the System/36 Data File Utility for editing
           of a disk data file.
FILEG   Generates skeleton disk data files.
FILEJ   Restores a file from diskette to disk.
FILEK   Saves a disk file on diskette.
FILEP   Prints a disk file.
FILEPRNT   Prints a disk file.
FILEY   Copies an existing disk file to a new disk file.
FILE0   Ends queued operation code processing and returns
           to the File Utility.

FSEDBLDP   Builds the data file to contain the Edit user
           profile information.
FSEDELET   Deletes an FSEDIT work file.
FSEDFULL   Diagnoses a library full condition.
FSEDIT   Executes the Edit Utility for editing a source or
           procedure library member.
FSEDITP   Executes the Edit Utility for printing a source or
           procedure library member.
FSEDPF   Prints the FSEDIT User Profile Report.
FSEDRCVR   Recovers the Edit work file.

LIBR   Executes the Library Utility.
LIBR$ Executes the command entered on command line of
           the library display screens.

```
LIBR#      Processes the Library Utility queued operation codes.
LIBR@      Processes the Library Utility command key functions.
LIBRC      Processes the Library Utility compile (C) operation
           code.
LIBRCAUT   Compiles RPG II auto report specifications.
LIBRCMNU   Compiles menus.
LIBRCMSG   Compiles message members.
LIBRCUST   Customizes the Library and File screen headings.
LIBRD      Deletes an entire library from disk.
LIBRE      Calls the Edit Utility for editing of a library member.
LIBRF      Calls the System/36 Screen Design Aid Utility.
LIBRH      Alters the history file logging attribute of one or more
           procedures.
LIBRJ      Restores a library member from a diskette file to a
           library on disk.
LIBRK      Saves one or more library members or an entire library
           on diskette.
LIBRRP     Prints one or more library members or the library
           directory.
LIBRPRNT   Prints one or more library members or the library
           directory.
LIBRR      Restores a library from diskette.
LIBRS      Calls the System/36 Source Entry Utility for editing
           a library member.
LIBRX      Executes a procedure or object library member.
LIBR0      Ends queued operation code processing and returns
           to the Library Utility.

POP        Displays the System/36 Programmer and Operator
           Productivity Aid menu.
POPLOAD    Installs the utilities from the distribution diskettes.
POPPR      Displays POP menu prompts.
POPTUT     Displays Tutorial Index Menu Screen and Tutorial
           Topic Screens.
```

7.0 Program Services and Problem Reporting

During the service period, IBM will, without additional charge, respond to a reported defect in the current unaltered release of the licensed program by issuing known defect correction information to the customer reporting the problem, and/or issuing corrected code or notice of availability of corrected code.

If, within the service period, a problem is encountered which user diagnosis indicates is caused by a defect in the licensed program, your IBM program support representative should be called.

Recreate the error prior to calling your program support representative. The error should be recreated at the system console. The following should be collected for documentation of the problem:

- Directory listing (LISTLIBR) of the #POPLIB library.

- Printed output if applicable.

- While recreating the error, use the PRINT key to obtain print images of the screens at the following times:

  - all screens used before the failing function was performed
  - the screen on which the failing function was performed
  - any screens used after the failing function was performed up to the point where the error occurs
  - if the error is visible on a screen, the screen which shows the error

  The print image should show the function performed on each screen. If a command or function key was used, it will be necessary to document this on the print image of the screen. The screen which shows the error should be identified together with the results in error clearly marked.

- When possible, a dump of the contents of main storage and control storage at the time the error occurs (message or incorrect results).

  Messages are used to indicate errors diagnosed by the system. If an unexpected message occurs, the following procedure should be followed:

  - With some system messages, a dump has been automatically taken.

  - For all other messages, respond with option D. This option is available for all messages displayed with an option 3 shown on the display screen. When you select option D, the

contents of main storage and control storage are copied to a dump file on on disk. The system actions described for option 3 also occur.

Following the dump, a message will be displayed. Note the dump file ID (#DUMP.nn) and respond with option 0. The dump can then be copied using either the DUMP or APAR procedure.

If the error is demonstrated on one of the display screens supported by these utilities, it will be necessary to cancel the executing job to obtain a dump. The system operator control command, CANCEL, should be used to cancel the job. The CANCEL command should have the jobname as the first parameter and DUMP (D) as the second parameter. The STATUS USERS control command can be used to determine the name of the executing job to be cancelled. The main storage assigned to the job is written into a dump file on disk.

Following the dump, a message will be displayed. Note the dump file ID (#DUMP.nn) and respond with option 0. The dump can then be copied using either the DUMP or APAR procedure.

Run the APAR procedure. This procedure collects diagnostic information that helps isolate programming problems. This information is copied into one or more diskette files. You will be prompted for the optional data areas to be copied. Respond with "Y" to the history file and disk VTOC prompts. Respond with "N" to all other prompts.

The APAR procedure should be run as soon as possible after termination of the job for the information to be valid.

- Run the DUMP procedure to print the PTF log for #POPLIB library. Only the first parameter, PTF, is needed for the DUMP procedure. You will be prompted for the library name.

- For more information about the CANCEL, DUMP, or APAR procedures, see the IBM System/36 System Reference Manual (SC21-9020).

- If required for duplicating the error, copy the following information to diskette:

   - If the error occurs when processing a specific library, copy that library to diskette.

   - If the error occurs when processing a specific file, copy that file to diskette.

   - If the error occurs when processing a library file or data file on diskette, copy that library file or data file to diskette(s). If required to recreate the problem, a copy of the diskette(s) (all files) may be necessary.

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- If the error occurred on the Diskette Magazine File
  Names Screen, copy the work file created for that
  magazine to diskette. See Section 2.6.4.1, Diskette
  Utility, for more information on this work file.

- If the error occurred when using the Edit Utility, copy
  the Edit work file, used to temporarily store the source,
  procedure, or text records being entered or edited, to
  diskette. See Section 2.6.4.2, Edit Utility, for more
  information on this work file.

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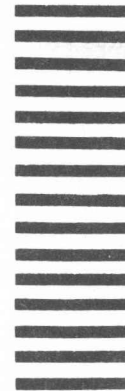Fold and tape   Please do not staple   Fold and tape

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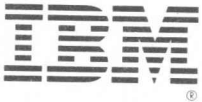POSTAGE WILL BE PAID BY . . .

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