IBM System/36

Source Entry
Utility Guide

When You Are:	You Can Find Information In:
Planning to Install Your Computer	What to Do Before Your Computer Arrives or Converting from System/34 to System/36
Getting Your Computer Ready to Use	Setting Up Your Computer Performing the First System Configuration For Your System System Security Guide
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IBM System/36

Source Entry Utility Guide

Contents

About This Manual

Who should use this manual . . .

The *System/36 Source Entry Utility Guide* is an introduction to SEU for the new or experienced SEU user.

How this manual is arranged . . .

Chapter 1 gives you a general description of what the Source Entry Utility (SEU) is and how it works. It shows you how to sign on, steps you through a quick general description of how to use SEU, and in this chapter, shows you how to enter or update a member. If you want to follow the example, you should make the highlighted entries.

Chapter 2 begins the detailed section of the manual with *While Using SEU*. It describes things you will see when using SEU, such as the SEU parameters, the status line, the command keys, the statement numbering, the printer, and what your choices are at the end of a job.

Chapter 3 discusses in detail how SEU can be used. (Chapter 1 gives you a quick example of how SEU can be used). Chapter 3 is for reference when using SEU.

Chapter 4 discusses the displays that are available with SEU to guide you as you enter statements. These displays were introduced briefly in Chapter 1.

Chapter 5 is for the programmer or anyone who wants more detailed information on SEU. This chapter includes a sample SEU run sheet and explains how SEU uses disk space.

What you should know . . .

You should be familiar with data processing concepts (such as disk, file, and members) and with System/36 and its display stations as described in *Learning About Your Computer*, SC21-9018.

You should also be familiar with the operation of your display station as described in the *Operator's Guide* for your particular display station.

You should know how to use the keys on your keyboard, such as:

- Cursor movement keys

- Command keys

- Field exit keys

- Insert and delete keys

- Error reset key.

If you need more information . . .

You might need some of the information in these manuals while using the *SEU Guide*:

- *Operating Your Computer*, SC21-9026, tells how to sign on or off the system, explains how to reply to messages, and answers general questions about operating the system.

- *System Reference*, SC21-9020, can be used for reference when using procedures, commands, and operation control language (OCL).

- *System Messages*, SC21-7938, lists the system messages you may see when using the system.

- *Utilities Messages*, SC21-7939, explains the messages you may see when using the system utilities.

While you use this manual . . .

If you would like more details about WSU, SDA, DFU, or Sort, see:

- *Work Station Utility Guide,* SC21-7905

- *Creating Displays: Screen Design Aid and System Support Program,* SC21-7902

- *Data File Utility Guide,* SC21-7900

- *Sort Guide,* SC21-7903

If you would like more details about RPG II, COBOL, BASIC, FORTRAN IV, or Assembler, see:

- *Programming with RPG II,* SC21-9006

- *Programming with COBOL,* SC21-9007

- *Programming with BASIC,* SC21-9003

- *Programming with FORTRAN IV,* SC21-9005

- *Programming with Assembler,* SC21-7908

If you would like more detail about System/36 forms, see:

- *RPG Control and File Description Specifications,* GX21-9092

- *RPG Extension and Line Counter Specifications,* GX21-9091.

- *RPG Input Specifications,* GX21-9094

- *RPG Calculation Specifications,* GX21-9093

- *RPG Output Specifications,* GX21-9090

- *RPG Auto Report Specifications,* GX21-9139

- *RPG Indicator Summary,* GX21-9095

- *RPG Telecommunications Specifications,* GX21-9116

- *RPG Debugging Template*, GX21-9129

- *COBOL Coding Form*, GX28-1464

- *FORTRAN Coding Form*, GX28-7327

- *Assembler Coding Form*, GX21-9279

- *Translation Table and Alternate Collating Sequence Coding Sheet*, GX21-9096

- *Sort Specifications*, GX21-7957

- *Display Format Specifications*, GX21-9800

- *WSU Job, Array, and File Specifications*, GX21-9453

- *WSU Processing Specifications*, GX21-7936

- *WSU/$SFGR Debugging Template*, GX21-7926

- *Keyboard Template*, GX21-7929

Summary of changes

The following changes have been made for Release 3 Modification 0:

- A new format selection has been added. This format lets you enter *Help* information for any text displays. The new format is *DOC-H*.

- Formats for *WSU-J, WSU-S, SFGR-S*, and *SFGR-H* have been changed to include *Ideographic Mode, Online Text*, and *132 Column* entries.

- SEU can be used on the 132 column capable IBM 3180 model 2, but all displays will be in 80 column mode. See the *IBM 3180 model 2 Display Station Users Guide*, GA21-9469, for more information.

- Various technical and editorial changes have been made to improve the quality and usability of this manual.

x

Chapter 1. What Is SEU?

The System/36 Source Entry Utility (SEU) helps you enter or make changes to statements in a source member or a procedure member. With SEU you can use:

- Enter/update to create a source member, add statements to an existing member, or change statements in an existing member.

- Copy/move to duplicate or relocate statements in a member.

- Scan/replace to search through a member to locate a particular sequence of characters. You can update the located characters and optionally substitute the located set of characters with replacement characters.

- Delete to remove statements from a member.

- Include to copy statements from one member to another.

- Translate to translate each message in your message member into another language.

Why Use SEU

Because SEU prompts you for the information it needs, you will find it easy to use whether you are a new or experienced user, and whether you are a display station operator or a programmer.

RPG programmers will find SEU helpful because it can check their RPG II or auto report statements for syntax errors as the statements are entered.

You may use SEU to:

- Enter OCL statements for a procedure

- Enter specifications for:

  - RPG II
  - COBOL
  - FORTRAN IV
  - BASIC
  - Assembler
  - Display formats ($SFGR or SDA)
  - WSU
  - Sort.

- Make changes to any of the stored members.

  Note: Throughout this manual the term *member* refers to a procedure or a source member.

Before You Begin . . .

Before you begin using SEU, you might want to see the steps involved in SEU.

Step 1. Plan and Code: Before sitting down at the display station to enter a new member, you need to plan what statements you want to enter. You can do this using the program specification sheets.
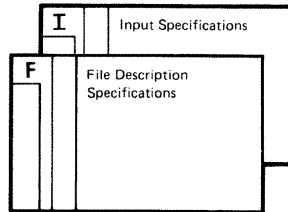
Step 2. Signing On to SEU: Next you need to sign on to SEU by entering the SEU command. You are then asked for information about the member you want to work with.

System/36
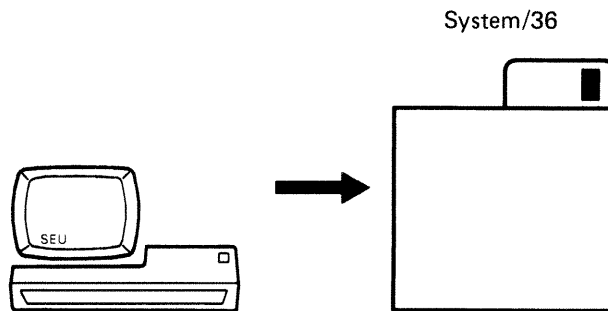
Step 3. SEU Sets Up a Work Area: SEU is loaded into main storage, and it sets aside a work file for you. (If you are working with an existing member, a copy of that member is placed in this work file for you.)

System/36

Disk Storage
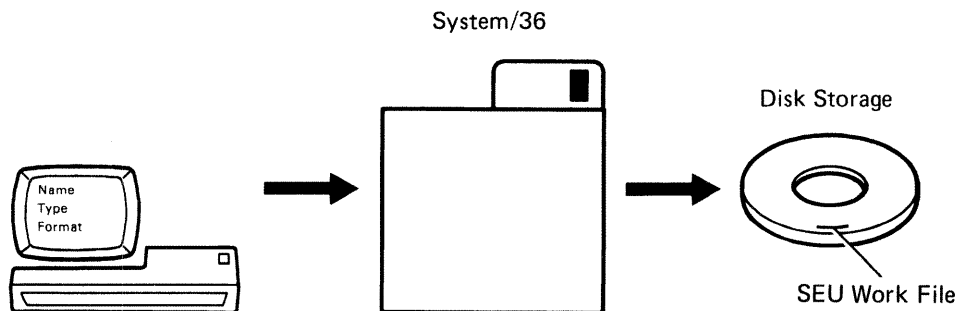
SEU Work File

Step 4. Enter or Update: Now you can enter or make changes to statements in a member. SEU stores all new or changed statements in the work file.

System/36

Disk Storage

Input Specifications

File Description Specifications

Z

0001.00
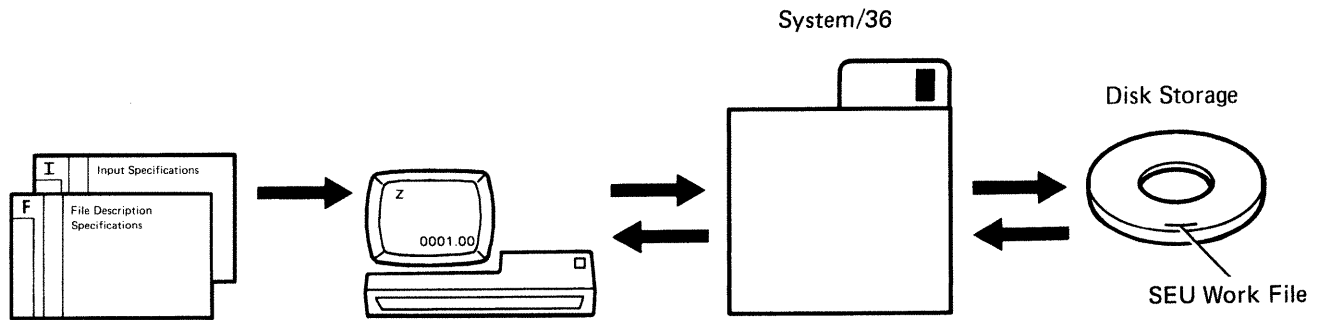
SEU Work File

Step 5. End the SEU Job: When you end your job, SEU takes whatever is in the work file and stores it in the library you choose.

System/36

Disk Storage

SEU Work File

EOJ

Library
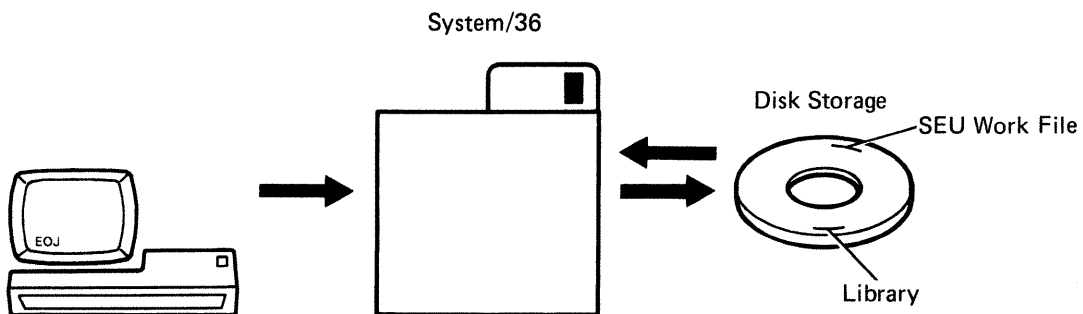
First You Need to Sign On To SEU
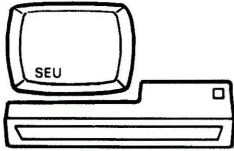
Once you have signed on to the system, you can sign on to SEU. You may have heard this referred to as accessing or calling SEU. Whatever you call it, it means making the utility available to you. SEU is easy to sign on to, you just type:

SEU

and press the Enter key. You are prompted for any more information SEU needs.

To help you understand how SEU works, this chapter gives a series of examples that step through several ways to use SEU with a new member. Now sign on to SEU and you can follow along at your display station. Because the example uses the library SEULIB, you must either build SEULIB before using the example, or enter the name of an existing library. You may build SEULIB with the BLDLIBR procedure. For information on the BLDLIBR procedure, see the *System Reference* manual.

Next you will see the following display. For this example, type in the name of the member, the member type, and the name of your library:

```
                      SEU PROCEDURE                    Optional-*

        Source entry utility (SEU) is a program that allows you to create,
        change, remove, and locate statements in source and procedure members


    Name of member to be created or updated . . . . . . . . . . .  AR230R

    Type of SEU member . . . . . . . . . . . . . . A,F,P,R,S,T,W  R

    Name of member containing SEU formats . . . . . . . . . . . .  #SE@XTRA

    Length of statement . . . . . . . . . . . . . . . . . . . . .         *

    Name of library containing member . . . . . . . . . . . . . .  SEULIB




    Cmd3-Previous menu

                                                      (C) 1983 IBM Corp.
```

Note: Throughout these examples the entries that you should make are highlighted. To follow the example, type the entries exactly as shown.

Press the Enter key to continue.

Name of Member to be Created or Updated

This is the name of the member you are entering or want to change. The name can be from 1 to 8 characters long. For the example, type in **AR230R** and press the Field Exit key.

Type of SEU Member

This is the SEU type of the member to be entered or changed. For this example, we are entering part of an RPG program so enter an **R**.

Name of Member Containing SEU Formats

This is where the system stores the SEU-supplied displays you use to enter statements. For this example, leave the entry that SEU supplied (#SE@XTRA).

Length of Statement

This is how many characters long each statement can be. You do not have to enter a number here. For this example, leave this parameter blank and SEU will enter a length of 96 characters for you.

Name of Library Containing Member

The name of the library you are currently using is displayed in this parameter. For this example, you can leave the library name that is displayed or enter another name. The sample data from this example will be stored in the library you specify.

After You Sign On To SEU

What is displayed after you sign on to SEU depends on whether the
member already exists or is a member being created. Since you are
entering a new member for this example, once you sign on to SEU a
free-form display is shown to help you enter data. The free-form
display (also called the Z-display) looks like this:

```
16   120   Z          Enter      S    1   096   SEULIB     AR230R          W1



          1         2         3         4         5         6         7
123456789012345678901234567890123456789012345678901234567890123456789012345678 9


8         9         0         1         2
012345678901234567890123456789012345678 90




Enter or update statement number  . . . . . . . . . . . . . .  0001.00
```

Displays That Guide You

SEU provides several displays to guide you as you enter statements.
You can see a list of all the displays provided by SEU, by pressing the
Select Display command key (Cmd 3). Many of the displays
correspond to a particular specification sheet (sometimes called a
coding sheet) so that you can easily transfer your data or statements
from the paper specification sheet to the display:

Enter Field Name Here

```
16   096   I        Enter        1   096   SEULIB      AR230R          W1

                                 P 117  1180AREAC


         1     1    12 2   2    2 3 3   3      34 4 4     4 5  5 5       56
 12345 6 78901234 5678 90 1234 567 8901 234 5678 901 2 3 4567 8901 2 345678 90
                                                        P   119  122  0 PHONE


  6   6  6  6  67 7   7   8 8         9
  12  34 56 78 90 1234 567890 1234567890123456




 Enter or update statement number . . . . . . . . . . . . . . . . 0012.00
```

The displays not only reflect the field positions on the specification
sheet, they also accept only certain valid types of data.

For example, if a field is numeric-only, the display will allow you to
type only numeric data in those positions on the display.

Examples Using SEU

The following examples illustrate the common uses of SEU, such as enter/update, copy/move, and delete. Scan/replace, include, and message translate are explained in detail in Chapter 3.

How to Enter Statements Using Enter/Update

Example 1

To begin entering statements, use the information from the following specification sheets (Figure 1-1):

F-Specification

Line	Form Type	Filename	File Type	Block Length	Record Length	Mode of Processing	Extension Code E/L	Device
0 2	F	CUSTMSTRU				256 5 I	2	DISK
0 3	F							

I-Specification

Line	Form Type	Filename or Record Name	Record Identifying Indicator	From	To	P/B/L/R	RPG Field Name
0 1	I	CUSTMSTR	Ø1				
0 2	I			1	1		ARCOD
0 3	I			2	9		CUSNO
0 4	I			10	34		CUSNM
0 5	I			35	59		CUSA1
0 6	I			60	84		CUSA2
0 7	I			85	109		CUSA3
0 8	I			110	111		STATE
0 9	I			112	1160	P	ZIPCD
1 0	I			117	1180	P	AREAC
1 1	I			119	1220	P	PHONE
1 2	I			123	123		CUSTP
1 3	I			124	1270	P	CRLIM
1 4	I			128	1300	P	SLSNO
1 5	I			131	1352	P	AMDUE
1 6	I			136	1390	P	DLTPM
1 7	I						

Figure 1-1. F- and I-Specifications

To enter the first statement from the F-specification sheet, you need an F-display to guide you. Press the Select Display command key (Cmd 3), and a list of SEU displays is shown:

```
                          Select display

      1 Z            17 WSU-J      33 FORTRAN     49
      2 Z-LOWER      18 WSU-E      34 COBOL       50
      3 H            19 WSU-T      35 SDAS        51
      4 U            20 WSU-M      36 SDAH        52
      5 F            21 WSU-S      37 SDAD1       53
      6 G            22 WSU-D      38 SDAD2       54
      7 E            23 WSU-C      39 DOC-H       55
      8 L            24 SFGR-S     40 AUTOR       56
      9 T            25 SFGR-H     41 MESSAGE     57
     10 I            26 SFGR-D     42 SRT-HEAD    58
     11 J            27 D-CONT     43 SRT-RECD    59
     12 C            28 SORTH      44 SRT-CNST    60
     13 O            29 SORTRF     45 SRT-FLD     61
     14 P            30 SORTRC     46 MICRSYS     62
     15 K            31 SORTF      47 MICRSTCK    63
     16 A            32 ASSEM      48            64


      Enter the number of the specification display you want. . . .
```

If you have the Ideographic Character feature on your system and you are signed on to an ideographic-capable display station, you will see the following display when command key 3 (Cmd 3) is pressed. Notice that COMMAND is inserted into the list, and SORTH and the following selections have been moved one position. Also notice that DOC-H has been inserted between SDAD2 and AUTOR.

Screen 67 with Command display

```
                          Select display

        1 Z               17 WSU-J         33 ASSEM        49
        2 Z-LOWER         18 WSU-E         34 FORTRAN      50
        3 H               19 WSU-T         35 COBOL        51
        4 U               20 WSU-M         36 SDAS         52
        5 F               21 WSU-S         37 SDAH         53
        6 G               22 WSU-D         38 SDAD1        54
        7 E               23 WSU-C         39 SDAD2        55
        8 L               24 SFGR-S        40 DOC_H        56
        9 T               25 SFGR-H        41 AUTOR        57
       10 I               26 SFGR-D        42 MESSAGE      58
       11 J               27 D-CONT        43 SRT-HEAD     59
       12 C               28 COMMAND       44 SRT-RECD     60
       13 O               29 SORTH         45 SRT-CNST     61
       14 P               30 SORTRF        46 SRT_FLD      62
       15 K               31 SORTRC        47 MICRSYS      63
       16 A               32 SORTF         48 MICRSTCK     64


      Enter the number of the specification display you want. . . .
```

For an explanation of the Command display, see Chapter 4.

Enter the option number to select the display for the F-specification.

When the F-display is shown, begin entering the F-specification as shown, using the Field Exit key (for numeric fields) or Field Advance key (→|) to move from field to field. You do not need to enter the statement numbers (such as 0001.00, 0002.00) since SEU will provide them for you. For more information, see *Statement Numbering* in Chapter 2.

If you accidentally press the wrong key, a blinking error message might be displayed and you will be unable to use the keyboard. In a case like this, simply press the Error Reset key and continue, or press the Help key for an explanation of the error message, then press the Error Reset key to continue:

```
16    096    F          Enter            1   096    SEULIB      AR230R        W1



                1     1 1 1 1 1 2    2    2 23 3 3 3  3    3 4        4  5   5 5
12345 6 78901234 5 6 7 8 9 0123 4567 8 90 1 2 34 5678 9 0123456 789012 3 456789
       F CUSTMSTR U                256    5  I         2   DISK

6        6 6 6  7 7  7  7     8 8        9
012345 6 7 89 0 12 34 567890 1234567890123456









Enter or update statement number  . . . . . . . . . . . . . . . 0001.00
```

Note: Because you entered the SEU member type as R when you signed on, SEU will provide some RPG syntax checking while you enter the statements. The code you are entering in a field is checked to make sure it is the correct type of code for that field. So, if you enter invalid code, SEU will tell you that you did.

When you have finished typing the F-specification, press the Enter key. Because there is only one F-specification to enter, again press the Select Display command key (Cmd 3) and select the I-display from the list of displays.

When the I-display is shown, enter the next statement that defines your file:

```
 16   096   I          Enter          1   096   SEULIB   AR230R          W1

      FCUSTMSTRU        256   5 I     2 DISK


            1      1   12 2    2    2 3  3    3   34  4 4 4    4 5  5 5      56
 12345 6 78901234 5678 90 1234 567 8901 234 5678 901 2 3 4567 8901 2 345678 90
       I CUSTMSTR       01


 6  6  6  6  67 7    7   8 8         9
 12 34 56 78 90 1234 567890 1234567890123456




 Enter or update statement number . . . . . . . . . . . . . . 0002.00
```

Notice that all the rest of the statements are I-specifications that define a field. You can use the J-display to enter each statement. Again, press the Select Display command key (Cmd 3) and select the J-display from the list of displays.

When the J-display is shown, enter the next statement that defines a field:

```
 16   096   J          Update          1   096   SEULIB   AR230R          W1
      ICUSTMSTR        01

            1          2          3        4  4 4 4    4 5  5 5      56 6  6  6
 12345 6 78901234567890123456789012345678901 2 3 4567 8901 2 345678 90 12 34 56
       I                                     1    1      ARCOD
 6  67 7    7   8 8          9
 78 90 1234 567890 1234567890123456




 Enter or update statement number . . . . . . . . . . . . . . . 0002.00
```

SEU will redisplay the J-display until you select a different display.

Continue entering the I-specifications shown in Figure 1-1. After you
have entered all the statements, hold down the Shift key (⇧) and
press the Roll Down key (Roll ↓). Your display should look like this:

```
16   096  J                    1   096   SEULIB     AR230R          W1
0001.00        FCUSTMSTRU      256  5 I    2 DISK
0002.00        ICUSTMSTR    01
0003.00        I                               1    1 ARCOD
0004.00        I                               2    9 CUSNO
0005.00        I                              10   34 CUSNM
0006.00        I                              35   59 CUSA1
0007.00        I                              60   84 CUSA2
0008.00        I                              85  109 CUSA3
0009.00        I                             110  111 STATE
0010.00        I                           P 112 1160ZIPCD
0011.00        I                           P 117 1180AREAC
0012.00        I                           P 119 1220PHONE
0013.00        I                             123  123 CUSTP
0014.00        I                           P 124 1270CRLIM
0015.00        I                           P 128 1300SLSNO
0016.00        I                           P 131 1352AMDUE



       Enter or update statement number . . . . . . . . . . . . . .
```

Press the Roll Up key (Roll ↑) and your display should look like this:

```
16   096  J                    1   096   SEULIB     AR230R          W1
0017.00        I                           P 136 1390DLTPM











       Enter or update statement number . . . . . . . . . . . . . .
```

How to Make Changes to Statements Using Enter/Update

Example 2

If you make a mistake while entering the statements, don't worry-they're easy to fix.

Just press the Enter/Update command key (Cmd 5). SEU displays a prompt at the bottom of the display and places the cursor at the prompt so that you can identify which statement you need to correct.

You can use the roll keys to look at the statements you have entered so far and determine the number of the statement you want to change.

Type in the number of the statement you want to correct (for this example, type in 14) and press the Enter key.

```
16    096   J                        1   096    SEULIB      AR230R          W1
0001.00       FCUSTMSTRU        256  5 I    2 DISK
0002.00       ICUSTMSTR    01
0003.00       I                                1    1 ARCOD
0004.00       I                                2    9 CUSNO
0005.00       I                               10   34 CUSNM
0006.00       I                               35   59 CUSA1
0007.00       I                               60   84 CUSA2
0008.00       I                               85  109 CUSA3
0009.00       I                              110  111 STATE
0010.00       I                            P 112 1160ZIPCD
0011.00       I                            P 117 1180AREAC
0012.00       I                            P 119 1220PHONE
0013.00       I                              123  123 CUSTP
0014.00       I                            P 124 1270CRLIM
0015.00       I                            P 128 1300SLSNO
0016.00       I                            P 131 1352AMDUE




     Enter or update statement number  . . . . . . . . . . . . . .  14
```

SEU displays the statement for you. Because you signed on to SEU with member type R, SEU automatically chooses the J-display. Change CRLIM to LIMIT and press the Enter key:

```
16   096   J        Enter        1   096   SEULIB    AR230R        W1

      I                          123 123 CUSTP


           1        2        3        4 4 4 4    4 5 5 5    56 6  6  6
12345 6 78901234567890123456789012345678901 2 3 4567 8901 2 345678 90 12 34 56
      I                                     P   124  127 0 LIMIT

6  67 7   7   8 8        9
78 90 1234 567890 1234567890123456




      Enter or update statement number . . . . . . . . . . . . . . . 0014.00
```

SEU will store your changes and display the next statement following the one you just corrected; in this example, statement 15:

```
16   096   J        Enter        1   096   SEULIB    AR230R        W1

      I                          P 124 1270LIMIT


           1        2        3        4 4 4 4    4 5 5 5    56 6  6  6
12345 6 78901234567890123456789012345678901 2 3 4567 8901 2 345678 90 12 34 56
      I                                     P   128  130 0 SLSNO

6  67 7   7   8 8        9
78 90 1234 567890 1234567890123456




      Enter or update statement number . . . . . . . . . . . . . . . 0015.00
```

You could now change statement 15 if you want. Each time you press the Enter key, SEU chooses the correct display and displays the next statement.

You can also continue updating statements by pressing the
Enter/Update command key (Cmd 5), and entering the number of the
statement you want to change. SEU will display the statement for
you.

When you have finished entering the statements, hold down the Shift
key (⇧) and press the Roll Down key (Roll ↓) to view the statements
you entered. They should look like this:

```
16   096  J                       1   096   SEULIB      AR230R          W1
0001.00       FCUSTMSTRU      256  5 I    2 DISK
0002.00       ICUSTMSTR    01
0003.00       I                              1   1 ARCOD
0004.00       I                              2   9 CUSNO
0005.00       I                             10  34 CUSNM
0006.00       I                             35  59 CUSA1
0007.00       I                             60  84 CUSA2
0008.00       I                             85 109 CUSA3
0009.00       I                            110 111 STATE
0010.00       I                          P 112 1160ZIPCD
0011.00       I                          P 117 1180AREAC
0012.00       I                          P 119 1220PHONE
0013.00       I                            123 123 CUSTP
0014.00       I                          P 124 1270LIMIT
0015.00       I                          P 128 1300SLSNO
0016.00       I                          P 131 1352AMDUE




       Enter or update statement number  . . . . . . . . . . . . . .
```

How to Copy or Move Statements

You can copy or move statements from one location in a member to another location in the same member. You can copy or move one statement at a time or a group of statements together. When you copy a statement, the statement now exists in both the old and the new location within the member. When you move a statement to a new location, the statement no longer exists in the old location.

How to Relocate Statements Using Copy/Move

Example 3

Press the Copy/Move command key (Cmd 10-using the 0 key). The copy/move prompts are displayed:

```
16                               1   096   SEULIB       AR230R        W1
0001.00        FCUSTMSTRU      256  5 I    2 DISK
0002.00        ICUSTMSTR    01
0003.00        I                            1    1 ARCOD
0004.00        I                            2    9 CUSNO
0005.00        I                           10   34 CUSNM
0006.00        I                           35   59 CUSA1
0007.00        I                           60   84 CUSA2
0008.00        I                           85  109 CUSA3
0009.00        I                          110  111 STATE
0010.00        I                        P 112 1160ZIPCD
0011.00        I                        P 117 1180AREAC
0012.00        I                        P 119 1220PHONE
0013.00        I                          123  123 CUSTP
0014.00        I                        P 124 1270LIMIT
0015.00        I                        P 128 1300SLSNO
0016.00        I                        P 131 1352AMDUE

      Copy or move the statements . . . . . . . . . . .  COPY,MOVE  COPY
      To statement number . . . . . . . . . . . . . . . . . . . .
      Starting from statement number. . . . . . . . . . . . . . .
      Ending with statement number. . . . . . . . . . . . . . . .
```

Change COPY to MOVE or M on the first line because we only want
to change the location of the statement, not copy it to another
location.

For this example, move statements 4 and 5 to follow statement 7.
You must enter a location that is between 7 and 8.

Entering 7.1 as the new location tells SEU to place statements 4 and 5
after statement 7 but before statement 8.

Type the responses as shown:

```
16                                P  1   096    SEULIB      AR230R           W1
0001.00      FCUSTMSTRU          256  5 I     2 DISK
0002.00      ICUSTMSTR    01
0003.00      I                                    1    1 ARCOD
0004.00      I                                    2    9 CUSNO
0005.00      I                                   10   34 CUSNM
0006.00      I                                   35   59 CUSA1
0007.00      I                                   60   84 CUSA2
0008.00      I                                   85  109 CUSA3
0009.00      I                                  110  111 STATE
0010.00      I                                P 112 1160ZIPCD
0011.00      I                                P 117 1180AREAC
0012.00      I                                P 119 1220PHONE
0013.00      I                                  123  123 CUSTP
0014.00      I                                P 124 1270LIMIT
0015.00      I                                P 128 1300SLSNO
0016.00      I                                P 131 1352AMDUE

    Copy or move the statements . . . . . . . . . . . .  COPY,MOVE  MOVE
    To statement number . . . . . . . . . . . . . . . . . . . . . . 7.1
    Starting from statement number. . . . . . . . . . . . . . . . . 4
    Ending with statement number. . . . . . . . . . . . . . . . . . 5
```

Press the Enter key to enter your responses.

SEU will display the first and last statements that are to be moved so you can make sure the responses are correct before the statements are moved:

```
16                          P  1  096  SEULIB    AR230R   0002  W1
0004.00        I                         2   9 CUSNO




















0005.00        I                                10  34 CUSNM

   Copy or move the statements . . . . . . . . . . .  COPY,MOVE  MOVE
   To statement number . . . . . . . . . . . . . . . . . . 0007.10
   Starting from statement number. . . . . . . . . . . . . 0004.00
   Ending with statement number. . . . . . . . . . . . . . 0005.00
```

If the responses are correct, press the Enter key *again* to actually move the statements. If you do not press the Enter key this second time, the statements are not moved.

If you want to change the responses, do not press the Enter key. Press the Copy/Move command key (Cmd 10) again and enter new responses, or press another command key.

Note: After you press the Enter key, you can see how the statements were moved by holding down the Shift key (⇧) and pressing the Roll Down key (Roll ↓). The following is displayed:

```
 16                              1    Uyb  SEULIB    AR230R        W1
0001.00      FCUSTMSTRU      256  5 I    2 DISK
0002.00      ICUSTMSTR   01
0003.00      I                              1    1 ARCOD
0006.00      I                             35   59 CUSA1
0007.00      I                             60   84 CUSA2
0007.10      I                              2    9 CUSNO
0007.11      I                             10   34 CUSNM
0008.00      I                             85  109 CUSA3
0009.00      I                            110  111 STATE
0010.00      I                         P  112  116OZIPCD
0011.00      I                         P  117  118OAREAC
0012.00      I                         P  119  122OPHONE
0013.00      I                            123  123 CUSTP
0014.00      I                         P  124  127OLIMIT
0015.00      I                         P  128  130OSLSNO
0016.00      I                         P  131  135ZAMDUE

      Copy or move the statements . . . . . . . . . . . .  COPY,MOVE   MOVE
      To statement number . . . . . . . . . . . . . . . . . . . . . .
      Starting from statement number. . . . . . . . . . . . . . . . .
      Ending with statement number. . . . . . . . . . . . . . . .
```

See *How to Insert More than 99 Statements* in Chapter 3 for more information on moving statements.

How to Copy Statements Using Copy/Move

Example 4

You can duplicate statements within the member by using copy/move.

You again use the Copy/Move command key (Cmd 10). If you are following the example, the copy/move prompts are already displayed for you. For this example, make sure COPY or C is entered for the first prompt.

Type the responses shown:

```
 16                               1   096   SEULIB      AR230R        W1
 0001.00      FCUSTMSTRU        256  5 I     2 DISK
 0002.00      ICUSTMSTR    01
 0003.00      I                                      1    1 ARCOD
 0006.00      I                                     35   59 CUSA1
 0007.00      I                                     60   84 CUSA2
 0007.10      I                                      2    9 CUSNO
 0007.11      I                                     10   34 CUSNM
 0008.00      I                                     85  109 CUSA3
 0009.00      I                                    110  111 STATE
 0010.00      I                                P   112 116OZIPCD
 0011.00      I                                P   117 118OAREAC
 0012.00      I                                P   119 122OPHONE
 0013.00      I                                    123  123 CUSTP
 0014.00      I                                P   124 127OLIMIT
 0015.00      I                                P   128 130OSLSNO
 0016.00      I                                P   131 1352AMDUE

 Copy or move the statements . . . . . . . . . . . . COPY,MOVE  COPY
 To statement number . . . . . . . . . . . . . . . . . . . . . 7.12
 Starting from statement number. . . . . . . . . . . . . . . . 6
 Ending with statement number. . . . . . . . . . . . . . . . . 7
```

To copy statements 6 and 7 and have them follow statement 7.11, you must enter a number between 7.11 and 8.00, such as 7.12.

Press the Enter key.

SEU displays the first and last statements to be copied so that you can make sure your responses are correct:

```
16                              P  1   096   SEULIB     AR230R    0002  W1
0006.00        I                         35  59 CUSA1




0007.00        I                         60  84 CUSA2

Copy or move the statements . . . . . . . . . . . COPY,MOVE  COPY
To statement number . . . . . . . . . . . . . . . . . . . 0007.12
Starting from statement number. . . . . . . . . . . . . . 0006.00
Ending with statement number. . . . . . . . . . . . . . . 0007.00
```

If the responses are correct, press the Enter key a second time to actually copy the statements. If you do not press the Enter key *again*, the statements are not copied.

If you want to change your responses, do not press the Enter key. Press the Copy/Move command key (Cmd 10) again and enter new responses or press another command key.

Note: After you press the Enter key, you can see how the statements are duplicated by holding down the Shift key(⇧) and pressing the Roll Down key (Roll ↓)

The following is displayed:

```
16                                    1    096    SEULIB      AR230R           W1
0001.00          FCUSTMSTRU        256  5 I    2 DISK
0002.00          ICUSTMSTR     01
0003.00          I                                      1    1 ARCOD
0006.00          I                                     35   59 CUSA1
0007.00          I                                     60   84 CUSA2
0007.10          I                                      2    9 CUSNO
0007.11          I                                     10   34 CUSNM
0008.00          I                                     85  109 CUSA3
0009.00          I                                    110  111 STATE
0010.00          I                                P   112 1160ZIPCD
0011.00          I                                P   117 1180AREAC
0012.00          I                                P   119 1220PHONE
0013.00          I                                    123  123 CUSTP
0014.00          I                                P   124 1270LIMIT
0015.00          I                                P   128 1300SLSNO
0016.00          I                                P   131 1352AMDUE

     Copy or move the statements . . . . . . . . . . .  COPY,MOVE   COPY
     To statement number . . . . . . . . . . . . . . . . . . . . .
     Starting from statement number. . . . . . . . . . . . . . . . .
     Ending with statement number. . . . . . . . . . . . . . . . .
```

How to Remove Statements Using Delete

You can remove statements (from a source or procedure member) one statement at a time or a group of statements together.

Example 5

Press the Delete command key (Cmd 4) and type the responses indicated on the following display:

```
16                           P  1   096    SEULIB      AR230R        W1
0001.00      FCUSTMSTRU       256  5 I     2 DISK
0002.00      ICUSTMSTR    01
0003.00      I                                   1    1 ARCOD
0006.00      I                                  35   59 CUSA1
0007.00      I                                  60   84 CUSA2
0007.10      I                                   2    9 CUSNO
0007.11      I                                  10   34 CUSNM
0007.12      I                                  35   59 CUSA1
0007.13      I                                  60   84 CUSA2
0008.00      I                                  85  109 CUSA3
0009.00      I                                 110  111 STATE
0010.00      I                               P 112  116OZIPCD
0011.00      I                               P 117  118OAREAC
0012.00      I                               P 119  122OPHONE
0013.00      I                                 123  123 CUSTP
0014.00      I                               P 124  127OLIMIT




      Delete, starting from statement number  . . . . . . . . . . . . . 7.10
      Ending with statement number. . . . . . . . . . . . . . . . . . . 7.13
```

After you press the Enter key, SEU will display the first and last statements to be removed so that you can make sure your responses are correct:

```
16                           P  1   096    SEULIB      AR230R   0004 W1
0007.10      I                                   2    9 CUSNO








0007.13      I                                  60   84 CUSA2


      Delete, starting from statement number  . . . . . . . . . . . . 0007.10
      Ending with statement number. . . . . . . . . . . . . . . . . . 0007.13
```

When deleting only one line, the source text starting from that line is displayed at the top of the screen. If the responses are correct, press the Enter key a second time to actually remove the statements. If you do not press the Enter key *again*, the statements are not removed.

If you want to change your responses, press the Delete command key (Cmd 4) again and enter the new responses.

If you do not want to remove any statements, press another command key.

Note: After you press the Enter key, you can see where the statements were removed by holding down the Shift key (⇧) and pressing the Roll Down key (Roll ↓). The following is displayed:

```
16                         P  1   096   SEULIB      AR230R            W1
0001.00    FCUSTMSTRU        256  5 I    2 DISK
0002.00    ICUSTMSTR    01
0003.00    I                              1    1 ARCOD
0006.00    I                             35   59 CUSA1
0007.00    I                             60   84 CUSA2
0008.00    I                             85  109 CUSA3
0009.00    I                            110  111 STATE
0010.00    I                          P 112 1160ZIPCD
0011.00    I                          P 117 1180AREAC
0012.00    I                          P 119 1220PHONE
0013.00    I                            123  123 CUSTP
0014.00    I                          P 124 1270LIMIT
0015.00    I                          P 128 1300SLSNO
0016.00    I                          P 131 1352AMDUE
0017.00    I                          P 136 1390DLTPM




    Delete, starting from statement number  . . . . . . . . . . .
    Ending with statement number. . . . . . . . . . . . . . . .
```
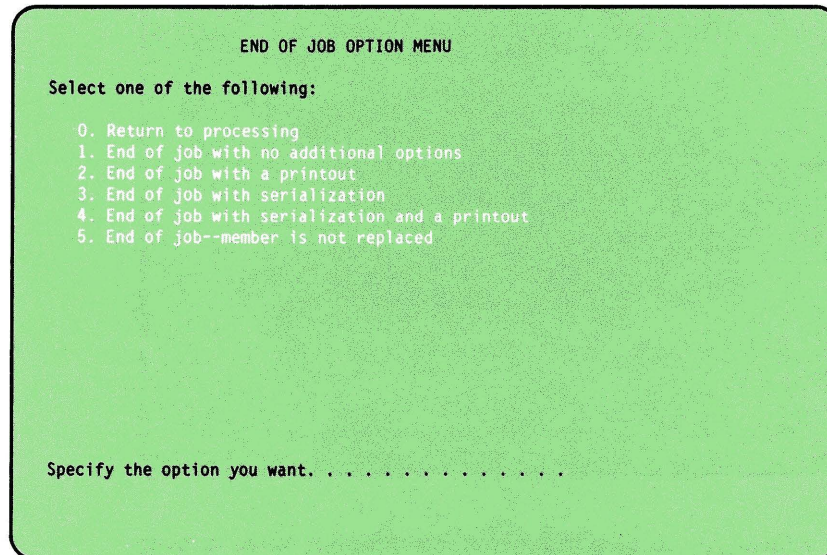
How to End the Job

When you have finished the work you have to do on the member, you can end the job by pressing the End-of-Job command key (Cmd 7). The following is displayed:

```
                    END OF JOB OPTION MENU

Select one of the following:

    0. Return to processing
    1. End of job with no additional options
    2. End of job with a printout
    3. End of job with serialization
    4. End of job with serialization and a printout
    5. End of job--member is not replaced




Specify the option you want. . . . . . . . . . . . .
```

If you do not want to save the sample data, choose option 5 and press the Enter key.

If you do want to save all the work you did, choose option 1 and press the Enter key. The following is displayed:

```
                              END OF JOB



     Member name  . . . . . . . . . . . . . . . . . . . . . . . . .   AR230R
     Library name . . . . . . . . . . . . . . . . . . . . . . . . .   SEULIB
     Reference number . . . . . . . . . . . . . . . . . . . . . . .   000001
                                                                       35
     Library member subtype . . . . . . . . . . . . . . . . . .
        2 DTA       13 BAP      16 MNU      19 SRT      33 COB      36 WSU      43 BGF
       11 ARS       14 DFU      17 MSG      31 ASM      34 FOR      40 UNS
       12 ARP       15 FMT      18 PHL      32 BAS      35 RPG      42 BGD

     Remove diagnostics from diagnosed source member? . . . . . Y,N   N
```

This display allows you to give the member a different name or even store it in another library. For this example, leave the responses as shown and press the Enter key. The source member named AR230R is stored in the library named SEULIB.

See Chapter 2 for more details on the end-of-job options.

Statement Numbers Are Only Temporary (Renumbering)

Statement numbers are only temporary-they are not stored as part of the statement at end of job. Whether statements are added, deleted, or moved during a job, the next time you use the member, all statements are numbered in sequential order: 1.00, 2.00, 3.00, and so on.

For example, assume you have the following statements in a member:

```
16   120   Z                        1   096   SEULIB      AR233R          W1
0001.00          FCUSTMASTU      256  5 I     2 DISK
0002.00          ICUSTMAST    01
0003.00          I                                1   1 ARCOD
0004.00          I                               35  59 CUSA1
0005.00          I                               60  84 CUSA2
0006.00          I                               85 109 CUSA3
0007.00          I                              110 111 STATE
0008.00          I                            P 112 1160ZIPCD
0009.00          FCUSTAMT U       62  8 I     6 DISK
0010.00          ICUSTAMT     01
0011.00          I                            P   1   52AMDUE
0012.00          I                                6  13 CUSNO
0013.00          I                               14  38 CUSNM
0014.00          I                            P  39  420LIMIT
0015.00          I                            P  43  472CHGTD
0016.00          I                            P 117 1180AREAC




         Enter or update statement number . . . . . . . . . . . . . . .
```

You add the following five statements to the member using the A-display:

```
16   096   A                        1   096   SEULIB      AR233R          W1
0001.00          FCUSTMASTU      256  5 I     2 DISK
0001.10          /*THIS IS THE FIRST STATEMENT ADDED
0001.11          /*THIS IS THE SECOND STATEMENT ADDED
0002.00          ICUSTMAST    01
0003.00          I                                1   1 ARCOD
0003.10          /*THIS IS THE THIRD STATEMENT ADDED
0004.00          I                               35  59 CUSA1
0004.10          /*THIS IS THE FOURTH STATEMENT ADDED
0004.11          /*THIS IS THE FIFTH STATEMENT ADDED
0005.00          I                               60  84 CUSA2
0006.00          I                               85 109 CUSA3
0007.00          I                              110 111 STATE
0008.00          I                            P 112 1160ZIPCD
0009.00          FCUSTAMT U       62  8 I     6 DISK
0010.00          ICUSTAMT     01
0011.00          I                            P   1   52AMDUE




         Enter or update statement number . . . . . . . . . . . . . . .
```

The new statements are stored in the member at the end of the job.
The next time you use that member, the statements will look like this:

```
16   120   Z                        1   096   SEULIB      AR233R          W1
0001.00        FCUSTMASTU        256  5 I      2 DISK
0002.00        /*THIS IS THE FIRST STATEMENT ADDED
0003.00        /*THIS IS THE SECOND STATEMENT ADDED
0004.00        ICUSTMAST     01
0005.00        I                                   1    1 ARCOD
0006.00        /*THIS IS THE THIRD STATEMENT ADDED
0007.00        I                                  35   59 CUSA1
0008.00        /*THIS IS THE FOURTH STATEMENT ADDED
0009.00        /*THIS IS THE FIFTH STATEMENT ADDED
0010.00        I                                  60   84 CUSA2
0011.00        I                                  85  109 CUSA3
0012.00        I                                 110  111 STATE
0013.00        I                               P 112 116OZIPCD
0014.00        FCUSTAMT U         62  8 I      6 DISK
0015.00        ICUSTAMT      01
0016.00        I                               P   1   52AMDUE



    Enter or update statement number  . . . . . . . . . . . . . .
```

Don't Worry About Hurting Your Data

Any of the work you do on a member with SEU is done in a temporary work area.

When you ask for a particular member, SEU gives you a copy of the member and keeps the original stored in the library. That means that as long as you don't replace it, the original member is protected while you make all the changes you want to the copy.

If you accidentally remove some of the data or change your mind, the original is still stored in your library until you specifically tell SEU to replace the original with the changed member.

The member is further protected by SEU, because when you are working on the member, no one else can have a copy of it to make changes. That way you know that the copy you are using is the latest copy of the member.

If You Need Some Help

There is a Help key available that will do just that—help you when you have a question about what you are doing. If you run into a problem, just press the Help key which is located on the left side of your keyboard.

SEU will first display a list of command keys that are available to you at that time. Then you should hold down the Shift key (⇧), press the Roll Up key (Roll ↑), and SEU will display additional information about the function you were using when you pressed the Help key.

After you've had a chance to look over the help information, press the Enter key and you will return to the display you were using so you can continue with your job.

Recovery

SEU provides a way to recover from error conditions and system failures. If an error condition exists, such as the required disk space for the work area is not available, or if a system failure such as a power failure occurs, you may be able to recover your job from the work area. See *How to Recover from Interruptions: Planned or Unplanned* in Chapter 5 for more details.

Chapter 2. While Using SEU

In Chapter 1 you went through some of the general steps involved in signing on to SEU, and entering or updating members using SEU. Before going any further in using SEU, you may want to know more about some of the basic things you've run into so far, such as:

- SEU parameters-how SEU asks you for information

- Keys with special assignments

- The letters and numbers on line 1 of the display

- How SEU numbers the statements

- Printing the member

- What to do at the end of the job.

How SEU Asks You For Information
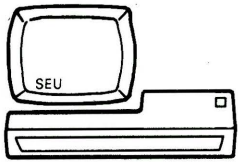
As you saw in Chapter 1, once you have signed on to the system, the easiest way to begin using SEU is to type at the bottom of the display:

SEU

The SEU procedure display then asks you to identify the member you want to work with and some information about the member. If you do not enter at least the member name, SEU will ask for it again. The SEU procedure display looks like this:

```
                         SEU PROCEDURE                    Optional-*

           Source entry utility (SEU) is a program that allows you to create,
           change, remove, and locate statements in source and procedure members


        Name of member to be created or updated . . . . . . . . . . . .

        Type of SEU member  . . . . . . . . . . . . . . A,F,P,R,S,T,W  S

        Name of member containing SEU formats . . . . . . . . . . . .   #SE@XTRA

        Length of statement . . . . . . . . . . . . . . . . . . . . .              *

        Name of library containing member . . . . . . . . . . . . . .   SEULIB




        Cmd3-Previous menu

                                                         (C) 1983 IBM Corp.
```

Name of Member to be Created or Updated

This names the member to be created or changed. The name can be as many as 8 characters long and must begin with an alphabetic character (A through Z, #, $, or @). The remaining characters can be any combination of characters (numeric, alphabetic, and special) except commas (,), apostrophes ('), blanks, question marks (?), slashes (/), hyphens (-), or ideographic characters.

Note: A member name cannot be ALL, DIR, NEW, or SYSTEM.

If the name you supply is an existing member in the library you indicate, SEU assumes that the member is to be updated. If the name does not identify an existing member, SEU assumes that the member is to be created.

Type of SEU Member

This specifies the type of the member to be created or changed.

Type | **Contents of Member**

A
Auto report specifications (syntax checking available)

Note: Although auto report specifications are also source, and you could also specify the SEU member type as S, it is best to specify member type as A so that syntax checking is available.

Also during *update*, SEU will select the correct display for each statement according to the entry in position 6.

F
Display formats (S- and D-specifications) used by $SFGR (SEU will help you select the specification displays in their sequential order)

Also during *update*, SEU will select the correct display for each statement according to the entry in position 6.

P or PROC Procedure

R
RPG specifications (syntax checking available)

Note: Although RPG specifications are also source, and you could also specify member type as source, it is best to specify member type as R so that syntax checking is available when you enter RPG specifications.

Also during *update*, SEU will select the correct display for each statement according to the entry in position 6.

S or SOURCE
Source statements, such as RPG or auto report specifications, sort sequence specifications, WSU specifications, display specifications, or statements for a message source member (syntax checking not available)

T
Message translation member (SEU prompts you for which message in your message source member you want to translate and aids you in entering the translation)

W
WSU source statements (SEU selects the WSU specification displays for you in sequential order)

Note: WSU specifications are also source, and you could also specify SEU member type as S. If you specify SEU member type as W, SEU will help you select the specification displays in their sequential order.

Also during *update*, SEU will select the correct display for each statement according to the entry in position 6.

Note: If an SEU member type is not entered, SEU assumes the type is SOURCE.

Name of Member Containing SEU Formats

This is the name of a load member where the formats for the
SEU-supplied displays (such as the Z-display) are stored. SEU stores
all of the displays supplied by IBM in two load members:
#SE@FORM and #SE@XTRA.

The SEU-supplied displays guide you as you enter code for your
source or procedure members.

The format member name can be up to 8 characters long. If you do
not enter a format member name, SEU assumes that you are using the
supplied displays and makes them available to you by entering
#SE@XTRA for you.

For information on display formats, refer to *SEU-Supplied Displays in
a Format Member* in Chapter 5.

Length of Statement

Statement length is the number of character positions available for the type of member specified. It specifies the length of the statements to be entered or changed.

You do not have to enter the statement length. If the member exists, SEU uses the current statement length of the member. If the member is new, SEU sets the statement length at 96 unless the member type is P (120) or T (80). The following chart describes the possible statement lengths for each type:

Member Type	Statement Length	Default Can Be Length
A	80-96	96
F	40-120	96
P or PROC	40-120	120
R	80-96	96
S or SOURCE	40-120	96
T	40-120	80
W	40-120	96

Name of Library Containing Member

This specifies the name of the library that contains the member to be changed or that will contain the member to be created. If the library is not found, SEU displays an error message.

A library name is not required. If one is not entered, SEU assumes that the member is in the library you are currently using.

The library name can be as many as 8 characters long and must begin with an alphabetic character (A through Z, #, $, or @). The remaining characters can be any combination of characters (numeric, alphabetic, and special) except commas (,), apostrophes ('), blanks ( ), question marks (?), slashes (/), hyphens (-), or ideographic characters.

Note: Do not use F1, READER, PRINT, or DISK as a library name.

After You Have Identified the Member

Whether you are creating or updating a member, the Z-display is always the first display selected by SEU. The Z-display is a free-form display and has no fields defined to guide you.

If you are creating a member, a blank Z-display is shown:

```
16   120   Z           Enter      S    1   096   SEULIB    AR230R        W1




         1         2         3         4         5         6         7
1234567890123456789012345678901234567890123456789012345678901234567890123456789


8         9         0         1         2
012345678901234567890123456789012345678890







Enter or update statement number  . . . . . . . . . . . . . . .  0001.00



```

If you are updating a member, the first 16 lines of data are displayed in the Z-specification display:

```
16   120   Z                   1   096   SEULIB    AR230R        W1
0001.00    FCUSTMSTRU        256  5 I    2 DISK
0002.00    ICUSTMSTR    01
0003.00    I                               1   1 ARCOD
0004.00    I                              35  59 CUSA1
0005.00    I                              60  84 CUSA2
0006.00    I                              85 109 CUSA3
0007.00    I                             110 111 STATE
0008.00    I                           P 112 1160ZIPCD
0009.00    I                           P 117 1180AREAC
0010.00    I                           P 119 1220PHONE
0011.00    I                             123 123 CUSTP
0012.00    I                           P 124 1270LIMIT
0013.00    I                           P 128 1300SLSNO
0014.00    I                           P 131 1352AMDUE
0015.00    I                           P 136 1390DLTPM




Enter or update statement number  . . . . . . . . . . . . . . .

```

If there are more than 16 statements in the member, use the roll keys to view the rest of the member.

When you are entering or making changes to the member, SEU provides command and function keys to make your job easier.

Keys with Special Assignments

You can select any of the uses of SEU with one of the *command keys* on the top row of the keyboard. Command keys are keys that have been assigned special uses. A *Keyboard Template*, GX21-7929, identifies the name and position of each key. The following illustration shows the relationship between the template (which fits in the recessed area at the top of the keyboard) and each command key:
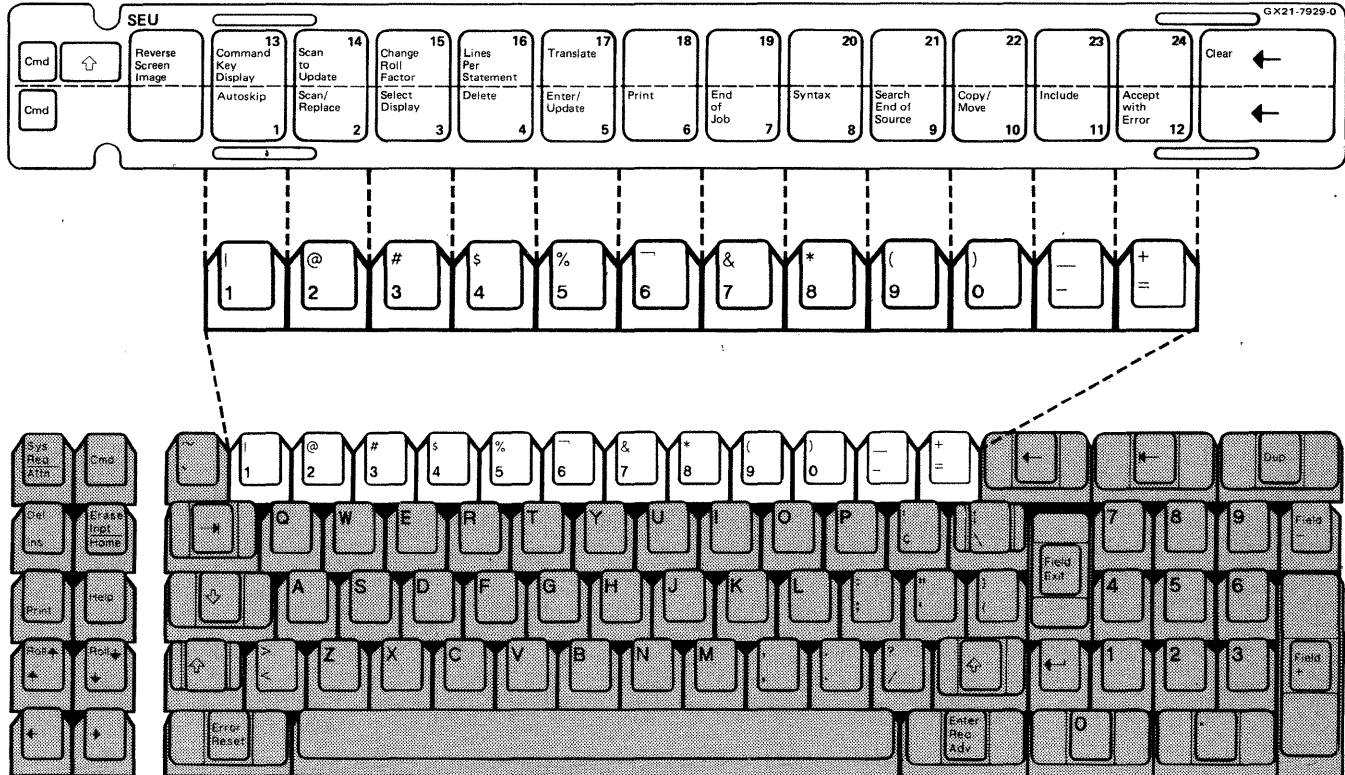
Each command key is assigned one of the numeric or special character keys in the top row of the keyboard. To select one of the uses shown on the bottom row (1 through 12) of the template, press the Cmd key and then press the key you want.

To select one of the uses shown on the top row (13 through 17) of the template, press and hold the Shift key (⇧), press the Cmd key, then press the top-row key you want.

Note: Although the command keys and the keyboard template refer to keys 1 through 24, the keyboard may not be marked with numbers 1 through 24. For example, when you are referred to the Copy/Move command key (Cmd 10), press the Cmd key and the 0 key. Or when you need to use the Accept with Error command key (Cmd 12), press the Cmd key and the = key.

Command Keys

To see which command keys are currently available, press the Help key and SEU will display a list of keys you may use with the SEU function you are using.

Autoskip (Cmd 1)

Turns the autoskip option and indicator on and off. When the autoskip feature is on (indicated in position 39 of the status line by an A), the cursor will skip over all autoskip fields in a statement; data cannot be entered into autoskip fields then. *This can be used only when you are entering or updating.*

More information on autoskip fields can be found under *What Type of Field Is It?* in Chapter 4. More information on the status line can be found in this chapter under *Line 1 is the Status Line.*

Scan/Replace (Cmd 2)

Allows you to search through a member for a set of characters (sometimes called a *global search*) and optionally replace that set of characters with another set.

Select Display (Cmd 3)

Allows you to select a different display by providing a list (or menu) of available displays. *This can be used only when you are entering, updating, or scanning.*

Delete (Cmd 4)

Allows you to remove a statement or group of statements.

Enter/Update (Cmd 5)

Allows you to enter or change statements.

Print (Cmd 6)

Turns the print option and print indicator on and off. If the print option is on (this is indicated in position 45 of the status line by a P), SEU will print any statements you enter, update, delete, or include during the job.

This printout is a record of the changes you have made during the job because SEU prints the before and after version of the statements you changed.

This type of printout is different from a printout requested at the end of the job. An end of job printout contains only the new version of the member.

More information on alter print can be found later in this chapter under *Line 1 Is the Status Line.*

End Of Job (Cmd 7)

Allows you to choose an end-of-job option.

Syntax (Cmd 8)

Turns the syntax checking option and indicator on and off. If this option is on (this is indicated by an S in position 42 of the status line), SEU checks RPG II or auto report fields for data that is valid for those specification displays. *This can be used only when you are entering or updating and you have specified the SEU member type as R or A.*

Search End of Source (Cmd 9)

Displays the last statement in the member.

Copy/Move (Cmd 10)

Allows you to copy (duplicate) statements into another location within the member or move (change the location of) statements in the member.

Include (Cmd 11)

Allows you to copy statements from an existing member to the member you are entering or updating.

You cannot include statements you just entered during the current job.

Accept with Error (Cmd 12)

Allows you to place a statement with a syntax error into a member. There may be times when you need to place statements in a member even though they contain syntax errors. Maybe you're rushed for time or maybe you need to get someone to help you correct the errors.

Accept with error is allowed only if the syntax checking option is on (indicated by an S in position 42 of the status line) and an error exists in an RPG II or auto report statement. *This can be used only when you are entering or updating and the member type is A or R.*

How to record syntax errors: To create a printed record of each statement accepted with an error, along with the text of the appropriate SEU diagnostic message printed beneath the statement, check position 45 of the status line. If P is not there, the print option is off. Turn the print option on with the Print command key (Cmd 6) before you press the Accept with Error command key (Cmd 12).

After you end an SEU job during which syntax errors were accepted, you can use the printed list of statements to help you correct any syntax errors you didn't correct during the job.

See *Utilities Messages* for more information on messages.

Command Key Display (Cmd 13)

Displays a list of the SEU command keys and describes each key.

Scan to Update (Cmd 14)

When SEU has located the scanned-for characters in a statement, scan to update will display the statement in enter/update so you can make changes if you want. If the scanned-for characters are not found, or an error occurs, SEU redisplays the scan prompts. *This can be used only when you are entering, updating, or scanning.*

Change Roll Factor (Cmd 15)

Allows you to change the number of new statements (this is indicated in positions 2 and 3 of the status line) that are displayed if a roll key is pressed. This (Change Roll Factor (Cmd 15)) is not allowed when you are translating messages.

Lines Per Stmt (Cmd 16)

Allows you to reverse the number of lines (this is indicated in position 42 of the status line) used to display each statement from 1 to 2 or 2 to 1. This is not allowed when you are translating messages, or displaying a single statement.

Translate (Cmd 17)

Allows you to translate each message in your message source member into a second language.

Function Keys

All the function keys are described in the operator's guide for your display station. However, some of the function keys have *special uses* in SEU jobs and are described below.

Home

The Home key acts as a record backspace key. It can be used only when you are entering or updating.

When you press this key, the cursor is moved back to the first cursor position in a statement where you can enter data (defined by the display). If the cursor is already in the first position for a statement, the preceding statement is displayed.

Dup
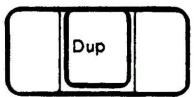
The Dup key can be used two ways, depending on whether you are entering or changing statements. If you are entering data, the Dup key will duplicate data for you from the previous statement. If you are changing data, the Dup key will *not* duplicate data for you; instead, it allows you to cancel changes you were typing within a field.

Using the Dup key while entering data: The Dup key duplicates, or copies, all or part of a field from the preceding statement into the statement you are currently entering.

For example, assume you are entering the statements in this procedure:

```
16   120   Z                   1   120   SEULIB    OE400R        W1
0001.00  // LOAD OE400R
0002.00  // FILE NAME-CUSTMAST
0003.00  // FILE NAME-CUSTORDS
0004.00  // RUN




















Enter or update statement number . . . . . . . . . . . . . . .
```

Statements 2 and 3 are similar. After you enter statement 2, you are prompted to enter statement 3:

```
16   120   Z          Enter        1   120   SEULIB    OE400R        W1

// FILE NAME-CUSTMAST


         1         2         3         4         5         6         7
123456789012345678901234567890123456789012345678901234567890123456789

8         9         0         1         2
012345678901234567890123456789012345678901234567890




Enter or update statement number  . . . . . . . . . . . . . . .  0003.00
```

Rather than typing statement 3, if you are not in ideographic mode, press the Dup key. The code you entered in the first field of statement 2 is copied to the first field of statement 3. Overscored asterisks (*) are displayed in the positions of the first field of statement 3 that will contain the code copied from the previous statement:

```
16   096   Z          Enter        1   120   SEULIB    OE400R        W2

// FILE NAME-CUSTMAST


         1         2         3         4         5         6         7
123456789012345678901234567890123456789012345678901234567890123456789
*********************************************************************

8         9         0         1         2
012345678901234567890123456789012345678901234567890




Enter or update statement number  . . . . . . . . . . . . . . .  0003.00
```

The duplicated code is actually entered when you press the Enter key to enter the entire third statement.

Press the Home key and the code in statement 3 is displayed for you.
Move the cursor to position 14 and type the new file name,
CUSTORDS. Press the Enter key to enter the change:

```
16   120   Z           Enter           1   120   SEULIB     OE400R        W1

// FILE NAME-CUSTMAST


        1         2         3         4         5         6         7
1234567890123456789012345678901234567890123456789012345678901234567890123456789
// FILE NAME-CUSTORDS

8         9         0         1         2
0123456789012345678901234567890123456789012345678901234567890




Enter or update statement number . . . . . . . . . . . . . . .   0003.00
```

If you press the Dup key when the cursor is at the beginning of a
field, SEU fills the field with data from that corresponding field in the
previous statement. If you press the DUP key when the cursor is not
at the beginning of a field, SEU fills the cursor position and the rest of
the field with data from corresponding positions in the previous
statement.

If you press the Dup key when you are entering the first statement in a
member, SEU fills the field with blanks because there is no preceding
data.

Using the Dup key while updating data: When you are updating
a field within a statement and press the Dup key, it does *not* duplicate
data from the preceding statement. If you have typed incorrect data
into a field, move the cursor back to the beginning of the field and
press the Dup key. SEU restores the original data to the field.

Help Key

This key displays additional information, if any, about the display you are using. If there is more than one field on the display, the help text displayed will explain the field the cursor was in when you pressed the Help key.

For example, assume you are using this display:

```
16                         A     1   096   SEULIB    AR230R           W1
0001.00      FCUSTMSTRU       256  5 I     2 DISK
0002.00      ICUSTMSTR     01
0003.00      I                                      1    1 ARCOD
0004.00      I                                     35   59 CUSA1
0005.00      I                                     60   84 CUSA2
0006.00      I                                     85  109 CUSA3
0007.00      I                                    110  111 STATE
0008.00      I                                  P 112 1160ZIPCD
0009.00      I                                  P 117 1180AREAC
0010.00      I                                  P 119 1220PHONE
0011.00      I                                    123  123 CUSTP
0012.00      I                                  P 124 1270LIMIT
0013.00      I                                  P 128 1300SLSNO
0014.00      I                                  P 131 1352AMDUE
0015.00      I                                  P 136 1390DLTPM


 Include from library name . . . . . . . . . . . . . . SEULIB
 Include from member name. . . . . . . . . . . . . . .
 Including at statement number . . . . . . . . . . . .
 Starting from statement number. . . . . . . . . . . .
 Ending with statement number. . . . . . . . . . . . .
```

When you press the Help key, SEU displays a list of available command keys. Press the Roll Up (Roll ↑) key and the following additional information is displayed:

```
                          HELP FOR INCLUDE

     Include from library name . . . . . . . . . . . . . . . . . . . . .

     Enter the name of the library that contains the member from which
     you want to include one or more statements.
     If you have not specified a library, the default is #LIBRARY, the
     system library.  If you entered // LIBRARY NAME-libname earlier, the
     default library is libname.  If you specified a library in the last
     parameter of the SEU command, that library is the default library.

     Include from member name . . . . . . . . . . . . . . . . . . . . .

     The included member automatically defaults to the member type of the
     member you are including into.  If you want the included member to be
     of a different type, enter:  NAME,TYPE   where NAME is the member name
     and TYPE is P for procedure member or S for source member.



   Enter-Exit help text            Roll keys-Page help text
```

You can use the Roll Up key (Roll ↑) to continue the help text if there is more than one help display for the display you were using.

Roll Up (Roll ↑)

When you hold down the Shift key (⇧) and press the Roll Up key (Roll ↑), SEU will display statements that are closer to the end of the member than those currently on the display. The statements appear to roll upward and out of sight at the top of the display.

If you continue to hold down the Roll Up key and the Shift key (⇧), SEU will continue to roll through the member. This allows you to look through the member in a short time.

The roll factor determines how many new statements are displayed when you press a roll key. Assume that the roll factor is 12. If statements 1.00 through 16.00 are being displayed when you press the Roll Up key, SEU displays 12 more statements, or statements 13.00 through 28.00.

Positions 2 and 3 of the SEU status line show the current roll factor. You can change the roll factor by pressing the Change Roll Factor command key (Cmd 15) and entering a new factor. The roll factor can be any value from 1 through 99.

Wraparound: Wraparound occurs when you press the Roll Up key (Roll ↑) after SEU displays the last statement in the member. If the last statement is being displayed when you press the Roll Up key, SEU starts over again and displays the first and following statements in the member.

For example, assume the member contains 43 statements and the roll factor is 16. If statements 25.00 through 40.00 are being displayed when you press the Roll Up key, SEU displays statements 41.00

through 43.00. If you press the Roll Up key again, SEU displays
statements 1.00 through 16.00.

Roll Down (Roll ↓)

The Roll Down key operates the opposite of the Roll Up key (Roll ↑).
It causes SEU to display statements that are closer to the beginning of
the member than those currently on the display screen.

The statements appear to roll downward from the top of the display
when you press the Roll Down key with the shift key.

Wraparound: Wraparound occurs when you press the Roll Down
key after SEU displays the first statement in the member. If the first
statement is being displayed when you press the Roll Down key, SEU
goes to the end of the member and displays the last and preceding
statements.

Using the Roll Keys

When using the roll keys, think of the records in the file as being on
the outside surface of a drum or cylinder. As the drum is rolled
forward or back you can view a specific part of the file.
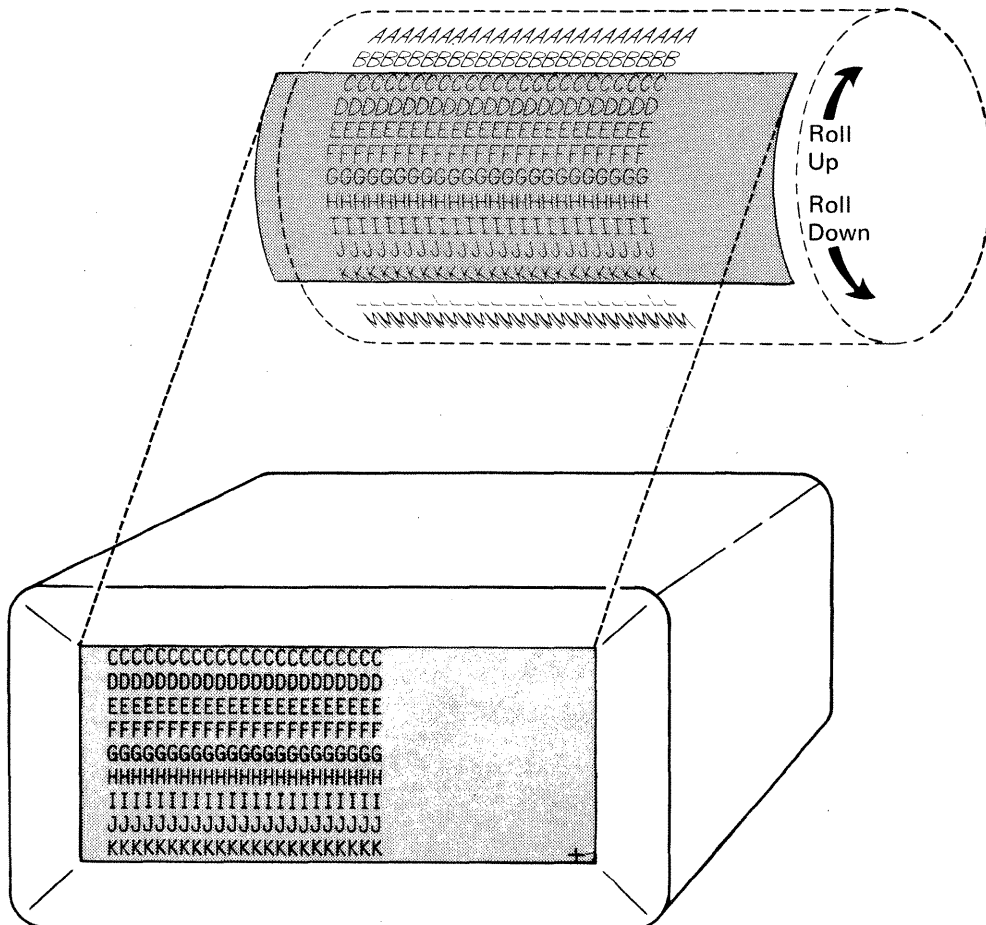
Cursor Movement Keys

Field Exit

The Field Exit key moves the cursor out of an input field. When you press this key in a field defined as blank fill, blanks are inserted from the cursor position to the end of the field. When you press Field Exit in a field defined as zero fill, the data is right-adjusted (shifted to the rightmost position of the field) and any remaining positions are filled with zeros instead of blanks.

Because of this, the Field Exit key should be used carefully so you do not blank out data when making changes to a field.
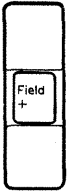
Field +

The Field + key moves you out of an input field the same as the Field Exit key. It can also insert a plus (+) sign in the last position of a signed numeric field. Because of this, the Field + key should be used carefully so you do not blank out data when making changes to a field.

Field Advance

This key moves the cursor forward to the next available field without right adjusting any data within the field.

Field Backspace
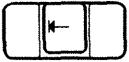
This key moves the cursor back to start of this field, or, if already there, then to the start of the previous field.

New Line Key

This key moves the cursor to the next line of the display.

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Line 1 is the Status Line

Line 1 of the display is called the *status line* and contains general information about your job. The following is an example of a status line and what it can contain:

Syntax Check Option

Roll
Factor   Autoskip Option   Print Option

Length of   Number of Lines
Input Fields   per Statement   Name of Member
                                          Being Processed
Name
of the   Statement   Number of Consecutive
SEU   Length   Statements
Display   Enter or   Library
           Update   Name   Display Station ID

```
16  120  Z      Enter    A  S  P  1  096  SEULIB    AR230R   xxxx  W1



     1         2         3         4         5         6         7
12345678901234567890123456789012345678901234567890123456789012345678901234567890123456789

8         9         0         1         2
01234567890123456789012345678901234567890




Enter or update statement number  . . . . . . . . . . . . . . .  0001.00
```

The **Roll Factor** is in positions 2 and 3. It determines how many new statements are displayed if the Roll Up (Roll ✝) or Roll Down (Roll ✝) function key is pressed.

The roll factor is always 16 immediately after SEU sign-on. To change the factor to any value from 1 through 99, press the Change Roll Factor command key (Cmd 15). For more information on changing the roll factor, see *Command Keys* earlier in this chapter. For more detail on the roll keys, see *Function Keys* earlier in this chapter.

The **Length of Input Fields** in positions 7 through 9 is the number of character positions available for the type of display you are using. This number may differ from the member statement length (which is determined by the type of member) specified in positions 46 through 48.

The **Name of the SEU Display** being used in enter/update is in positions 13 through 23.

Enter or Update in positions 24 through 29 indicates whether you are entering or updating statements.

The **Autoskip Option** is shown in position 33: A if the option is on, blank if the option is off. The autoskip option is always off at the beginning of an SEU job. The option is changed each time you press the Autoskip command key (Cmd 1). If the option is on when you enter or change a statement, SEU automatically skips fields in the statement that are defined as autoskip fields by the format of the display. For more information, see *Autoskip Fields* in Chapter 4.

The **Syntax Check Option** is shown in position 36: S if the option is on, blank if the option is off. *Syntax checking* means that SEU will check the RPG or auto report fields to make sure the data you entered is valid for those formats.

If the member type is A (auto report) or R (RPG), the syntax checking option is on at the beginning of the SEU job and changed each time you press the Syntax command key (Cmd 8). If the member type is S (source) or P (procedure), the option is off at the beginning of the job and cannot be turned on during the job.

The **Print Option** is shown in position 39: P if the option is on, blank if the option is off. If the print option is on, SEU prints the statement when you enter, update, delete, or include a statement.

The print option is always off at the beginning of a job. To change the print option, press the Print command key (Cmd 6). SEU printing is described in more detail in *What About a Printer* later in this chapter.

The **Number of Lines per Statement** is in position 42. The status of this option is indicated by a 1 or a 2. When you are viewing a member, SEU displays each statement on either one or two lines of the display. If one line is reserved for each statement, SEU displays only the first 70 characters of the statement and displays a maximum of 16 statements at a time. If two lines are reserved for each statement, SEU displays the entire statement and displays a maximum of eight statements at a time.

At SEU sign-on, one display line is reserved for each statement. You can change the number of display lines per statement by pressing the Lines Per Statement command key (Cmd 16).

The **Statement Length** for the display is in positions 46 through 48. This is the number of character positions available for the type of member you specified at sign-on. It specifies how long the statements can be. This number may differ from the number of character positions (which is determined by the type of display) shown in positions 7 through 10.

The **Library Name** identifies the library where the member you are using is stored. The library name is in positions 52 through 59.

The **Name of Member Being Processed** is in positions 63 through 68. This identifies the member you are using.

The **Number of Consecutive Statements** being deleted, moved, or included at one time is in positions 73 through 76. This is displayed only when you are deleting, moving, or including statements.

The **Display Station ID** identifies which display station you are using (for example, W1 or W2). The display station is identified in positions 79 and 80.

Statement Numbering

You may have noticed the numbers to the left of each statement. SEU assigns each statement in a member a unique statement number. Statement numbers allow you to identify statements you want to enter, change, delete, move, or include.

The statement number assigned by SEU during the job is only temporary—it is not stored as part of the statement.

How Statements Are Numbered

The form of the statement number is xxxx.xx. However, the following numbers are all equal to statement number 5: 5, 5.0, 5.00, and 0005.00.

When you are using an existing member, the first statement in the member is assigned number 1.00, the second 2.00, the third 3.00, and so on, to a maximum of 9999.00. If you try to enter more than 9999 statements, SEU displays an error message. If the SEU print option is on, SEU prints the statement you entered but does not store the statement in the member.

Adding Statements to a Member

You can add statements at the end of a member. You must assign a number to the first added statement; after that SEU assigns the numbers automatically.

If you want to enter a statement number higher than the highest statement number in the member, the new statement number cannot be greater than 1.99 higher than the last whole number.

For example, if the highest statement number in the member is 0004.00, a new statement number can be any number from 0004.01 through 0005.99. If the highest statement number is 0006.98, a new statement number can be any number from 0006.99 through 0007.99 (adding 1.99 to 6.00).

When you assign the first new statement number:

- If you enter a whole statement number (for example, you enter a new statement number of 5), SEU assigns whole statement numbers to the following statements (for example, statement numbers 6.00, 7.00, and so on).

- If you enter a number with decimal positions (for example, you enter a new statement number of 5.1 or 5.10), SEU assigns statement numbers to the following statements that are increased by .01 (for example, statement numbers 5.11, 5.12, 5.13, and so on).

Inserting Statements

You can insert any number of statements up to 99 statements between any two whole numbered statements in a member. For example, assume you have several statements numbered 1.00, 2.00, and so on. Press the Enter/Update command key (Cmd 5). When SEU asks you which statement you want, enter 1.1. SEU displays a blank statement display so that you can enter a new statement.

Enter the statement.

SEU will place the new statement between statements 1.00 and 2.00 and display another blank statement display numbered 1.11.

If you continue to insert new statements in the same place, SEU will automatically assign each statement number by adding .01 to the previous statement number.

How to Find a Statement in a Large Member

When you are using a member with many statements, it is time-consuming to roll through the member to locate a particular statement. Instead, if you know the number of a statement you want displayed, select enter/update and enter the number in response to the enter/update prompt on the bottom of the display. If you do not know the statement number, use one of the following two methods to find the statement:

• Using enter/update, enter a statement number you think is close to the one you want, then use the Roll Up or Roll Down key to locate the statement.

• If you know that the statement contains unique characters, such as a file name in an RPG II F-specification, you can use scan to locate the characters. Enter the unique characters in response to the scan prompt Scan characters.

If the first statement located by scan is not the statement you are looking for, repeat the scan by pressing the Enter key or the Scan to Update command key (Cmd 14).

What About a Printer

SEU does not require a printer for sign-on. But SEU expects a printer to be available if:

- The print option is on during your job when you enter, update, delete, or include a statement.

- You request a printout at the end of your job with end-of-job option 2 or 4.

If no printer is available when one is needed, SEU displays an error message. See the *System Reference* manual for more information on the PRINT procedure, which allows you to do such things as assign the printer, set the number of characters per inch, and so on.

If spooling is not active, if the print option is on during the job, and a printer is available and running, your statements will print out as you enter or update them. If spooling is active and the print option is on, the statements you enter or update will be printed out at the end of the job and reflect the changes you made.

See the manual *Concepts and Programmer's Guide* for more information on spooling.

Note: A listing requested as an end-of-job option prints the updated version of the member, but does not note the changes you made during the job. Records that are printed as a result of your having the Print option on during the job are printed individually and changes you made are noted.

For information on the various ways to print out your source, refer to *Printing Your Jobs* in the manual *Operating Your Computer*.

Printing a Member

On all SEU end-of-job printouts, the first printed line of the first page contains the program date for the SEU job, the time of day when you requested the print, and a label that identifies it as an end-of-job printout. Printouts requested at end of job also contain the member name and library name on the first printed line.

```
MEMBER    AR230R  LIBRARY    SEULIB      SEU EOJ PRINTOUT        DATE  12/16/82    TIME  14.40

                                    IBM SYSTEM/36 SOURCE ENTRY UTILITY

       FCUSTMSTRU          256  5 I      2 DISK
       ICUSTMSTR    01
       I                                     1    1 ARCOD
       I                                    35   59 CUSA1
       I                                    60   84 CUSA2
       I                                    85  109 CUSA3
       I                                   110  111 STATE
       I                                 P 112  1160ZIPCD
       I                                 P 117  1180AREAC
       I                                 P 119  1220PHONE
       I                                   123  123 CUSTP
       I                                 P 124  1270LIMIT
       I                                 P 128  1300SLSNO
       I                                 P 131  1352AMDUE
       I                                 P 136  1390DLTPM

                  **** E N D   O F   S E U   P R I N T O U T ****
```

Note: Because SEU begins printing on the sixth line of the paper, the designated page size must be greater than six lines. Refer to the *System Reference* manual for more information on the SET command, which changes the number of print lines.

End of Job

When you press the End of Job command key (Cmd 7), SEU displays a list of options.

Source Members at End of Job

If you are creating or updating a source member, SEU displays the following end-of-job options:
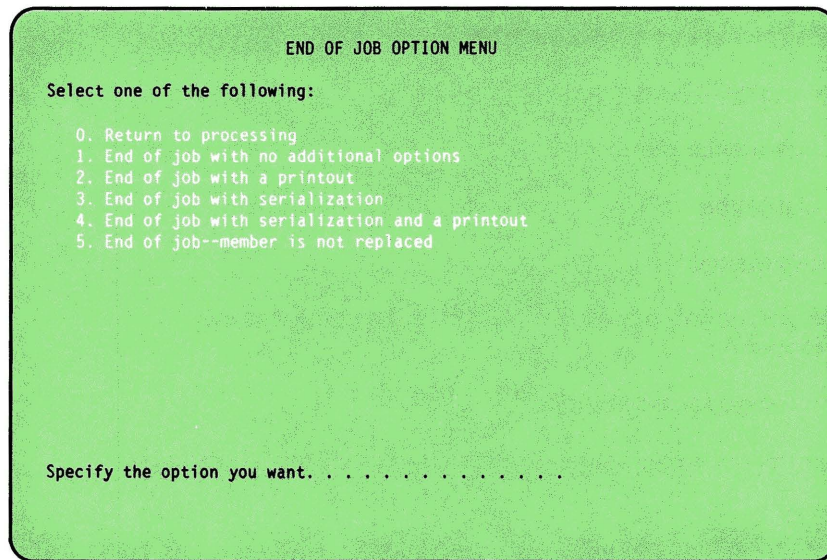
```
                    END OF JOB OPTION MENU

Select one of the following:

  0. Return to processing
  1. End of job with no additional options
  2. End of job with a printout
  3. End of job with serialization
  4. End of job with serialization and a printout
  5. End of job--member is not replaced







Specify the option you want. . . . . . . . . . . . . .
```

End-of-Job Options

0 Return to processing: The job continues as though the End of Job command key (Cmd 7) had not been pressed. The cursor is returned to the first cursor position defined by the specification display. Option 0 is not allowed if the SEU work file is full or if an error exists for the display station.

1 End of job with no additional options: SEU copies the member from the work area to a library and replaces the old member in the library.

2 End of job with a printout: SEU copies the member from the work area to a library, replaces the old member, and then prints the new member on the printer currently assigned to the display station.

3 End of job with serialization: Serialization means that a four-digit serial number is inserted into each of the statements starting at a position you specify. (If you choose this option, you are prompted for the serialization start position on a following display.) Be sure these positions do not already contain data in each statement, because SEU will store the serial number over whatever data exists in those positions.

4 End of job with serialization and a printout: This is a combination of options 2 and 3. The member is serialized, copied from the work area to a library, and listed on a printer.

5 End of job--member is not replaced: SEU ends the job by removing the data in the work area. All new or changed data entered during the job is lost. If you were updating an existing member, this option cancels the update, and the member in the library remains unchanged.

End-of-Job Maintenance

If you choose end-of-job option 1 or 2, SEU gives you a chance to do several things, such as:

- rename the member as a new member

- store it in another library

- assign it a reference number

- assign it a subtype

- remove diagnostics.

If you choose end-of-job option 3 or 4, SEU asks you for some additional information:

- the start position for serialization

- if you want the program name duplicated in positions 75 through 80.

The following is displayed:

```
                              END OF JOB



    Member name  . . . . . . . . . . . . . . . . . . . . . . .   AR230R

    Library name . . . . . . . . . . . . . . . . . . . . . . .   SEULIB

    Reference number . . . . . . . . . . . . . . . . . . . . .   000002
                                                                 35
    Library member subtype . . . .   . .   . .   . .   . .      35
      2 DTA      13 BAP     16 MNU     19 SRT     33 COB     36 WSU    43 BGF
     11 ARS      14 DFU     17 MSG     31 ASM     34 FOR     40 UNS
     12 ARP      15 FMT     18 PHL     32 BAS     35 RPG     42 BGD

    Remove diagnostics from diagnosed source member? . . . . . Y,N  N
```

Start serialization at position: This prompt is displayed only if you select end-of-job option 3 or 4. The number specifies the position where the serial number will begin in each statement. The response can be any number greater than 0 that is equal to or less than statement length minus 3. SEU will overlay any data that is in these positions.

SEU supplies a value of 1 for this prompt, but you may change the value.

If you are using RPG II or auto report statements and the member contains compile-time tables, you should specify a serial start position of 1. Serialization stops if SEU finds two asterisks and a blank in the first three positions (indicating compile-time tables), and if you specify a serial start position of 1.

After you enter a response, SEU serializes statements in the member with four-digit numbers beginning with 0001.

Member name: SEU supplies the name you specified at the beginning of the job for this prompt. You can change the name. If you were updating an existing member, you can now store the changed member under a new name and save the original member as it was.

Library name: SEU supplies the name of the library you specified at the beginning of the job for this prompt. You may change the name and store the member in a different library. If you are using an existing member, a copy of the new member is stored in the new library, and the old member remains in the original library.

Reference number: This is a number SEU assigns to the member and stores in the library directory. If you are creating a new member, SEU supplies 000001 as the response and increases the number by one at the end of every SEU job that uses that member. You may change this number. You may use the reference number to keep track of the number of updates to the member, or the latest LISTLIBR printout.

Library member subtype: You may assign a subtype for a source member at end of job. A subtype further identifies a member within its type in a library listing.

For example, the LISTLIBR procedure may list and identify all of the members in your library as source (type S), procedure (type P), object (type O), or subroutine (type R) members. Although several members may be source, DFU source is very different from assembler source or FORTRAN source, and so on.

By assigning a subtype at end of job, you can identify a member such as a DFU source member or a FORTRAN source member.

If you do not enter a subtype for a new member, the subtype is entered as unspecified (40 UNS).

If you do not enter a subtype for an existing member, the subtype remains as the subtype that was specified when the member was last stored.

Note: Some SEU member types have default subtypes. For example, if you specified an SEU member type of W (WSU), a subtype 36 is specified for you.

The following subtypes are available for source or procedure members:

2	DTA	Data member
11	ARS	Automatic response member
12	ARP	RPG Auto report member
13	BAP	BASIC procedure (source member)

Procedure Members at End of Job

If you are creating or updating a procedure member, SEU displays the following end-of-job options:
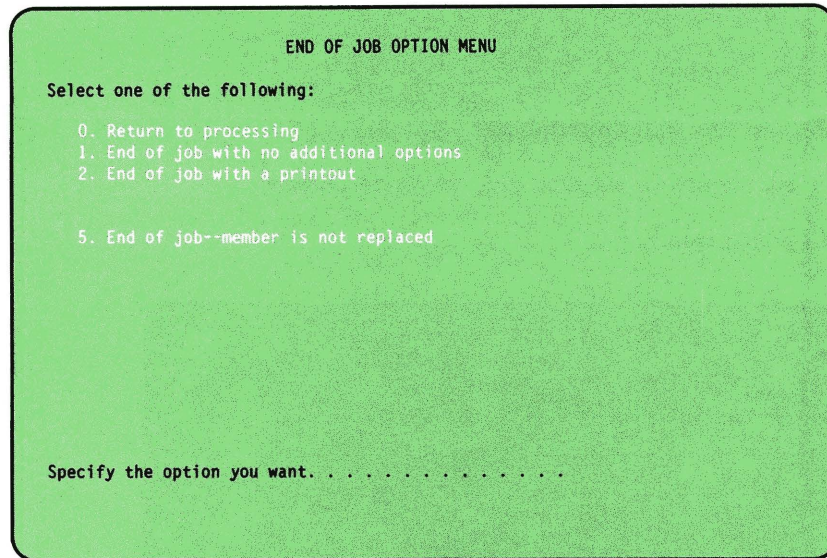
```
                    END OF JOB OPTION MENU

Select one of the following:

     0. Return to processing
     1. End of job with no additional options
     2. End of job with a printout


     5. End of job--member is not replaced








Specify the option you want. . . . . . . . . . . . . . .
```

End-of-Job Options

0 Return to processing: The job continues as though the End of Job command key (Cmd 7) had not been pressed. The cursor is returned to the first cursor position defined by the display. Option 0 is not allowed if the SEU work file is full or if an error exists for the display station.

1 End of job with no additional options: SEU copies the member from the work area to a library and replaces the old member in the library.

2 End of job with a printout: SEU copies the member from the work area to a library, replaces the old member, and then prints the new member on the printer currently assigned to the display station.

5 End of job--member is not replaced: SEU ends the job by removing the data in the work area. All new or changed data entered during the job is lost. If you were updating an existing member, this option cancels the update and the member remains in the library unchanged.

End-of-Job Maintenance

If you choose end-of-job option 1 or 2, SEU gives you a chance to do several things, such as:

- identifying program data in statements

- renaming the member

- storing the member in another library

- assigning the member a subtype and reference number.

The following is displayed:

```
                           END OF JOB



   Program data in include statements?. . . . . . . . . . . Y,N  N

   Member name  . . . . . . . . . . . . . . . . . . . . . . OE400R

   Library name . . . . . . . . . . . . . . . . . . . . . . SEULIB

   Reference number . . . . . . . . . . . . . . . . . . . . 000002

   Library member subtype . . . . . . . . . . . . . . . . . 40
      2 DTA    13 BAP    16 MNU    19 SRT    33 COB    36 WSU
     11 ARS    14 DFU    17 MSG    31 ASM    34 FOR    40 UNS
     12 ARP    15 FMT    18 PHL    32 BAS    35 RPG

   Log the procedure statements? . . . . . . . . . . . . . Y,N  Y

   Multiple requester terminal procedure?. . . . . . . . . Y,N  N
```

If the SEU job that is ending did not create the procedure, but only updated it, SEU displays the current status of the options in the response positions. You may change the options.

Program data in include statements?: Procedure commands that run SRT (single requester terminal) programs may contain program data instead of parameters. Procedure commands that run MRT (multiple requester terminal) procedures always contain data instead of parameters. If the procedure command contains program data instead of parameters, you must enter a Y. (Y for this prompt is the same as PDATA-YES for the $MAINT library maintenance utility program.) If the procedure command does not contain program data, the response must be N for no. The default value for a new member is N. Procedure commands and $MAINT are described in the *System Reference* manual.

Member name: SEU supplies the name you specified at the beginning of the job for this prompt. You can change the name. If you were updating an existing member, you can now store the changed member under a new name and save the original member as it was.

Library name: SEU supplies the name of the library you specified at the beginning of the job for this prompt. You can change the library name and store the member in a different library.

Reference number: This is a number SEU assigns to the member and stores in the library directory. If you are creating a new member, SEU supplies 000001 as the response and increases the number by one at the end of every SEU job that uses that member. You can change this number. You can use the reference number to keep track of the number of updates to the member, or identify the latest LISTLIBR printout.

Library member subtype: You may assign a subtype for a procedure member at end of job. A subtype further identifies a member within its type in a library listing.

For example, the LISTLIBR procedure can list and identify all of the members in your library as source (type S), procedure (type P), object (type O), or subroutine (type R) members. Although several members may be procedure members, a sort procedure is different from an assembler procedure or a COBOL procedure.

By assigning a subtype at end of job you may identify on the LISTLIBR printout a member as a sort procedure, a COBOL procedure, or whatever.

If you do not enter a subtype for a new member, the subtype is entered as unspecified (40 UNS). If you do not enter a subtype for an existing member, the subtype remains as the subtype that was specified when the member was last stored.

The following subtypes are available for source or procedure members:

2	DTA	Data member
11	ARS	Automatic response member
12	ARP	RPG Auto report member
13	BAP	BASIC procedure (source member)
14	DFU	Data file utility member
15	FMT	Display format member
16	MNU	Menu member
17	MSG	Message member
18	PHL	Phone list member
19	SRT	Sort member
31	ASM	Assembler member
32	BAS	BASIC member
33	COB	COBOL member
34	FOR	FORTRAN member
35	RPG	RPG member
36	WSU	Work station utility member
40	UNS	Unspecified
42	BGD	Business Graphics Data
43	BGF	Business Graphics Format

Log the procedure statements?: If you want the system to log the procedure statements to the system history file each time the procedure is called, the response must be Y for yes. If you do not want the procedure statements logged, the response must be N (which is recommended). The default when using a new member is Y.

Multiple requester terminal procedure?: If the procedure is an MRT (multiple requester terminal) procedure, the response must be Y for yes. If the procedure is not an MRT procedure, the response must be N for no. The default for a new member is N. If you are updating an existing member, SEU displays the responses to the prompts as they were last stored.

For a description of multiple requester terminal procedures, see the *Concepts and Programmer's Guide.*

14 DFU	Data file utility member
15 FMT	Display format member
16 MNU	Menu member
17 MSG	Message member
18 PHL	Phone list member
19 SRT	Sort member
31 ASM	Assembler member
32 BAS	BASIC member
33 COB	COBOL member
34 FOR	FORTRAN member
35 RPG	RPG member
36 WSU	Work station utility member
40 UNS	Unspecified
42 BGD	Business Graphics Data
43 BGF	Business Graphics Format

Remove diagnostics from diagnosed source member?: While you are compiling a source member, the compiler can create a diagnosed source file that contains the source statements along with the diagnostic and informational messages from the compilation. SEU uses that file as input and allows you to make changes. If you enter a Y for this prompt, SEU will omit all the diagnostic and informational messages from the member when you have finished correcting the member. Refer to *SEU Procedure Command* in Chapter 5 for more information on SEU-diagnosed source files.

Note: For more information on compiling a source member and diagnosed source files, see the related programming reference manual.

Duplicate program name (in positions 75 through 80): This prompt is displayed only if you specified an SEU member type of A, R, or S when you signed on to SEU; if you have selected option 3 or 4 of the end-of-job options; and if the statement length specified is 80 or greater.

If you enter Y, SEU copies the value in positions 75 through 80 of the first statement into positions 75 through 80 in each of the remaining statements in the member. SEU will copy the value over serial numbers, comments, or code, if they exist in positions 75 through 80. If a source member contains compile-time data and program name duplication is requested, a serial start position of 1 should be specified to prevent the serial number from being overlaid by the program name.

If serialization is being done in positions 1 through 4 and two asterisks and a blank are found in positions 1 through 3, which indicates the presence of compile time data, program name duplication and serialization are discontinued.

If you enter N, SEU does not copy the value contained in positions 75 through 80 of the first statement in the member.

If you enter any value other than Y or N, SEU displays an error message and redisplays the prompt.

Chapter 3. Using SEU

Chapter 1 introduced using SEU: enter/update, delete, and copy/move. The following sections give more details about the uses of SEU and include examples of using scan/replace, include, and message translate.

One sample source member will be used throughout the chapter. Assume the following statements are in a source member called AR230R.

Note: Changes were made to this member in Chapter 1 examples.

F Specification

Line	Form Type	Filename	...	Block Length	Record Length	...	Mode	Device
0 2	F	CUSTMSTR U			256	5	I	2 DISK
0 3	F							

I Specification

Line	Form Type	Filename or Record Name	Record Identification Codes (Position)	From	To	Decimal Positions	RPG Field Name
0 1	I	CUSTMSTR	01				
0 2	I			1	1		ARCOD
0 3	I			35	59		CUSA1
0 4	I			60	84		CUSA2
0 5	I			85	109		CUSA3
0 6	I			110	111		STATE
0 7	I			P 112	116	0	ZIPCD
0 8	I			P 117	118	0	AREAC
0 9	I			P 119	122	0	PHONE
1 0	I			123	123		CUSTP
1 1	I			P 124	127	0	LIMIT
1 2	I			P 128	130	0	SLSNO
1 3	I			P 131	135	2	AMDUE
1 4	I			P 136	139	0	DLTPM
1 5	I						

Creating or Updating Source and Procedure Members

You can use enter/update to create a new source or procedure member, add statements to an existing member, or change statements in an existing member. When you sign on to SEU and identify a member, SEU automatically selects enter/update for you, so the first display you see will include the enter/update prompt at the bottom of the display:

```
16    120   Z                    S    1   096   SEULIB     AR230R        W1
0001.00        FCUSTMSTRU        256  5 I     2 DISK
0002.00        ICUSTMSTR    01
0003.00        I                                    1    1 ARCOD
0004.00        I                                   35   59 CUSA1
0005.00        I                                   60   84 CUSA2
0006.00        I                                   85  109 CUSA3
0007.00        I                                  110  111 STATE
0008.00        I                                P 112 1160ZIPCD
0009.00        I                                P 117 1180AREAC
0010.00        I                                P 119 1220PHONE
0011.00        I                                  123  123 CUSTP
0012.00        I                                P 124 1270LIMIT
0013.00        I                                P 128 1300SLSNO
0014.00        I                                P 131 1352AMDUE
0015.00        I                                P 136 1390DLTPM




    Enter or update statement number  . . . . . . . . . . . . .
```

When you are working with a member during a job and you want the enter/update prompt again, press the Enter/Update command key (Cmd 5).

Chapter 1 also explained that what you see on the display when you sign on to SEU depends on whether the member exists or not. If you identified a new member, a blank Z-display is shown.

If the member already exists, the first 16 lines of data are displayed (as shown in the previous example). You can use the roll keys to roll through the statements and review the data.

found within a statement. A response of N means the scan characters are replaced everywhere they are found within the statement.

If you leave this field blank, and did *not* enter a starting position on the previous scan display, the default is N. However, if you entered a starting position on the earlier display, the default is Y.

End of replace area: This is the ending or right-margin position of the data that will be scanned and replaced within a statement. Data beyond this position in the statement will not be replaced. For example, in an 80-column statement, if the end of the replace area is 60, columns 61 through 80 will not be scanned or shifted.

When you do not enter a response for this prompt, SEU assumes that the end of replace area is the end of the statement. When you do enter a response for this prompt, SEU limits the scan and replacement to a specific portion of each statement. This will protect any data to the right of the changed area that should not be shifted out of its position.

Ending with statement number: This is the number of the last statement that will be scanned and replaced within the member. If a last statement number is not entered, SEU continues to scan and replace throughout the entire member. To limit the number of statements that are scanned, enter a last statement number.

Note: The scan and replace always begins with the second statement on the SEU display when the scan responses were entered.

Adding Statements

To add a statement, type a new statement number in response to the enter/update prompt and press the Enter key. For example, if you want to add a statement between statements 3 and 4, enter any number between 3 and 4, such as 3.1, in response to the enter/update prompt.

Changing Statements

To update an existing statement, enter an existing statement number in response to the prompt. For example, if you want to change statement 5, enter a 5 in response to the enter/update prompt. If you specified member type A, F, W, or R, SEU displays that statement using the correct display so you can change the data. If you specified member type S or if you want a different display, press the Select Display command key (Cmd 3) and choose the necessary display.

Removing Statements

Use delete to remove statements from a source or procedure member. You can remove one statement at a time or several consecutive statements at a time. Select delete by pressing the Delete command key (Cmd 4); the following delete prompts are displayed:

```
16                         S    1    096   SEULIB      AR230R         W1
0001.00      FCUSTMSTRU      256  5 I    2 DISK
0002.00      ICUSTMSTR    01
0003.00      I                                   1    1 ARCOD
0004.00      I                                  35   59 CUSA1
0005.00      I                                  60   84 CUSA2
0006.00      I                                  85  109 CUSA3
0007.00      I                                 110  111 STATE
0008.00      I                               P 112  116OZIPCD
0009.00      I                               P 117  118OAREAC
0010.00      I                               P 119  122OPHONE
0011.00      I                                 123  123 CUSTP
0012.00      I                               P 124  127OLIMIT
0013.00      I                               P 128  130OSLSNO
0014.00      I                               P 131  135 2AMDUE
0015.00      I                               P 136  139ODLTPM




Delete, starting from statement number  .  .  .  .  .  .  .  .  .  .
Ending with statement number.  .  .  .  .  .  .  .  .  .  .  .  .  .
```

- **Delete, starting from statement number:** Enter the statement number of the single statement you want to remove, or enter the statement number of the first statement in the series you want to remove.

- **Ending with statement number:** Enter the statement number of the last statement in the series you want to delete. You can leave this blank if you are removing only one statement.

  If you enter the same statement number for the first prompt as for the second prompt, SEU will respond with the message:

  ```
  Delete starting/ending stmt equal-one stmt assumed
  ```

After you type in the statement numbers you want to remove, press the Enter key to enter the responses. SEU displays the first and last statements to be removed so you can make sure the responses are correct before the statements are actually removed.

Press the Enter key *again* to remove the statements. If you do not press the Enter key this second time, SEU ignores your responses and does *not* remove the statements.

If you decide not to remove the statements, do not press the Enter key. Press the Delete command key (Cmd 4) again; you will return to the delete prompts, where you can change your responses. Or press another command key to select another use of SEU.

Note: If you remove all statements from a member and take one of SEU end-of-job options 1 through 4, the member is removed from the library. The REMOVE procedure is faster than signing on to SEU to remove a member. REMOVE is described in the *System Reference* manual.

To copy or move a single statement, you do not have to enter an ending statement number. To copy or move a group of consecutive statements, respond to all the prompts.

- **Copy or move the statements:** The default value for this prompt is COPY. If the response is not changed, the statements specified are copied. To move the statements specified to another location, change the response to MOVE or M.

- **To statement number:** Enter the statement number that identifies the new location for the first statement (or the single statement) that you want to copy/move. The statement number you enter must not already exist in the member, and there must be enough room between the existing numbers for another number.

- **Starting from statement number:** Enter the number of the first statement (or the single statement) you want to copy or move.

- **Ending with statement number:** Enter the number of the last statement that you want to copy or move. You can leave this prompt blank if you are moving or copying a single statement.

After you type in the responses, press the Enter key. SEU displays the first and last statements that are to be copied or moved so that you can make sure the responses are correct before the statements are actually copied or moved.

Press the Enter key *again* to actually move or copy the statements. If you do not press the Enter key this second time, the statements will *not* be copied or moved.

If you decide not to copy or move the statements, do not press the Enter key. Press the Copy/Move command key (Cmd 10) again to redisplay the copy/move prompts and change your responses. Or press another command key to select another use of SEU.

How to Insert More than 99 Statements

The following example shows you how to insert more than 99 statements between two statements in a member. Assume the following statement numbers already exist:

```
0003.00
0004.00
0005.00
0006.00
```

To insert more than 99 statements (by entering, moving, or including) between statements 3.00 and 4.00, press the Copy/Move command key (Cmd 10) and respond to the prompts as follows:

```
Copy or move the statements . . . . . . . . . . . . . . . . . MOVE
To statement number . . . . . . . . . . . . . . . . . . . . . 3.01
Starting from statement number  . . . . . . . . . . . . . . . 4.00
Ending with statement number  . . . . . . . . . . . . . . . .
```

Press the Enter key and verify your responses. Press the Enter key again to move the statement.

By moving the data in statement 4.00 into statement 3.01, you make it possible to enter 198 statements numbered 3.02 through 4.99. Statement numbers now are:

```
0003.00
0003.01
0005.00
0006.00
```

Copying Statements from One Member to Another

Note: This example assumes a second member (AR231R) already exists in your library. If you do not have another member in the library, you will not be able to run the include example.

Include is used to copy statements from one member to another. Statements copied by include are not removed from their original member.

Include only duplicate data that already exists in a library, not data in the work area. In other words, you cannot use include to copy changes you just made during the current job.

Example 6

This example will copy statements 1 through 7 from member AR231R into member AR230R. The statements will be placed between statements 8 and 9 of member AR230R. Both members are in the same library and both are SEU member type R.

Assume that the following statements exist for member AR231R:

```
16   120   Z                        1   096   SEULIB      AR231R            W1
0001.00      FCUSTAMT U          62  8 I    6 DISK
0002.00      ICUSTAMT      01
0003.00      I                                  P   1   52AMDUE
0004.00      I                                      6  13 CUSNO
0005.00      I                                     14  38 CUSNM
0006.00      I                                  P  39  420CRLIM
0007.00      I                                  P  43  472CHGTD
0008.00      I                                  P  48  5220VR30
0009.00      I                                  P  53  5720VR60
0010.00      I                                  P  58  6220VR90




        Enter or update statement number  . . . . . . . . . . . . . . .
```

To include statements from AR231R, press the Include command key
(Cmd 11). The include prompts are displayed:

```
16                            1   096   SEULIB      AR230R         W1
0001.00    FCUSTMSTRU      256  5 I    2 DISK
0002.00    ICUSTMSTR    01
0003.00    I                              1   1 ARCOD
0004.00    I                             35  59 CUSA1
0005.00    I                             60  84 CUSA2
0006.00    I                             85 109 CUSA3
0007.00    I                            110 111 STATE
0008.00    I                          P 112 1160ZIPCD
0009.00    I                          P 117 1180AREAC
0010.00    I                          P 119 1220PHONE
0011.00    I                            123 123 CUSTP
0012.00    I                          P 124 1270LIMIT
0013.00    I                          P 128 1300SLSNO
0014.00    I                          P 131 1352AMDUE
0015.00    I                          P 136 1390DLTPM

        Include from library name . . . . . . . . . . . . . . .
        Include from member name. . . . . . . . . . . . . . .
        Including at statement number . . . . . . . . . . . .
        Starting from statement number. . . . . . . . . . . .
        Ending with statement number. . . . . . . . . . . . .
```

Type in the first three responses shown and press the Enter key:

```
16                            1   096   SEULIB      AR230R         W1
0001.00*   FCUSTAMT U       62  8 I    6 DISK
0002.00*   ICUSTAMT     01
0003.00*   I                          P   1  52AMDUE
0004.00*   I                              6  13 CUSNO
0005.00*   I                             14  38 CUSNM
0006.00*   I                          P  39  420CRLIM
0007.00*   I                          P  43  472CHGTD
0008.00*   I                          P  48  5220VR30
0009.00*   I                          P  53  5720VR60
0010.00*   I                          P  58  6220VR90




        Include from library name . . . . . . . . . . . . . . . SEULIB
        Include from member name. . . . . . . . . . . . . . . AR231R
        Including at statement number . . . . . . . . . . . . 0008.10
        Starting from statement number. . . . . . . . . . . .
        Ending with statement number. . . . . . . . . . . . .
```

Notice the AR231R is shown at the top of the display so that you can view AR231R and choose which statements to include and identify their statement numbers. Now type in the last two responses (1 and 7) and press the Enter key. The following is displayed so that you can make sure your responses are correct:

```
16                              1   096   SEULIB    AR230R    0007  W1
0001.00*      FCUSTAMT U       62  8 I    6 DISK




0007.00*      I                         P  43  472CHGTD
   Include from library name . . . . . . . . . . . . . . . SEULIB
   Include from member name. . . . . . . . . . . . . . . AR231R
   Including at statement number . . . . . . . . . . . . 0008.10
   Starting from statement number. . . . . . . . . . . . 0001.00
   Ending with statement number. . . . . . . . . . . . . 0007.00
```

If the responses are correct, press the Enter key *again* to combine the data. If you do not press the Enter key again, the statements are not included.

If you want to change the responses, do not press the Enter key. Press the Include command key (Cmd 11) again and type new responses, or press another command key to select another use of SEU.

Note: After you press the Enter key you can see how the data from the two members is combined by holding the Shift key (⇧) down and pressing the Roll Down key (Roll ↓). The following is displayed:

```
 16                              1   096   SEULIB      AR230R               W1
0001.00    FCUSTMSTRU         256  5 I     2 DISK
0002.00    ICUSTMSTR    01
0003.00    I                                      1   1 ARCOD
0004.00    I                                     35  59 CUSA1
0005.00    I                                     60  84 CUSA2
0006.00    I                                     85 109 CUSA3
0007.00    I                                    110 111 STATE
0008.00    I                                  P 112 1160ZIPCD
0008.10    FCUSTAMT  U         62  8 I     6 DISK
0008.11    ICUSTAMT     01
0008.12    I                                  P   1   52AMDUE
0008.13    I                                      6  13 CUSNO
0008.14    I                                     14  38 CUSNM
0008.15    I                                  P  39  42OCRLIM
0008.16    I                                  P  43  472CHGTD
0009.00    I                                  P 117 1180AREAC
    Include from library name . . . . . . . . . . . . . . . . SEULIB
    Include from member name. . . . . . . . . . . . . . . . . AR231R
    Including at statement number . . . . . . . . . . . . . .
    Starting from statement number. . . . . . . . . . . . .
    Ending with statement number. . . . . . . . . . . . . .
```

Include Prompts

To include a single statement, you do not need to enter an ending statement number. To include a series of consecutive statements, respond to all of the prompts. Responses are:

- **Include from library name:** Enter the name of the library that contains the member from which you want to include statements. SEU will display the name of the library you are currently using.

- **Include from member name:** Enter the name of the member from which you want to include statements. If neither P nor S is entered, the member type is assumed to be the same type as the member you are using.

    If the include member is a procedure member, type a comma and a P after the member name (name,P) to identify the member as a procedure member. Or you can also type an S after the member name to indicate a source member (name,S).

- **Including at statement number:** Enter the statement number that identifies the place at which the included statements will be added to the member.

    Note: If you type in responses to the first three prompts and press the Enter key, SEU will display the member to be included from so that you can roll through that member to determine the correct numbers of the statements you are including.

- **Starting from statement number:** Enter the number of the first statement (or the single statement) you want to include.

- **Ending with statement number:** Enter the number of the last statement you want to include. You can leave this prompt blank if you are including a single statement.

After you type in the responses, press the Enter key. SEU will display the first and last statements to be included, so that you can make sure the responses are correct.

Press the Enter key *again* to actually have the statements included. If you do not press the Enter key the second time, SEU ignores the include responses and the statements are *not* included.

If you decide not to include the statements, do not press the Enter key. Press the Include command key (Cmd 11) again; you will return to the include prompts where you can change your responses. Or press another command key to select another use of SEU.

Note: You can also use include to copy statements from one location in a member to another location in the same member, but the statements to be included must already exist in the library. In other words, you cannot use include to copy any statements you have just entered or changed during your current job.

Locating and Replacing Characters in a Member

You can do three things with scan/replace:

- You can search through a member to locate (but not change) a particular sequence of characters.

- If scan locates the characters, the statement containing the characters can be displayed using the Scan to Update command key (Cmd 14) so that you can manually make changes to the statement.

- The scan and replace prompt on the scan display allows you to automatically substitute one set of characters for another set of characters within a single statement or throughout the member.

How to Look through a Member Using Scan (without Making Changes)

Example 7

Note: Because you may not have had the second member available for the previous example, Example 7 will continue as if none of the data in Example 6 was included in member AR230R.

You use scan when you want to locate a set of characters within a member. Scan will search the member and tell you if the characters are in the member. If scan does find the characters, it also shows you where the characters were first found.

To search through a member and find a particular word or set of characters, press the Scan/Replace command key (Cmd 2). The following is displayed. In this example, to make SEU search for the word AMDUE, type in that word as shown:

```
16                              1   096   SEULIB      AR230R        W2
0001.00    FCUSTMSTRU        256  5 I    2 DISK
0002.00    ICUSTMSTR    01
0003.00    I                              1   1 ARCOD
0004.00    I                             35  59 CUSA1
0005.00    I                             60  84 CUSA2
0006.00    I                             85 109 CUSA3
0007.00    I                            110 111 STATE
0008.00    I                          P 112 1160ZIPCD
0009.00    I                          P 117 1180AREAC
0010.00    I                          P 119 1220PHONE
0011.00    I                            123 123 CUSTP
0012.00    I                          P 124 1270LIMIT
0013.00    I                          P 128 1300SLSNO
0014.00    I                          P 131 1352AMDUE
0015.00    I                          P 136 1390DLTPM


Scan characters . . . . . . . . . . . . . . .  AMDUE
Starting at position. . . . . . . . . . . .
Number of scan characters . . . . . . . . . .
Scan and replace? . . . . . . . . . . . Y,N  N
```

If you leave the second response blank, each statement is scanned, starting with the first position. Leave the third response blank; it will be explained later. At this time we do not want to replace AMDUE with anything else, so leave an N as the last response.

Now press the Enter key and the following is displayed:

```
16                              1   096    SEULIB      AR230R        W2
0014.00     I                               P 131 1352AMDUE
0015.00     I                               P 136 1390DLTPM
```

```
Scan characters . . . . . . . . . . . . . . . AMDUE
Starting at position. . . . . . . . . . . . .
Number of scan characters . . . . . . . . . 05
Scan and replace? . . . . . . . . . . . Y,N  N
   SEU-0569
   053 is the position of the scan characters
```

The scan always starts with the second displayed statement—in this case, statement 2, and continues on through the entire member, back to statement 1.

The statement number of the first occurrence of AMDUE is displayed on the last line of the display.

Also the statement where AMDUE was first located is displayed at the top of the display.

If SEU cannot find the scan characters you entered, it displays this message on the bottom line:

```
The scan characters were not found in the member
```

Scan Prompts

You must at least enter a response to *Scan characters* or *Number of scan characters*. The following explains the possible responses and restrictions for each prompt.

Note: To scan for lowercase characters, you must first press the Select Display command key (Cmd 3) and select the Z-lower format. After that, if the Scan/Replace command key (Cmd 2) is pressed, the scan prompts will allow lowercase responses. Only the Z-lower display allows you to enter lowercase responses.

- **Scan characters:** This is the consecutive group of as many as 25 characters you want to find (sometimes called a character string). Blanks are valid in any position of the group. If blanks are included at the beginning or end of the group, remember to include them in your count and enter a value for *Number of scan characters*.

  If you do not enter a response to this prompt, you must enter a value for *Number of scan characters*. If you do not enter any scan characters, SEU assumes the scan characters are blanks and searches for a group of blanks with the length you specify for the *Number of scan characters* prompt.

  Note: SEU searches for the scan characters in any form. For example, when scanning for the word ADD, SEU will display ADDITION, ADDRESS, or similar occurrences of the letters ADD. You can isolate the word ADD by including the blank before or after the group of characters. See *Scan and Replace* later in this chapter for similar considerations when performing a scan and replace function.

- **Starting at position:** This is the starting position of the scan characters within the statements you are searching. It limits the scan to starting at a particular position within each statement. The scan skips over any data in the statement up to the starting position and scans only the number of characters specified.

  For example, assume you want to scan the C-specification result field (columns 43 through 48) of an RPG source program for a specific name. You specify column 43 as the starting position. If there are six scan characters in the string, SEU scans only positions 43 through 48.

  This prompt is optional and can remain blank. If you leave the prompt blank, SEU searches the entire statement for the specified scan characters. When the scan characters are found, the statement where the characters are first located is displayed on the first display line. The scan continues with the next statement when you press the Enter key again.

- **Number of scan characters:** This is the number of scan positions, including blanks. Any number from 1 through 25 may be entered. If the number you specify is less than the number of scan characters you entered, SEU shortens the right end of the scan character string to this length. If the number you specify is greater than the number of scan characters you entered, SEU assumes blanks on the right end of the scan character string.

  This prompt is optional only if you entered a value for *Scan characters* earlier. If you do not enter a value, SEU assumes that the scan characters contain no blanks at the end, counts only the number of scan characters, and enters the value for you.

- **Scan and replace?:** If you enter a Y, you can replace one set of scan characters with a set of replacement characters you specify in the next series of prompts.

  Refer to *Scan and Replace* later in this chapter for examples of the replace prompts.

  Enter an N if you do not want to replace the scan characters. The scan then continues and you will not see any of the replace prompts. N is the default value for this field.

If the scan characters are not found, SEU displays the message at the bottom of the display:

    The scan characters were not found in the member

Note: If the first statement located by the scan is not the statement you want, press the Enter key to continue the scan.

Scan and Replace

Example 8

Many times you need to make several changes to data in your statements. If the same data appears several times within several statements, you want to make sure the change is made in each place, for example, changing CUSTMSTR to CUSTMAST.

SEU can make several changes at once for you.

To make sure the change is made every place the data appears, and each change is correct, use scan/replace.

Note: See *When Scan and Replacement Characters Aren't Equal in Length* later in this chapter for your considerations when the number of scan characters is different from the number of replacement characters.

Replace is an option of scan, and you can use it by pressing the Scan/Replace command key (Cmd 2). Again, notice the last scan responses are displayed. Enter the new responses shown, but be sure to type a Y in response to the last scan prompt like this:

```
16                           1  096   SEULIB     AR230R      W2
0014.00     I                             P 131 1352AMDUE
0015.00     I                             P 136 1390DLTPM




















Scan characters . . . . . . . . . . . . . . .  CUSTMSTR
Starting at position. . . . . . . . . . . .
Number of scan characters . . . . . . . . . .
Scan and replace? . . . . . . . . . . .  Y,N  Y
```

The following is displayed. Because you are replacing CUSTMSTR with CUSTMAST, enter CUSTMAST as the replacement characters:

```
16                                1   096   SEULIB     AR230R          W2
0014.00      I                              P 131 1352AMDUE
0015.00      I                              P 136 1390DLTPM        ,




















Replacement characters. . . . . . . . . . .   CUSTMAST
Number of replacement characters. . . . . . .
Replace once per statement? . . . . . . . Y,N  N
End of replace area . . . . . . . . . . . .   096
Ending with statement number. . . . . . . .   0014.00
```

Although statement 14.0 is at the top of the display, SEU will start the replacement with the second displayed statement (statement 15.0) and continue back through statement 14.0.

Press the Enter key; the next display is shown:

```
16                                 1   096   SEULIB      AR230R             W2
0014.00      I                                          P 131 1352AMDUE
0015.00      I                                          P 136 1390DLTPM
```

```
Scan characters . . . . . . . . . . . . . . .  CUSTMSTR
Starting at position. . . . . . . . . . . . .
Number of scan characters . . . . . . . . . .  08
Scan and replace? . . . . . . . . . . . . Y,N  Y
   SEU-0597
   0002 statements have been changed.
```

The number of statements in which replacements were made is
indicated on the bottom line.

To see how the statements were changed, hold down the Shift
key (⌂) and press the Roll Down key (Roll ↓):

```
16                                 1   096   SEULIB      AR230R             W2
0001.00      FCUSTMASTU         256  5 I      2 DISK
0002.00      ICUSTMAST    01
0003.00      I                                            1    1 ARCOD
0004.00      I                                           35   59 CUSA1
0005.00      I                                           60   84 CUSA2
0006.00      I                                           85  109 CUSA3
0007.00      I                                          110  111 STATE
0008.00      I                                          P 112 1160ZIPCD
0009.00      I                                          P 117 1180AREAC
0010.00      I                                          P 119 1220PHONE
0011.00      I                                          123  123 CUSTP
0012.00      I                                          P 124 1270LIMIT
0013.00      I                                          P 128 1300SLSNO
0014.00      I                                          P 131 1352AMDUE
0015.00      I                                          P 136 1390DLTPM

Scan characters . . . . . . . . . . . . . . .  CUSTMSTR
Starting at position. . . . . . . . . . . . .
Number of scan characters . . . . . . . . . .  08
Scan and replace? . . . . . . . . . . . . Y,N  Y
```

Replace Prompts

You must enter either the replacement characters or the number of replacement characters. You may enter both, however. If you enter only the number of replacement characters, SEU assumes the replacement characters are blanks and substitutes blanks for the scan characters.

You can remove the scanned-for characters by leaving the *Replacement characters* prompt blank and entering a 0 for *Number of replacement characters*. SEU removes the scan characters and moves the data to the left to close up the empty space.

Replacement characters: These are the characters SEU uses to replace the scan characters you specified. From 0 to 25 alphameric characters can be entered.

This prompt is optional and can remain blank if you enter a value for *Number of replacement characters*. When you do not enter any replacement characters, SEU assumes the replacement characters are a string of blanks with the length you specify for *Number of replacement characters*.

Note: The replacement characters will replace the scan characters wherever the scan characters are found. For example, assume you enter ADD for *Scan characters* and SUB for *Replacement characters*. ADDITION becomes SUBITION, ADDRESS becomes SUBRESS, and so on. You can isolate the scan characters by including, as scanned-for characters, any blanks that appear at the beginning and/or end of the scan characters.

Number of replacement characters: This is the number of replacement characters SEU uses to replace the scan characters you specified. This prompt is optional and can be left blank if you entered replacement characters. When this prompt is left blank, SEU counts the number of replacement characters you entered (including blanks embedded within the group of characters) and displays that number. SEU does not count blanks at the end of the replacement characters. Some things to remember for this prompt are:

- The number of replacement characters can be any number 0 through 25.

- Enter 0 to remove the scan characters wherever they have been found and close up the space.

- If blanks are to be included at the end of the replacement characters, be sure to include them in the number of replacement characters.

If you enter a value that is less than the number of replacement characters entered, SEU shortens the right end of the string of replacement characters to this length. If you did not specify any replacement characters, SEU assumes a string of blanks the length of the value you entered.

See *When Scan and Replacement Characters Aren't Equal in Length* later in this chapter for considerations when the number of scan characters is different from the number of replacement characters.

Replace once per statement?: A response of Y to this prompt limits the replacement to only the first time the scan characters are

When Scan and Replacement Characters Aren't Equal in Length

When the number of scan characters is different from the number of replacement characters, one of the following will happen:

- **If there are more replacement characters than scan characters:**

  This means you are trying to add more new characters than you took out of the statement. To allow for this, data is shifted to the right to make room for the replacement characters to be inserted. However, shifting will not occur beyond the position you specify for the *End of replace area* prompt.

  If you do not specify an *End of replace area*, all data in the statement to the right of the replacement characters is shifted by SEU to make room for the replacement characters—as long as there are blanks in the end positions of the statement.

  Note: This shifting of data will reposition some data and could cause syntax errors for RPG or WSU programs.

  For example, replacing CUSTMST with CUSTMAST requires a shift of data to the right as the following example shows:

```
16                                          1   120    SEULIB      OE400R
0002.00  // FILE NAME-CUSTMST,UNIT-F1
0003.00  // FILE NAME-CUSTORDS,UNIT-F1
0004.00  // RUN




















Scan characters . . . . . . . . . . . . . .   CUSTMST
Starting at position. . . . . . . . . . . .
Number of scan positions  . . . . . . . . .
Scan and replace? . . . . . . . . . . . . Y,N   Y
```

Enter the replacement characters:

```
16                                        1   120    SEULIB     OE400R
0002.00  // FILE NAME-CUSTMST,UNIT-F1
0003.00  // FILE NAME-CUSTORDS,UNIT-F1
0004.00  // RUN













Replacement characters. . . . . . . . . . .    CUSTMAST
Number of replacement positions . . . . . . .
Replace once per statement? . . . . . . . Y,N  N
End of replace area . . . . . . . . . . .       120
Ending with statement number. . . . . . . .    0002.00
```

When you press the Enter key, the scan prompts are redisplayed
and the first statement changed is displayed on the second line of
the display. The number of statements changed is noted at the
bottom of the display:

```
16                                        1   120    SEULIB     OE400R
0002.00  // FILE NAME-CUSTMAST,UNIT-F1
0003.00  // FILE NAME-CUSTORDS,UNIT-F1
0004.00  // RUN













Scan characters . . . . . . . . . . . . . . .   CUSTMST
Starting at position. . . . . . . . . . . . .
Number of scan positions  . . . . . . . . .     07
Scan and replace? . . . . . . . . . . . . Y,N   Y
  SEU-0597
   0001 statements have been changed
```

If data is to be shifted to the right to make room for the replacement characters, there must be enough blank space available at the end of the statement for the shift.

If there is not enough blank space available, an error occurs. SEU redisplays the scan and replace prompt with the affected statement on the first line of the display. You cannot change the responses to the scan and replace prompt at this time. You should note the error and statement number for correction later and press the Enter key to continue.

Note: If an error occurs and you do not continue the replacement, all replacements that have occurred up to the error will remain.

- **If there are fewer replacement characters than scan characters:**

  The data between the replacement characters and the end of replacement area is shifted to the left to close the gap created by the replacement. Blanks are inserted between this data and the end of the replacement area.

  Note: Again, this could cause syntax errors for an RPG or WSU member.

  For example, replacing CUSTMAST with CUSTMST requires a shift of data to the left, as the following example shows.

  Enter the scan characters, blank out the number of scan characters, and make sure that a Y is in the last position:

```
 16                                    1   120   SEULIB      OE400R
 0002.00  // FILE NAME-CUSTMAST,UNIT-F1
 0003.00  // FILE NAME-CUSTORDS,UNIT-F1
 0004.00  // RUN













 Scan characters . . . . . . . . . . . . . .  CUSTMAST
 Starting at position. . . . . . . . . . . . .
 Number of scan positions  . . . . . . . . . .
 Scan and replace? . . . . . . . . . . . . . Y,N  Y
    SEU-0597
    0001 statements have been changed
```

Enter the replacement characters:

```
16                                        1   120   SEULIB    OE400R
0002.00  // FILE NAME-CUSTMAST,UNIT-F1
0003.00  // FILE NAME-CUSTORDS,UNIT-F1
0004.00  // RUN




        Replacement characters. . . . . . . . . . .   CUSTMST
        Number of replacement positions . . . . . . .
        Replace once per statement? . . . . . . . Y,N  N
        End of replace area . . . . . . . . . . . .   120
        Ending with statement number. . . . . . . .   0002.00
```

When you press the Enter key, the scan prompts are displayed
again, and the number of statements changed is noted at the
bottom of the screen:

```
16                                        1   120   SEULIB    OE400R
0002.00  // FILE NAME-CUSTMST,UNIT-F1
0003.00  // FILE NAME-CUSTORDS,UNIT-F1
0004.00  // RUN




        Scan characters . . . . . . . . . . . . . .   CUSTMAST
        Starting at position. . . . . . . . . . . .
        Number of scan positions  . . . . . . . . . .  08
        Scan and replace? . . . . . . . . . . . Y,N   Y
          SEU-0597
           0001 statements have been changed
```

How to Make Changes to a Statement During a Scan

Example 9

You may want to locate and change data within a member. For this example, search for LIMIT and change it to CRLIM.

To scan for the data and be able to update it, press the Scan/Replace command key (Cmd 2). Notice the last scan responses are still displayed.

Type in LIMIT as shown in the following display:

```
16                              1   096   SEULIB      AR230R        W2
0001.00      FCUSTMASTU      256 5 I    2 DISK
0002.00      ICUSTMAST     01
0003.00      I                               1    1 ARCOD
0004.00      I                              35   59 CUSA1
0005.00      I                              60   84 CUSA2
0006.00      I                              85  109 CUSA3
0007.00      I                             110  111 STATE
0008.00      I                           P 112 1160ZIPCD
0009.00      I                           P 117 1180AREAC
0010.00      I                           P 119 1220PHONE
0011.00      I                             123  123 CUSTP
0012.00      I                           P 124 1270LIMIT
0013.00      I                           P 128 1300SLSNO
0014.00      I                           P 131 1352AMDUE
0015.00      I                           P 136 1390DLTPM


      Scan characters . . . . . . . . . . . . . . . LIMIT
      Starting at position. . . . . . . . . . . .
      Number of scan characters . . . . . . . . .
      Scan and replace? . . . . . . . . . . . Y,N  N
```

Then press the Scan to Update command key (Cmd 14), rather than the Enter key.

When the scanned-for characters are found, SEU displays the statements so that you can change them.

Change LIMIT to CRLIM, as shown, and press the Enter key to enter the change:

```
16   120   Z          Update        1   096   SEULIB    AR230R       W2
     I                                123 123 CUSTP


        1         2         3         4         5         6         7
123456789012345678901234567890123456789012345678901234567890123456789
     I                                      P 124 1270CRLIM

8         9         0         1         2
012345678901234567890123456789012345678901234567890




     Enter or update statement number  . . . . . . . . . . . . . . 0012.00

        SEU-0569
        053 is the position of the scan characters
```

SEU then displays the next statement (in the example, statement 15) in enter/update even though it may not contain the scan characters:

```
16   120   Z          Update        1   096   SEULIB    AR230R       W2
     I                                      P 124 1270CRLIM


        1         2         3         4         5         6         7
123456789012345678901234567890123456789012345678901234567890123456789
     I                                      P 128 1300SLSNO

8         9         0         1         2
012345678901234567890123456789012345678901234567890




     Enter or update statement number  . . . . . . . . . . . . . . 0013.00
```

To continue the scan to update, press the Scan to Update command key (Cmd 14) again.

Print Option for Replace

When the print option is on, SEU prints the "before" and "after" version of each statement in which a replacement was made. The before-replacement version of the statement is identified with three hyphens (---). The after-replacement version of the statement is printed as it now exists.

Scan and Replace Using Ideographic Characters

You may scan for ideographic characters if your system has the Ideographic Character Generator feature. This section contains material unique to an ideographic system, and should be used in addition to other information in this manual.

The string of ideographic characters must be preceded by a Shift Out (SO) character and followed by a Shift In (SI) character. The SO occupies one position, each ideographic character occupies two positions, and the SI character occupies one position.

Considerations

In ideographic mode, the entries for the *Scan characters* will automatically be bracketed with SO and SI characters. However, you may be scanning for a particular ideographic character in the middle of a character string. This character would be positioned away from both the SO and SI characters.

To handle the above situation, a new line was added to the scan display. A Y (yes) response to *First Character Is Omitted From Scan* will remove the SO character from the scan. A N (no) response will leave the SO character as part of the scan characters. N is the default entry.

To include or exclude the SI character, simply adjust the *Number of scan positions* entry.

Example 10

You may want to search a message member to find and change an ideographic character. To find (プ) in the character string (ᵉプ ロ シ ヂ ₀), try the following example.

```
First Character Is Omitted From Scan............... Y
        Scan characters........................ ( ₀ プ ₀ )
        Starting at position....................
        Number of scan positions............... 2
        Scan and replace....................... N
```

The way the character (プ) is located in the character string (₀プ ロ シ ヂ ₀), it does not have a SO to its immediate left. A Y is entered here to omit the automatically supplied SO from the scan.

The character is entered, and automatically bracketed with a SO and a SI character.

The Starting at position prompt is left blank, so you will find the character wherever it appears.

A 2 is entered for the number of scan positions because each ideographic character is two positions long and you do not want the SI character bracketing the scan character to be included.

N is the response to scan and replace. Properly bracketed ideographic character strings can be replaced automatically in the same way alphameric character strings can be replaced. However, unbracketed ideographic characters cannot be replaced automatically.

SEU will find your character in the character string and display the statement so that you can change it in the normal fashion.

Translating Messages

Note: Before running this example, you may want to refer to the CREATE procedure in the *System Reference* manual to better understand how the source messages member is created.

The example will use a member named MESSAGES with statements 80 characters long. MESSAGES looks like this:

```
MEMBER      MESSAGES LIBRARY      SEULIB      SEU EOJ PRINTOUT       DATE  12/17/82      TIME  08.45

                                              IBM SYSTEM/36 SOURCE ENTRY UTILITY

MESSAGES,1
0101 THIS IS THE FIRST MESSAGE
0102 THIS IS THE SECOND MESSAGE
0103 THIS IS THE THIRD MESSAGE
0104 THIS IS THE FOURTH MESSAGE
0105 THIS IS THE FIFTH MESSAGE
                        **** E N D   O F   S E U   P R I N T O U T ****
```

You can translate your message into other national languages by using SEU message translation. Message translation is available for existing message source members by specifying member type T at SEU sign-on:

```
                        SEU PROCEDURE                    Optional-*

          Source entry utility (SEU) is a program that allows you to create,
          change, remove, and locate statements in source and procedure members


     Name of member to be created or updated . . . . . . . . . . .  MESSAGES

     Type of SEU member. . . . . . . . . . . . . . . A,F,P,R,S,T,W  T

     Name of member containing SEU formats . . . . . . . . . . . .  #SE@XTRA

     Length of statement . . . . . . . . . . . . . . . . . . . . .  80

     Name of library containing member . . . . . . . . . . . . . .  SEULIB




     Cmd3-Previous menu

                                                    (C) 1983 IBM Corp.
```

Note: If you do not specify a statement length of 80, SEU may issue a warning message that data will be lost. Source type members can have statements 96 characters long, but message translate only allows 80 characters. Make sure your messages are not longer than 80 characters.

You are prompted to enter a translation for the first message (0101):

```
16                                    1   080           MESSAGES
      THIS IS THE FIRST MESSAGE




    Enter the message number . . . . . . . . . . . . . . . .      0101
```
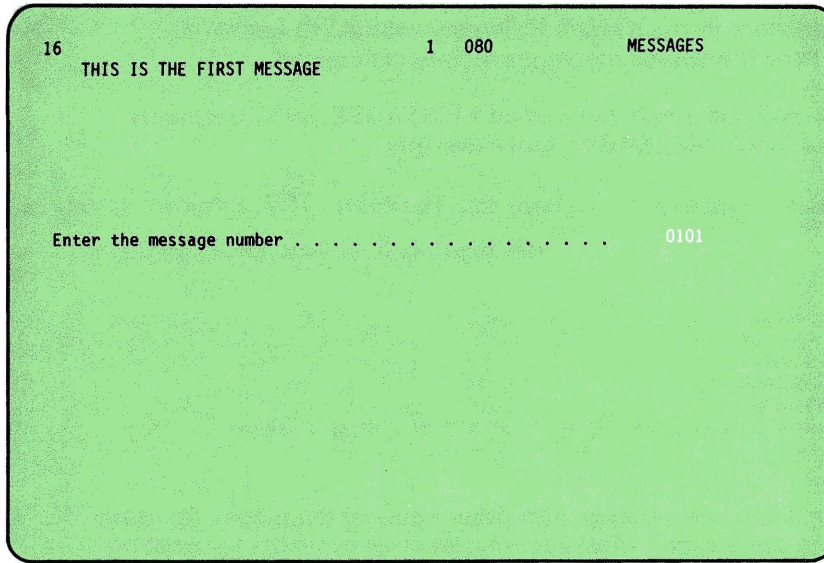
Enter the translated version of the message and press the Enter key:

```
16                                    1   080           MESSAGES
      THIS IS THE FIRST MESSAGE


      This is the translated version of the first message


    Enter the message number . . . . . . . . . . . . . . . .      0101
```
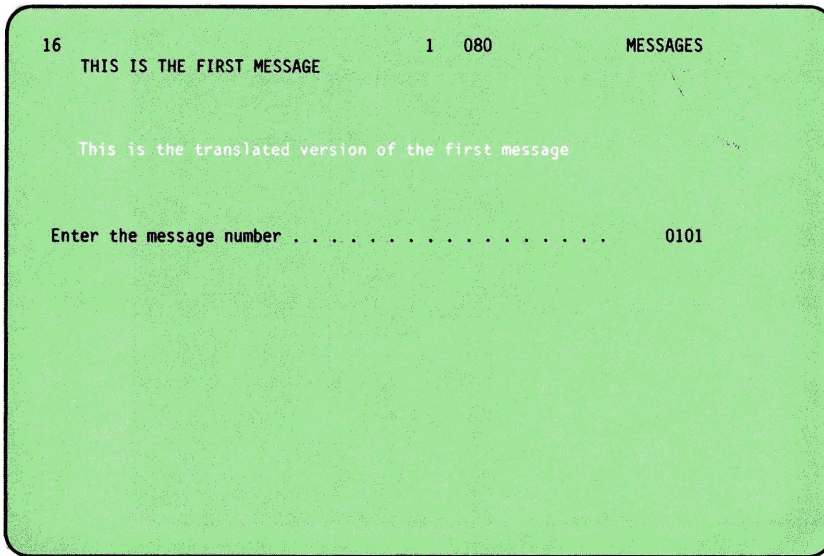
You can continue to enter translations. When you reach the last statement in the source member (by entering translations or pressing the Enter key), SEU displays the message statements and the translations.

Each translated statement is assigned the same four-digit message identification code (MIC) number as the untranslated message. As a result, the source member contains both the untranslated message and the translated message for each message (or MIC):

Message Control Statement ——
Untranslated Messages ——
Delimiter Statement ——
Translated Message ——
End of Member Message ——

```
 16                                  1    080              MESSAGES
    MESSAGES,1
   0101 THIS IS THE FIRST MESSAGE
   0102 THIS IS THE SECOND MESSAGE
   0103 THIS IS THE THIRD MESSAGE
   0104 THIS IS THE FOURTH MESSAGE
   0105 THIS IS THE FIFTH MESSAGE
   A000
   0101 This is the translated version of the first message
 Enter the message number. . . . . . . . . . . . . . . . .
    SEU-0584
   End of messages to translate
```

Notice that A000 is stored after the last untranslated message. This is called a *delimiter statement* and is a temporary record added at the end of the member by SEU at sign-on. The delimiter tells SEU where the original message statements end and the translated messages begin.

After a translation has been entered, as many as four untranslated statements of the next message set can be displayed. A message set consists of consecutive statements that contain an asterisk (*) in column 1 or consecutive statements that contain the same MIC number in columns 1 through 4. Comment statements (identified by an asterisk in column 1) are displayed for possible translation.

You can enter more lines for a translated message than were used to enter the untranslated message.

Once you have added the translated statements to the message source statements using message translation, use the CREATE procedure to get a message load member. When you run the CREATE procedure, the source member must contain only the message control statement and the translated messages.

Either create a new source member and, using include, copy only the message control statement and the translated version of the messages to the member. Or, delete the original messages and the A000 delimiter statement from the member. More information on how to use the CREATE procedure is in the *System Reference* manual.

Inserting Translations

If you have already added an untranslated message statement into the message member, you can also add a translation for the message. However, when you insert a sequence of translations, you should insert them in ascending message number order so that a statement number will be available at the logical position required.

SEU inserts the translations in numerical order according to the message number. For example, SEU inserts the translation message 0107 after the translation for message 0105. SEU determines where to place the translation by adding 0.01 to the SEU statement number of the previous statement.

For example, assume you have the following messages and translations:

```
(00009.00)  0107  This is the eighth message
(00010.00)  0108  This is the ninth message
(00011.00)  0109  This is the tenth message
(00012.00)  A000
(00013.00)  0104  This is the fifth translated message
(00014.00)  0105  This is the sixth translated message
(00015.00)  0108  This is the ninth translated message
(00016.00)  0109  This is the tenth translated message
```

To insert translations for messages 0106 and 0107, enter 0106 first. SEU determines that the translation for 0106 must be inserted before the translation for 0108 and following 0105. So, SEU adds .01 to message 0105's statement number (00014.00) and inserts the translation for message 0106 at statement number 00014.01.

If you had inserted message 0107 first, SEU would have determined that 0107 should be inserted between 0105 and 0108 and placed the translation for 0107 at statement 00014.01. There would then be no room between statements 00014.00 and 00014.01 for message 0106's translation. An error message would be displayed.

You would have to use move/copy to move the translation for message 0107 (statement number 00014.01) to another location to make room.

Summarizing Message Translation

When you sign on to SEU and specify an SEU member type of T, SEU determines whether the message member exists and if the member contains the delimiter statement with A000 in positions 1 through 4.

The determination results in one of the following displays:

- If the member specified at SEU sign-on does not exist in the specified library, a blank Z-display is shown so that you can begin entering message statements.

- If the member exists, the first eight statements following the message member control statement are displayed on the screen in the prompting mode of the message translate function.

Notes:

1. The first time you try to enter translations for an existing member, SEU inserts the delimiter statement in the member.
2. All the uses of SEU (enter/update, move/copy, delete, and include) are available to help you make any necessary changes to the message source member.

Chapter 4. Displays To Guide You

As you saw in Chapter 1, SEU offers displays (sometimes called specification displays or display formats) to guide you when entering or changing statements.

All of the displays are stored together in two load members, #SE@FORM and #SE@XTRA. Refer to *Storing New or Changed Displays* in Chapter 5 for more details.

SEU-Supplied Displays

SEU-supplied displays available to guide you include:

- Free-form, for entering and changing statements for which special displays do not exist, like OCL

- RPG II and auto report, for entering and changing RPG II and auto report specifications

- Work station utility (WSU), for entering and changing WSU specifications

- SFGR, for entering and changing display formats used by the display format generator utility program ($SFGR)

- Command, to enter and change IGC character entries

- Assembler, for entering and changing assembler and macro processor instruction statements

- FORTRAN IV, for entering and changing FORTRAN IV statements

- COBOL, for entering and changing COBOL statements

- AUTOR, for entering source statements for automatic response to messages

- Message, for entering source statements for messages

- Sort, for entering and changing sort sequence specifications

- Magnetic character reader, for entering and changing specifications for the *IBM 1255 Magnetic Character Reader*

- BGU, for entering data for the Business Graphics Utility.

More detail on each display is found later in this chapter.

What the Displays Do for You

Chapter 1 explained that you can get a list (menu) of the SEU displays by pressing the Select Display command key (Cmd 3):

```
                    Select display


   1 Z            17 WSU-J        33 FORTRAN       49
   2 Z-LOWER      18 WSU-E        34 COBOL         50
   3 H            19 WSU-T        35 SDAS          51
   4 U            20 WSU-M        36 SDAH          52
   5 F            21 WSU-S        37 SDAD1         53
   6 G            22 WSU-D        38 SDAD2         54
   7 E            23 WSU-C        39 DOC-H         55
   8 L            24 SFGR-S       40 AUTOR         56
   9 T            25 SFGR-H       41 MESSAGE       57
  10 I            26 SFGR-D       42 SRT-HEAD      58
  11 J            27 D-CONT       43 SRT-RECD      59
  12 C            28 SORTH        44 SRT-CNST      60
  13 O            29 SORTRF       45 SRT-FLD       61
  14 P            30 SORTRC       46 MICRSYS       62
  15 K            31 SORTF        47 MICRSTCK      63
  16 A            32 ASSEM        48               64


  Enter the number of the specification display you want. . . . . .
```

When you select a display, that display guides you when you are entering or updating statements. Column positions are marked on the display, and fields are separated by blank spaces, or text is given that describes each field.

For example, some of the displays relate to the specification sheet used to write (or code) in a programming language. The following example illustrates the relationship between the I-display and the I-specification sheet:

Enter Field Name Here

After you select a display, the length of the display is shown in positions 7 through 9 of the status line, and the name of the display is shown in positions 13 through 20. In the previous example, the length is 96 and the name of the display is I. (See *Line 1 is the Status Line* in Chapter 2 for more details on the status line.)

The Order of the Displays When Entering a Member

When you sign on to SEU and identify a member, the Z-display is automatically selected by SEU. This display will continue to be used for each statement you enter or change unless you select a different display using the Select Display command key (Cmd 3).

When you are entering SEU member types W or F, and you have selected your first display, SEU knows that the displays for those member types are used in a particular order. Based on the previous statement, SEU aids you in the selection of the appropriate display.

For more information, see *WSU* or *SFGR* later in this chapter.

The Order of the Displays When Making Changes

If you are adding or updating statements, SEU determines the display type of the statement that precedes the statement being entered, then selects the same display. SEU determines the type of display by the character in column 6 of the previous display.

If the statement to be updated is in an SEU member type of W or F, SEU will begin selecting the displays in sequence once you choose the first display.

What Type of Field Is It?

Each SEU-supplied display (except the free-form) has some predefined fields. That is, there are fields that will accept only certain types of data. There are fields that affect the way you move the cursor from field to field. There are fields that are *protected*. And there are fields that are set up to always contain the same data.

Note: On the SEU displays, certain types of fields are shown in different ways. Numeric and alphameric right-adjust fields are displayed in reverse image. Headings for protected fields are underlined. Headings for autoskip fields are also underlined if autoskip is on. For example:

```
              Protect Field        Right-Adjust Field

  16   096   I         Enter           1   096   SEULIB      AR230R          W1
       I                              110  111 STATE

              1     1    12 2    2   2/3   3   3/    34   4 4 4     4 5   5 5        56
   12345 6 78901234 5678 90 1234 567 8901 234 5678 901 2 3 4567 8901 2 345678 90
       I                                            P   112  116 0 ZIPCD

   6  6  6  6  67 7    7    8 8        9
   12 34 56 78 90 1234 567890 1234567890123456




   Enter or update statement number  . . . . . . . . . . . . . . . 0008.00
```
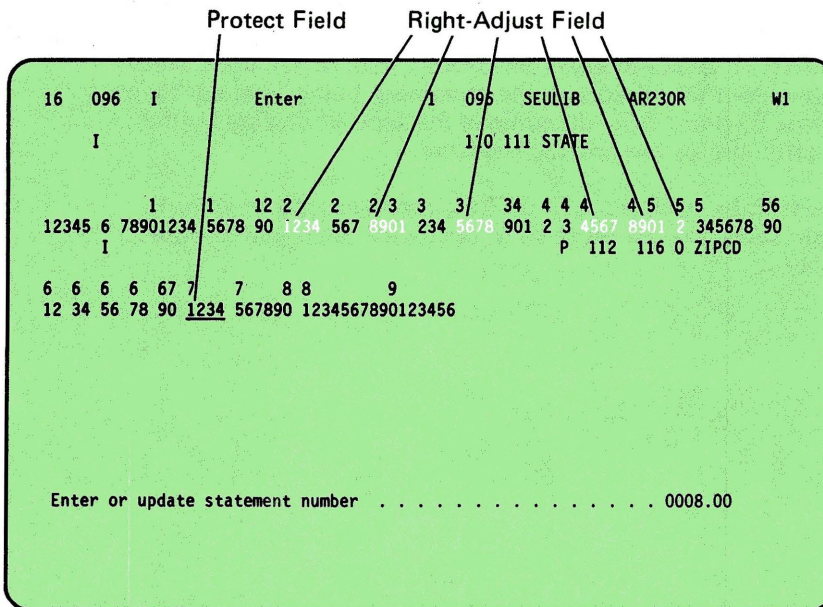
If the autoskip is turned off, the underline is removed from the autoskip fields.

Alphameric Fields

Any letter, number, or special character on the keyboard is a valid entry for an alphameric field.

Numeric Fields

Valid entries for a numeric field are the numbers 0 through 9 as well as the + (plus sign), - (minus sign), . (decimal point), blank, and , (comma).

Protected Fields

Protected fields are fields that are skipped. You cannot enter data into a protected field. Protected fields also save you time, since you do not have to manually move the cursor past a field that is protected.

Autoskip Fields

Autoskip fields (a special type of protected field) are fields that the cursor skips over whenever the SEU autoskip option is on.

Position 39 of the status line reflects the status of the autoskip option: A if it is on, blank if it is off. The Autoskip command key (Cmd 1) reverses the status of the autoskip option.

Constant Fields

Constant fields contain predefined *constants* (data that is always in a certain field). For example, position 6 in RPG II specifications is a constant because it always contains a letter that identifies which specification you are using; F for file description specifications, I for input specifications, and so on.

You can change the contents of a constant field if it is not specified as a protected field, which must be skipped.

The constant field already has the constant entered when a new statement is being entered.

Controlled Field Exit (Auto-Exit Field)

When you enter enough data to fill every position of an auto-exit field, the cursor automatically moves to the next field in the statement.

Note: The cursor automatically moves to the next field when an entry is made in a field that is only 1 character long.

Adjust/Fill (Right-Adjust Field)

If a field is specified as adjust/fill (right-adjust), the contents of the field are moved to the rightmost position of the field when you press the Field Exit or Field+ key.

If the field is defined as zero fill, the remaining positions to the left of the data are filled with zeros. If the field is defined as blank fill, the remaining positions are filled with blanks.

The contents of the field are not right-adjusted if you press the Field Advance key.

In the following example, assume you have a four-position, right-adjust, blank fill field and you type in three characters:

```
16   096   F          Update          1   096   SEULIB    AR230R        W1



              1      1 1 1 1 1 2    2    2 23 3 3 3  3    3 4        4   5    5 5
  12345 6 78901234 5 6 7 8 9 0123 4567 8 90 1 2 34 5678 9 0123456 789012 3 456789
          F CUSTMAST U                256

  6       6 6 6  7 7 7  7    8 8          9
  012345 6 7 89 0 12 34 567890 1234567890123456






  Enter or update statement number  . . . . . . . . . . . . . . . 0001.00
```

When you press the Field Exit or Field+ key, position 1 in the field is
left blank and the three characters you entered are moved to positions
2, 3, and 4 and remaining positions are filled with blanks:

```
16   096   F            Update          1   096   SEULIB     AR230R        W1



              1      1 1 1 1 1 2    2    2 23 3 3 3  3    3 4      4  5    5 5
     12345 6 78901234 5 6 7 8 9 0123 4567 8 90 1 2 34 5678 9 0123456 789012 3 456789
          F CUSTMAST U          ━━━━━▶   256

     6      6 6 6  7 7  7  7     8 8         9
     012345 6 7 89 0 12 34 567890 1234567890123456




     Enter or update statement number  . . . . . . . . . . . . . . . 0001.00
```

Ideographic Fields

Any specification listed on the *Select display* will accept ideographic
characters (IGC) in alphameric fields. You may enter ideographic
characters if you are in ideographic mode. IGC mode requires: that
you have the IGC SSP on your system; that you are signed-on at an
ideographic-capable display; and that you respond with a Y to the
IGC prompt at sign-on.

Each group of ideographic characters on each line must start with a
shift out (SO) character and end with a shift in (SI) character. If an
ideographic constant is continued on the next specification line (as a
continuation of the constant) a SI character must end the first line and
a SO character must start the next line. SEU will remove the SI, the
SO, any blanks in between them, and put the constant together in one
unbroken character string. Putting the character string together like
this is called concatenation.

More Details About the SEU Displays

Earlier in this chapter you saw a brief description of each type of display that SEU provides to guide you when entering statements. The following sections give a more detailed explanation of each display:

```
                     Select display


     1 Z             17 WSU-J       33 FORTRAN     49
     2 Z-LOWER       18 WSU-E       34 COBOL       50
     3 H             19 WSU-T       35 SDAS        51
     4 U             20 WSU-M       36 SDAH        52
     5 F             21 WSU-S       37 SDAD1       53
     6 G             22 WSU-D       38 SDAD2       54
     7 E             23 WSU-C       39 DOC-H       55
     8 L             24 SFGR-S      40 AUTOR       56
     9 T             25 SFGR-H      41 MESSAGE     57
    10 I             26 SFGR-D      42 SRT-HEAD    58
    11 J             27 D-CONT      43 SRT-RECD    59
    12 C             28 SORTH       44 SRT-CNST    60
    13 O             29 SORTRF      45 SRT-FLD     61
    14 P             30 SORTRC      46 MICRSYS     62
    15 K             31 SORTF       47 MICRSTCK    63
    16 A             32 ASSEM       48             64



    Enter the number of the specification display you want. . . . .
```

Free-Form

SEU selects a free-form (Z-display) for the first display shown after sign-on. Free-form displays allow you to enter alphameric data into any character position on the display. There are two Z-displays: Z and Z-LOWER.

The Z-display permits entry of only uppercase characters; Z-LOWER permits entry of lowercase and uppercase characters. You must use the Shift key ( ) to enter uppercase characters on the Z-LOWER display.

Statements entered and updated using the free-form display can be as many as 120 characters long. In order to display all 120 character positions, free-form displays separate each statement into two fields: The first field is 79 positions long; the second is 41 positions long. The displays can be used to enter and change statements for which unique specification displays do not exist, such as OCL statements or BASIC statements.

RPG II and Auto Report

The following RPG II and auto report (K and U) displays are provided for entering and updating RPG II and auto report specifications. Each RPG II and auto report display is 96 positions long.

Specification Displays

H	Control specification
U	Option format used by RPG II auto report
F	File description specification
G	(F-Cont) File description continuation
E	Extension specification
L	Line counter specification
T	Telecommunications specification
I	Input specification (record identification)
J	(I-Cont) Input specification for columns 44 through 96 (field description)
C	Calculation specification
O	Output specification (file identification and control)
P	(O-Cont) Output specifications for columns 32 through 96 (field description)
K	Copy specification used by RPG II auto report

Checking Syntax of RPG II and Auto Report Statements

SEU can check the syntax of RPG II and auto report statements that are specified at sign-on as SEU member type R or A.

Limited syntax checking is offered as an option to help eliminate compile-time errors. SEU can diagnose many coding or typing errors that would result in an error, but SEU cannot diagnose all terminal compilation errors detected by the RPG II compiler.

For example, SEU does not detect errors that result from a conflict between entries in two or more statements. The syntax checking that is done is based on the display type used to enter or update the statement. When the F-format is used, for example, file description syntax checking is done.

SEU does allow auto report entries on all RPG F-, I-, J-, O-, and P-displays. For more information, see the manual *Programming with RPG II*.

Error Detection

If you specify SEU member type R or A for an RPG II or auto report member, SEU checks the syntax of each statement as it is entered. SEU can diagnose only one error each time it checks the syntax of a statement, even though a statement may contain several errors.

If SEU finds a syntax error in a statement, it displays a diagnostic message. So that you can correct the error, SEU displays the statement again. When you press the Enter key after correcting the error, SEU again checks the syntax of the statement.

If you press the Accept with Error command key (Cmd 12) after a syntax error is found, SEU accepts the statement whether or not an error still exists in it. If the print option is on and a syntax error is present, SEU prints the statement, followed by ***. SEU also prints an asterisk beneath the field that is related to the error and the *message identification code* (MIC) of the appropriate SEU diagnostic message after the asterisk.

If the print option is on and you corrected all syntax errors in a statement, SEU prints only the corrected statement.

A blank entry in a statement in an auto report member is not necessarily a blank entry after RPG II compilation. It may be modified by a statement being copied. Therefore, the level of syntax checking performed on auto report specifications is limited to the level of syntax checking performed on RPG II specifications.

Note: The /COPY statement of auto report restricts copying to a maximum statement length of 96 bytes.

Comments

Comments are source language statements that have no effect on the source, but are printed as part of an output printout. SEU provides the A-display, with an asterisk (*) in position 7, that can be used by all programming languages except BASIC for comments.

Work Station Utility (WSU)

SEU provides displays for entering and changing WSU J-, E-, T-, M-, S-, D-, and C-specifications. Comments for WSU can also be entered or changed using the comment display, A.

Each WSU display is 96 positions long.

For a member type of W (WSU), the correct order for the displays is J, E, T, M, S, D, and C. Once you select the J-display, enter a statement, and then press the Enter key, SEU selects the E-display. SEU will continue to select the E-display until you select a different display (in this case, the T-specification).

Once you enter a T-specification, SEU selects an M-display for you and will continue to select M-displays for you until you select another display (in this case, the S-specification). When you enter an S-specification, SEU selects the D-display and continues to select D-displays for you until you select a different display (in this case, C).

When you are updating a member, SEU selects the appropriate display determined by the entry in column 6 of that statement.

A WSU user can also use the SDA displays (SDAS, SDAD1, and SDAD2) for S- and D-specifications. These are *descriptive* prompting displays. A descriptive display means you are prompted for information and therefore do not need a specification (or coding) sheet to identify each column.

A WSU user can also use the D-Cont display to continue the constant field from the D-specification.

This is the WSU-D display:

```
16   096   WSU-D      Update          1   096   WSULIB      AR100W          W1

0003 SAR100WD1


           1   1  1 1 1  12 2  2  2 2 2 2 2 3 3 3  3 3 3 3  34 4  4  4  4  4
12345 6 789012 34 5 6 78 90 12 34 5 6 7 8 9 0 1 23 4 5 6 78 90 12 34 56 78 9
0004  D                    02 26

5 5 5    5 5  6        7          8 8        9
0 1 2345 6 78901234567890123456789 0 1234567890123456
          P 'PAYMENTS ON ACCOUNT'




Enter or update statement number . . . . . . . . . . . . . . . 0004.00
```

This is an example of the SDAD1 display:

```
16   080   SDAD1      Update          1   096   WSULIB      AR100W          W1

0003 SAR100WD1


   Seq No  0004      Form type  D     Fld name              Fld len
  Line N      02  Position    26  Output data    Allow input    Data type
  Mand ent       Mand fill       Self chk       Enable dup     WSU edit
  Pos cursor     Adjust/fill     Ctl fld exit   Auto rec adv   Col sep
  Protect fld    Blink fld       Underline      Non-display    Reverse image
  High inten                     Lowercase
  Const type   P      Constant  'PAYMENTS ON ACCOUNT'          Continuation




Enter or update statement number . . . . . . . . . . . . . . . 0004.00
```

For more information on the WSU specifications, see the *WSU Guide*.

SFGR

SEU provides four displays for entering and changing display format specifications: SFGR-S, SFGR-H, SFGR-D, and D-Cont. These describe the display control (S) specifications, the application help (H) specifications, and field definition (D) specifications for the $SFGR utility program.

If you specify member type F, once you select the SFGR-S display and enter an S-specification, SEU will select the SFGR-D display for you. When you are updating a member, SEU selects whichever display is appropriate depending on the entry in column 6 of that statement.

Each SFGR display is 96 positions long.

For more information about entries on the SFGR displays, see *Entries on the Display Format Specifications* in the manual *Creating Displays*.

SFGR-S

SFGR-S (also known as the S-specification) is used to enter the display control specification. At least one S-specification is required for each display format generated by $SFGR and must be the first statement in the member for each display format. SFGR-S provides general information about the entire display format such as: the name of the display format; whether lowercase letters can be entered by the operator; or how entered data will be sent to the user program.

SFGR-H

SFGR-H (also known as the application help specification) is used to specify an area on the format for which the programmer has defined help text. Application help specifications are optional. If they are coded, any H-specifications must immediately follow the S-specification and precede all D-specifications.

SFGR-D

SFGR-D (also known as the D-specification) follows the S-specification and the H-specifications. Each statement completely describes a field on the display format. There must be a statement for each field in the display format.

D-Cont

D-Cont (also known as the continuation specification for the D-specification) allows you to continue the constant data field from the D-specification if the constant would not all fit on the D-specification.

DOC-H

DOC-H (also known as the document help specification) is used to enter help information for document text. Unlike SFGR-H, documentation help is not sensitive to an area of the display. Documentation help text applies to the document displayed, not to the cursor location on the screen.

SFGR and WSU Format Prompting

SEU provides prompting specification displays for entering or updating SFGR or WSU-S specifications, D-specifications and D-continuation specifications. The following specification displays have descriptive prompting rather than column definitions; that is, the name of each field is displayed to prompt you for a response:

SDAS: Used for SFGR-S or WSU-S specifications

SDAH: Used for SFGR-H specifications

SDAD1: Used for SFGR-D or WSU-D specifications

SDAD2: Used for continuation of SFGR-D or WSU-D specifications

This is a column-defining display:

```
  16    096   SFGR-S    Update        1    096   WSULIB    AR100W        W1

  0002 TACTRCV  WSULIB  FILEDEF


          1      1  1  12 2 2 2  2  2 2 23 3  3  3  3
  12345 6 78901234 56 78 90 1 2 34 56 7 8 90 12 34 56 78
  0003  S AR100WD1

  4         5         6  6    7         8 8      9
  90123456789012345678901 234567890123456789 0 1234567890123456





  Enter or update statement number . . . . . . . . . . . . . . .  0003.00
```

This is a descriptive display:

```
 16   080   SDAS         Update          1   096   WSULIB    AR100W        W1

 0002 TACTRCV  WSULIB  FILEDEF


 Seq No.        0003  Form type       S    Format name  AR100WD1  WSU format ID
 Start line           Lines to clear       Lowercase         .    Return input
 Reset keybd          Sound alarm          Blink cursor           Erase input
 Override             Suppress input       WSU start              WSU end
 Required             Repeat               Priority               Preprocess
 Review record IDs              Insert record IDs                 Null fill
 Function keys        Command keys    Key mask




 Enter or update statement number  . . . . . . . . . . . . . .  0003.00
```

Command

SEU provides a display for entering and changing ideographic characters. You may select the Command display only if your system has the ideographic support feature installed and you are signed on to an ideographic-capable display station.

The display consists of two input lines of 60 bytes each. SEU will automatically insert the SO and SI characters as they are required. If the first input line does not have enough room for the input data, you can overflow to the second input line (continuation).

SEU will correctly handle the SI and SO characters and will unite the two input lines when the Enter key is pressed.

Assembler

SEU provides a display for entering and changing assembler language statements. Comments for assembler programs can be entered and changed using the assembler display if the autoskip option is off.

The assembler display is 96 positions long. For more information on using the assembler specificatons, see the manual *Programming with Assembler*.

FORTRAN IV

SEU provides a display for entering and changing FORTRAN IV statements and comment statements.

The FORTRAN IV display is 96 positions long. For more information on the FORTRAN specifications, see the manual *Programming with FORTRAN IV*.

COBOL

SEU provides a display for entering and changing COBOL statements.

Continuation statements and comment statements for COBOL programs can be entered and changed using the COBOL display if the autoskip option is off.

The COBOL display is 96 positions long. For more information on using the COBOL specifications, see the manual *Programming with COBOL*.

AUTOR

SEU provides a display for entering automatic response messages. You are prompted to identify the messages to which you want the system to automatically respond when a particular situation or error occurs.

Message

This is a descriptive prompt for entering message member source statements.

Sort

The following sort specification displays are provided with SEU. They can be used to enter and update both ideographic and non-ideographic sort sequence specifications.

Display Name	Specifications
SORTH	Header specification
SORTRC	Record type constant specification
SORTRF	Record type field specification
SORTF	Field specification

SORTH describes the type of sort you want to run. SORTRC and SORTRF describe which input records you want to include or omit from the sort. SORTRC describes a record type constant and SORTRF describes control fields and data fields to the sort program and identify which data fields will be included in the output file.

Comments for sort can be entered and changed using the comment display, A.

Each sort display is 96 positions long. For more information on using the sort specifications, see the *Sort Guide.*

The following sort specification displays are also supplied with SEU. They can be used to enter and update only non-ideographic sort sequence specifications.

**Display
Name   Specifications**

SRT-HEAD Header Specification

SRT-RECD Record selection, field comparison

SRT-CNST Record selection, constant or keyword comparison

SRT-CNST Field specification

These displays are prompt displays, not 96-position coding form displays.

Magnetic Character Reader

SEU provides the MICRSYS display and the MICRSTCK display to enter or change specifications for the IBM 1255 Magnetic Character Reader. For more information on using these displays, see *IBM System/36 Using and Programming the 1255 Magnetic Character Reader,* SC09-1046.

Display Lengths Can Be Different from Statement Lengths

The number of character positions available for a particular display (display length) may be different from the number of positions available for a member type (statement length).

In other words, although a source member can have as many as 120 character positions, a display you choose— for example, the I-display— might have only 96 positions available.

When you are entering a new statement and the statement length is greater than the length of the selected display, SEU adds enough blanks to the statement to extend it to the specified statement length. In this example, if the source statement length is 120 and the I-display length is 96, SEU accepts 96 characters of data and adds 24 blanks:

```
1                                                                96
├─────────────────────────────────────────────────────────────────┤
 _____v_____/
                            Display Length
```

```
1                                                      96        120
├──────────────────────────────────────────────────────┼──────────┤
 _____v_____/ \____v____/
                    Statement Length                     24 blanks
                                                         added by SEU
```
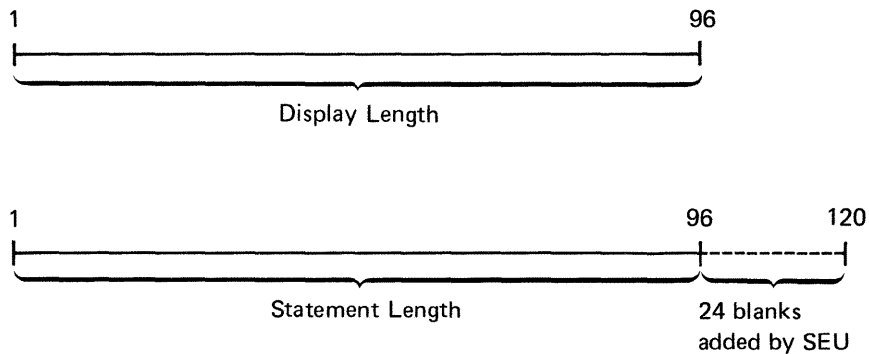
When you are updating a statement, and the statement length is greater than the display length, you may lose data. If SEU discovers data in positions beyond the length of the display, SEU displays a warning message. You can then select a longer display to avoid losing data, or you can press the Enter key and blanks are entered over the data:

```
1                                                                96
├─────────────────────────────────────────────────────────────────┤
 _____v_____/
                            Display Length
```

```
1                                                      96        120
├──────────────────────────────────────────────────────┼──────────┤
 _____v_____/ \____v____/
                    Statement Length                     If SEU finds nonblanks
                                                         here, SEU issues a
                                                         warning message.
```
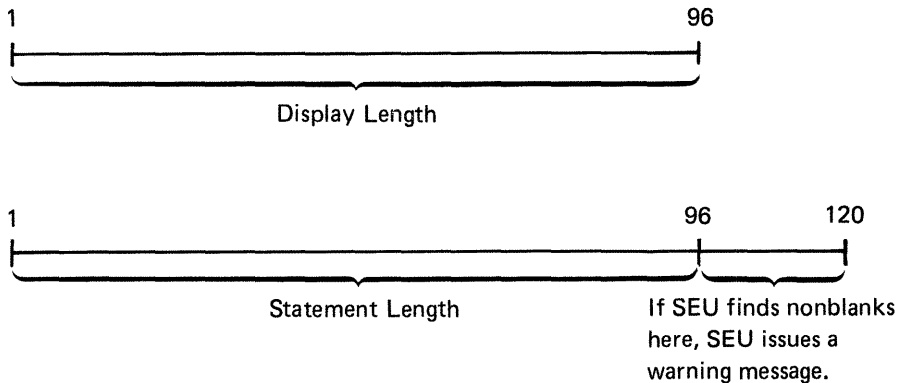
If the length of a statement being entered or updated is less than the length of the selected display, you can enter data only within the limits of the statement length. If you try to enter data beyond the specified statement lengths, SEU truncates the statement at the statement length, displays an error message, and displays the truncated statement. You can press the Enter key to enter the statement as it is displayed.

```
1                                                    96
├─────────────────────────────────────────────────┤
└─────────────────────────────────────────────────┘
                    Display Length
```

```
1                                          80     96
├────────────────────────────────────────┤┄┄┄┄┄┄┤
└────────────────────────────────────────┘└─────┘
              Statement Length            Truncated
                                          by SEU
```
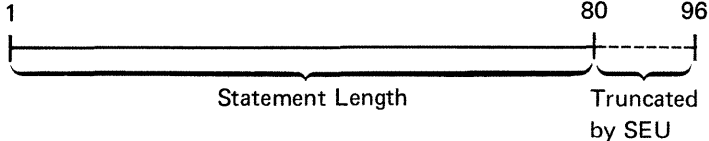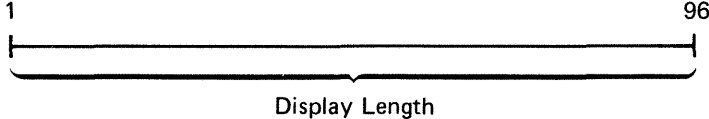
Chapter 5. Attention Programmers

This chapter is for the programmer or the experienced user of the IBM System/36 and SEU. It contains explanations of extra things you can make SEU do for you, ways to do more complex jobs, and things to consider as you try out new ideas with SEU.

There Is a Shortcut to Calling SEU

There is an easier way to call SEU rather than being prompted, once you feel more comfortable with the utility. If you do not enter a member type, SEU assumes it is a source member. If you do not enter a library name, SEU looks for the member in the library you are currently using. Therefore, if you are working with a source member (for example, AR230R) that is in the same library you have been using, call SEU by typing:

    SEU AR230R

When you press the Enter key, SEU assumes the member type is S and the member is in the current library.

The member you named is then displayed for you.

SEU Procedure Command

You can also call SEU using the entire SEU procedure command. The
format of the SEU procedure command is:

```
SEU     member name, ┌S        ┐ , ┌seu format member┐ , ┌statement length┐ ,
                     │(SOURCE) │   │#SE@XTRA          │   └                ┘
                     │P        │   └                  ┘
                     │(PROC)   │
                     │A        │
                     │F        │
                     │R        │
                     │T        │
                     │W        │
                     └         ┘


        ┌library name   ┐ , ┌diagnosed source file┐
        │current library│   └                     ┘
        └               ┘
```

member name Specifies the source member or procedure that you want to create or change. A member name can be as many as eight characters long and must begin with an alphabetic character (A through Z, #, $, or @). The remaining characters can be any combination of characters (numeric, alphabetic, and special). You should avoid using the following characters because these have special meanings in procedures: commas (,), apostrophes ('), blanks, question marks (?), slashes (/), greater than signs (>) and equal signs (=). Do not use DIR, LIBRARY, or ALL as a member name.

member type

S (SOURCE) Specify a library source member. If no parameter is specified, S (SOURCE) is assumed.

P (PROC) Specify a library procedure member.

A Specifies an RPG II program that contains auto report specifications. The syntax of the RPG II program is checked by SEU. SEU displays the RPG specification for each statement in the source member.

F Specifies a library source member that contains display format S- and D-specifications. SEU displays the format specification for each statement in the source member.

R Specifies a library source member that contains an RPG II program. The syntax of the RPG II program is checked by SEU. SEU displays the RPG specification for each statement in the source member.

T Specifies a message translation source member.

W Specifies a source member containing work station utility (WSU) statements. SEU displays the WSU specification for each statement in the source member.

SEU format member Specifies the name of the SEU display format member to be used to edit source statements. If no format name is specified, #SE@XTRA is assumed.

statement length   Specifies the length for each source or procedure statement. This can be any decimal number from 40 to 120. If the member exists, the statement length of the member is assumed. If the member is being created, the values you can specify and the values that are assumed by SEU if no statement length is specified are as follows:

Member Type	Allowed Statement Length	Assumed Statement Length
SOURCE, S	40 to 120	96
PROC, P	40 to 120	120
A	80 to 96	96
F	40 to 120	96
R	40 to 120	96
T	40 to 120	80
W	40 to 120	96

library name   Specifies the library that contains or will contain the library member being changed or created. If no library name is specified, the current library is assumed.

diagnosed source file   While you are compiling a source member, a diagnosed source file can be created that will contain the source statements along with diagnostic and informational messages. SEU uses that file as input and allows you to make changes. The data in this file is then stored in the library as a source member.

This parameter is used by the RPGONL, COBOLONL, and FORTONL procedures to allow the diagnosed source members to be edited. You do not need to specify this parameter.

See one of the manuals *Programming with RPG II, Programming with FORTRAN IV,* or *Programming with COBOL* for more information on diagnosed source members.

Example

This example shows how to start SEU to create or change a procedure named PAYROLL. The procedure is contained in the current library:

```
SEU PAYROLL,P
```

Copying or Moving Statements

Use the Copy/Move command key (Cmd 10) to copy or move statements from one location in a member to another location in the same member. You can copy or move one statement at a time or several consecutive statements at once.

The copy operation duplicates the statements you specify to a new location in the same member, but does *not* remove the original statements. The statements appear at both the original location and the new location.

The move operation relocates statements from one location in a member to a new location in the same member. The statements are no longer at the original location.

Note: It is best to use copy/move (rather than include) when changing or adding within a member because copy/move uses the data that you are currently updating. Include uses data that already exists in the library (permanent storage), and it will not reflect changes made to that data during the current job (work area).

When you press the Copy/Move command key (Cmd 10), the following prompts are displayed:

```
16                              S    1   096   SEULIB      AR230R          W1
0001.00      FCUSTMSTRU         256  5 I     2 DISK
0002.00      ICUSTMSTR    01
0003.00      I                                    1    1 ARCOD
0004.00      I                                   35   59 CUSA1
0005.00      I                                   60   84 CUSA2
0006.00      I                                   85  109 CUSA3
0007.00      I                                  110  111 STATE
0008.00      I                                P 112 1160ZIPCD
0009.00      I                                P 117 1180AREAC
0010.00      I                                P 119 1220PHONE
0011.00      I                                  123  123 CUSTP
0012.00      I                                P 124 1270LIMIT
0013.00      I                                P 128 1300SLSNO
0014.00      I                                P 131 1352AMDUE
0015.00      I                                P 136 1390DLTPM



Copy or move the statements . . . . . . . . . . . .COPY,MOVE  COPY
To statement number . . . . . . . . . . . . . . . . . . . . .
Starting from statement number. . . . . . . . . . . . . . . .
Ending with statement number. . . . . . . . . . . . . . . . .
```

An SEU Run Sheet

You may want to design an SEU run sheet to simplify SEU instructions for someone else to use. An example of such a sheet is shown below. The example contains entries you would supply for another person to enter:

SEU Job Sheet

Date Submitted __5-7-82__

Programmer __L.G. Philips__

Job Number __6269__

Enter: SEU

Member Name __AR230R__; Member Type __R__; Format Member Name _____;

Statement Length _____; Library Name __SEULIB__;

Use Displays: __F__, __I__, ____, ____

SEU Features: __Print__, __AutoSkip__, __Syntax Check__

EOJ Option: __2__

Coding Sheets Attached? (Yes) No

Listing Attached? Yes (No)

Comments: − Enter F and I specs as shown
            − Use "RPGC" procedure command to compile

A run sheet is a very basic list of step-by-step instructions you give to someone to run a job for you. The run sheet can be kept with the job so the instructions are handy for anyone who needs to run the job.

How SEU Uses Storage Space

Each SEU job uses a work area in main storage and a work file on disk. The work file on disk contains a copy of the member you are using or creating. As you use SEU, the statements to be changed are read from the work file into a buffer in main storage. The contents of that buffer are displayed as you do your work. As you make changes to the data, it is written to another buffer reserved by SEU for storing changed statements. When this second buffer is filled up, SEU writes the statements back to the work file on disk to make room for more statements in the buffer:

Main Storage   Disk

Work Station   Work Area

Work File

Buffer 1

Buffer 2
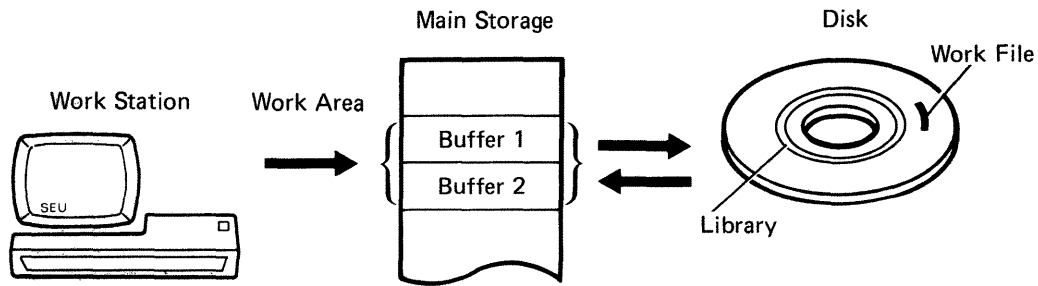
Library

Whether you are updating an existing member or creating a new member, SEU sets up a work file. If you are updating a member, SEU places a copy of the member in the work file:

Main Storage   Disk

Work Station   Work Area

Work File

Buffer 1

Buffer 2

Library

Existing Member
Stored in Library
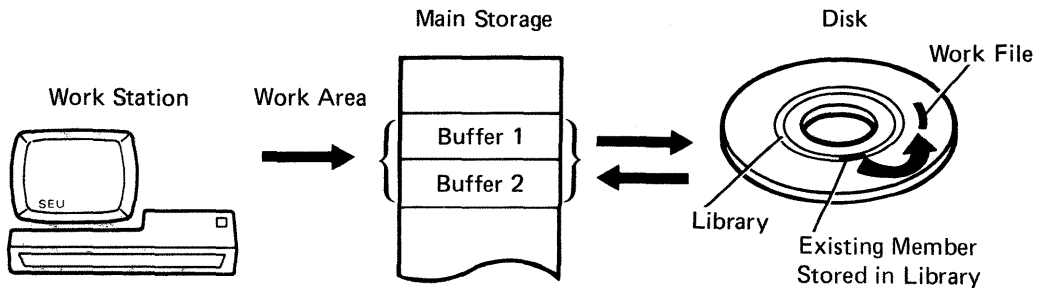
At the end of the job, the member is placed back in the library you specify.

If you created a new member, SEU places the new member in the library you specify:
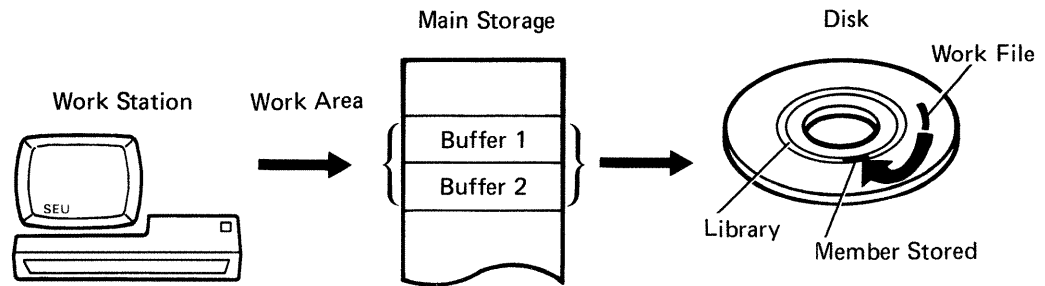
If the updated member increased in size, it is placed in a new location in the library and system pointers to the original member are removed. Anyone who now uses the member will use a copy of the updated version:
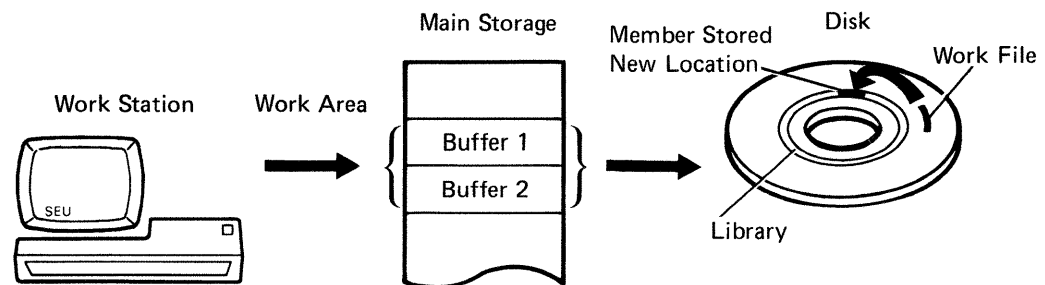
What if There's not Enough Space?

You may get a message that there is not enough disk space:

- At SEU sign-on: An error message is displayed stating there is not enough space available for the SEU work file

- At the end of the job: If there is not enough space available for the data in the work file, a message is displayed stating that there is no room for the work file.

You will need to delete unnecessary data on the disk or run the COMPRESS procedure to free up unused disk space. See the *System Reference* manual for more information on this procedure.

You may get a message that there is not enough library space:

- At the end of the job: If SEU cannot find enough library space to restore the member, a message is displayed stating that there is no room for the member in the library (you may have increased the size of the member by adding statements).

You will have to delete unnecessary members stored in the library or run the CONDENSE procedure to free up library space. If there is still not enough room in the library, a larger library or a different library will have to be created. See the *System Reference* manual for more information on the CONDENSE procedure.

If you get a message that there is not enough disk or library space, select option 2 and press the Enter key. Once you have created the necessary space, sign on to SEU again. SEU will help you recover the member through a series of recovery prompts. The following section explains the recovery process.

How to Recover from Interruptions: Planned or Unplanned

Your work can be interrupted for many reasons. For example, jobs might accidentally be canceled at the system console, there could be a power failure, or you might interrupt a job because there was not enough disk or library space available.

If such an error condition exists, you can later recover data from the SEU work file by:

● Signing on at the display station you were using at the time the error or failure occurred, and

● Signing on to SEU the same way you signed on for the original job

After you sign on to SEU again, SEU determines whether or not the work file exists and displays the message:

```
SEU-0545 Work file already exists -- is this a recovery run?...
```

Note: SEU cannot recover from permanent disk errors.

There are three options you can choose at this time:

● **Option 0**: You are still in SEU and can continue the job. The first thing to do is check to make sure all your data is saved–the last data you entered may have to be reentered.

● **Option 1**: You are still in SEU but you want to start completely over. SEU will remove the existing work file and create a new empty work file so that you can start again.

● **Option 3**: You want SEU to save the work file but you do not want to do anything with it at this time. Choose this option if you aren't sure what you want to do or don't have time to go through the recovery steps at this time.

When you choose option 0 to continue, SEU checks the parameters you used to sign on. If they do not match the previous sign-on, SEU issues message SEU-0546.

Either you used different parameters to sign on for recovery or someone else was using SEU at that display station when the error occurred. Choose option 3 so that you don't remove the work file.

SEU-Supplied Displays in a Format Member

When you sign on to SEU, a prompt asks you for an *SEU format member* and supplies a default value of #SE@XTRA. The format members are where the SEU-supplied displays (such as the Z-display) are stored. The displays are stored in two load members: #SE@FORM and #SE@XTRA. #SE@FORM is stored in #SEULIB, and #SE@XTRA is stored in #LIBRARY:

```
              #SE@ FORM                    #SE@ XTRA

                          Select display

         1  Z           17  WSU-J       33  FORTRAN     49
         2  Z-LOWER     18  WSU-E       34  COBOL       50
         3  H           19  WSU-T       35  SDAS        51
         4  U           20  WSU-M       36  SDAH        52
         5  F           21  WSU-S       37  SDAD1       53
         6  G           22  WSU-D       38  SDAD2       54
         7  E           23  WSU-C       39  DOC-H       55
         8  L           24  SFGR-S      40  AUTOR       56
         9  T           25  SFGR-H      41  MESSAGE     57
        10  I           26  SFGR-D      42  SRT-HEAD    58
        11  J           27  D-CONT      43  SRT-RECD    59
        12  C           28  SORTH       44  SRT-CNST    60
        13  D           29  SORTRF      45  SRT-FLD     61
        14  P           30  SORTRC      46  MICRSYS     62
        15  K           31  SORTF       47  MICRSTCK    63
        16  A           32  ASSEM       48              64


         Enter the number of the specification display you want. . . . .
```

Source members for #SE@XTRA and #SE@FORM contain specifications that define each SEU-supplied display. The specifications that describe a particular display are called a *display format*. The load members contain the compiled display specifications.

Note: Loading the source for the format members is optional when SEU is loaded onto the system, so they may not be on your system. The load members are required if you are using the SEU-supplied displays.

You can create your own displays to suit your needs, or you can change an SEU-supplied display or its name. (You cannot, however, change the name of the Z-display.) You can reduce the size of the format members by deleting some SEU-supplied displays, or you can delete the format member source completely. Be sure you are not deleting a display used by another operator.

Creating and Changing Displays

Each SEU-supplied display is defined by a display format. All display formats exist originally as a sequence of display format specifications (S- and D-specifications) in a source member. The specifications are compiled into a load member by the display format generator utility program ($SFGR).

Changing the specifications that define a display format is the first step in changing the display itsèlf.

A complete description of how to design and code display formats, how to run $SFGR, and how to design, code, and maintain display formats is given in the *Creating Displays* manual.

Before you create or change an SEU display format, you should be familiar with the restrictions imposed by SEU on the contents of a format intended for SEU.

Restrictions

- A display format you define for SEU must describe only lines 1 through 7 of the display. SEU places the seven lines properly on the display. SEU requires the other lines for displaying status information, prompts, and messages. Although each of lines 1 through 7 need not be defined, defining a line other than 1 through 7 causes an error.

- The start line number (columns 17 and 18 of the display control specification, S-specification), must be variable. Enter a V in column 17. In addition, enter 00 in columns 19 and 20, for the number of lines to clear.

- Command key or function key masking (columns 27, 28, and 64 through 79) of the S-specification will be ignored by SEU.

- You cannot call a message to be shown within the display you are creating.

- Fields to contain heading information, such as column positions, must be defined as output fields. Enter Y in column 23 and enter C in column 56 of the field definition specification (D-specification).

- Fields to contain data must be defined as input/output fields. Enter Y in columns 23 and 26 of the D-specification. By defining data fields both as input and as output, you permit SEU to display data in the fields after the operator enters data into the fields as well as data already existing in the fields.

- The Z-display must not be deleted from #SE@FORM. There must be a Z-display in the format member #SE@FORM or SEU will not work.

- If you create a display format with the same name as a display format supplied by SEU, you will overlay the SEU display.

- The load member #SE@FORM and any other load member that contains display formats required by an SEU job, including #SE@XTRA, must be in the library you are currently using, in #LIBRARY, or in the SEU library (#SEULIB).

- A display format can define a maximum of 80 input or input/output fields.

- The total length of the input/output fields defined in a display format used by SEU must be at least one but not more than 120 positions.

When You Should not Change a Display's Name

The name of the free-form Z-display must not be changed, and the Z-display must not be deleted. Z is the display selected by SEU after sign-on. If SEU cannot locate a Z-display, SEU displays an error message.

The names of the RPG II, auto report, and WSU displays must not be changed or deleted if you want SEU to select the displays and check for syntax errors in RPG II and auto report statements.

Storing New or Changed Displays

To create a load member that contains displays or to add displays to an existing format load member, use the FORMAT procedure. Make sure you enter the correct library where the format is to be stored. You can use the LISTLIBR procedure to determine whether or not all required load members are stored in the same library. The names of SEU-supplied members begin with the characters #SE.

The LISTLIBR and FORMAT procedures are described in the *System Reference* manual.

It is best to create a new format member for your new display formats so that you do not overlay the IBM-supplied displays.

Do not use the name of a member that already exists in a library as the name of a display format member you add.

The total number of display formats stored in #SE@FORM together with those stored in #SE@XTRA (or your own format member) must not be greater than 64. In other words, when you press the Select Display command key (Cmd 3), up to a maximum of 64 displays are available.

Glossary

#LIBRARY. The library, provided with the system, that contains the System Support Program Product. See *system library*.

accumulate. To collect.

allocate. To assign a resource, such as a disk file or a diskette file, to perform a specific task.

alphabetic character. Any one of the letters A through Z (uppercase and lowercase). Some program products extend the alphabet to include the special characters #, $, and @.

alphameric. Consisting of letters, numbers, and often other symbols, such as punctuation marks and mathematical symbols.

alphanumeric. See *alphameric*.

assembler. A program that converts assembler language statements to machine instructions.

attribute. A characteristic.

autoskip option. An option of SEU that allows the cursor to automatically skip fields.

BASIC (beginner's all-purpose symbolic instruction code). A programming language designed for interactive systems and originally developed at Dartmouth College to encourage people to use computers for simple problem-solving operations.

call. To activate a program or procedure at its entry point. Compare with *load*.

cancel. To end a task before it is completed.

character. A letter, digit, or other symbol.

character string. A sequence of consecutive characters.

code. (1) Instructions for the computer. (2) To write instructions for the computer. Same as *program*. (3) A representation of a condition, such as an error code.

collating sequence. The sequence in which characters are ordered within the computer for sorting, combining, or comparing.

command. A request to perform an operation or a procedure.

command display station. A display station from which an operator can start and control jobs.

command key indicator. An indicator that is set on when an operator presses the corresponding command key.

command keys. The 12 keys on the top row of the display station keyboard that are used with the Cmd key (and optionally the Shift key) to request up to 24 different actions defined for program products and user programs. Compare with *function key*.

comment. Words or statements in a program or procedure that serve as documentation rather than as instructions.

compile. To translate a program written in a high-level programming language into a machine language program.

compress. To move files and libraries together on disk to create one continuous area of unused space.

concatenate. To remove blanks or control characters imbedded in a data string

constant. A data item with a value that does not change. Contrast with *variable*.

constant field. A field that is defined by a display format to contain a value that does not change.

cursor. A movable symbol (such as an underline) on a display, usually used to indicate to the operator where to type the next character.

default value. A value stored in the system that is used when no other value is specified.

delete. To remove.

delete-capable file. A file from which records can be logically removed without compressing the file.

delimiter. A character or sequence of characters that marks the beginning or end of a unit of data.

diagnosed-source file. A library member containing source statements and associated error messages.

diagnosed-source member. See *diagnosed-source file*.

diagnostic. Pertaining to the detection and isolation of an error.

disk. A storage device made of one or more flat, circular plates with magnetic surfaces on which information can be stored.

diskette. A thin, flexible magnetic plate that is permanently sealed in a protective cover. It can be used to store information copied from the disk.

display. (1) A visual presentation of information on a display screen. (2) To show information on the display screen.

display format. Data that defines (or describes) a display.

display screen. The part of the display station on which information is displayed.

display station. A device that includes a keyboard from which an operator can send information to the system and a display screen on which an operator can see the information sent or receive information from the system.

edit. (1) To modify the form or format of data; for example, to insert or remove characters such as for dates or decimal points. (2) To check the accuracy of information that has been entered, and to indicate if an error is found.

enter. To type in information on a keyboard and press the Enter key in order to send the information to the computer.

field. One or more characters of related information (such as a name or an amount).

file. (ANSI definition) A set of related records treated as a unit.

format. (1) A defined arrangement of such things as characters, fields, and lines, usually used for displays, printouts, or files. (2) To arrange such things as characters, fields, and lines.

FORTRAN (formula translation). A high-level programming language used primarily for scientific, engineering, and mathematical applications.

free-form format. The SEU display format designed for entering and updating statements, such as OCL statements and utility control statements, that do not have a constant format.

function. In BASIC and FORTRAN, a named expression that calculates a single value.

function key. A keyboard key that requests an action but does not display or print a character. The cursor movement and Help keys are examples of function keys. Compare with *command keys*.

ID. Identification.

ideographic character. A two position pictogram or graphic character.

ideographic support. A system support program feature that enables the use of ideographic-capable displays, printers, and programs.

informational message. A message that provides information to the operator, but does not require a response.

initial program load (IPL). The process of loading the system programs and preparing the system to run jobs.

input. Data to be processed.

input/output (I/O). (ANSI definition) Pertaining to either input or output, or both.

IPL. See *initial program load*.

job. (1) A unit of work to be done by a system. (2) One or more related procedures or programs grouped into a procedure.

key. One or more characters used to identify the record and establish the record's order within an indexed file.

left-adjust. To place or move an entry in a field so that the leftmost character of the field is in the leftmost position. Contrast with *right-adjust*.

library. (1) A named area on disk that can contain programs and related information (not files). A library consists of different sections, called library members. (2) The set of publications for a system.

library member. A named collection of records or statements in a library. The types of library members are *load member*, *procedure member*, *source member*, and *subroutine member*.

library member subtype. A specific classification of a library member type. For example, a source member can be identified as a COBOL source member or a DFU source member.

load. (1) To move data or programs into storage. (2) To place a diskette into a diskette drive or a magazine into a diskette magazine drive. (3) To insert paper into a printer.

load member. A library member that contains information in a form that the system can use directly, such as a display format. Contrast with *source member*.

machine language. A language that can be used directly by a computer without intermediate processing.

macroinstruction. A single instruction that represents a set of instructions.

main storage. The part of the processing unit where programs are run.

mask. A pattern of characters that controls the keeping, deleting, or testing of portions of another pattern of characters.

member. See *library member*.

menu. A displayed list of items from which an operator can make a selection.

message. Information sent to an operator or programmer from a program. A message can be either displayed or printed.

message identification code (MIC). A four-digit number that identifies a record in a message member. This number can be part of the message identification.

message member. A library member that defines the text of each message and its associated message identification code.

MIC. See *message identification code*.

mode. A method of operation.

numeric. Pertaining to any of the digits 0 through 9.

OCL. See *operation control language*.

online document. A DW/36 term used to describe text that may be displayed.

operation control language (OCL). A language used to identify a job and its processing requirements to the System Support Program Product.

output. The result of processing data.

overlay. (1) To write over (and therefore destroy) an existing file. (2) A program segment that is loaded into main storage and replaces all or part of a previously loaded program segment.

pad. To fill unused positions in a field with dummy data, usually zeros or blanks.

parameter. A value supplied to a procedure or program that either is used as input or controls the actions of the procedure or program.

printout. Information from the computer that is produced by a printer.

procedure. A set of related operation control language statements (and, possibly, utility control statements and procedure control expressions) that cause a specific program or set of programs to be performed.

procedure command. A command that runs a procedure.

procedure member. A library member that contains the statements (such as operation control language statements) necessary to perform a program or set of programs.

program. (1) A sequence of instructions for a computer. See *source program* and *load module*. (2) To write a sequence of instructions for a computer. Same as *code*.

program product. A licensed program for which a fee is charged.

prompt. A displayed request for information or operator action.

protected field. A displayed field in which operators cannot enter data.

record. A collection of fields that is treated as a unit.

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recovery procedure. (1) An action performed by the operator when an error message appears on the display screen. Usually, this action permits the program to continue or permits the operator to run the next job. (2) The method of returning the system to the point where a major system error occurred and running the recent critical jobs again.

requester. A display station or interactive communications session that requests a program to be run.

right-adjust. To place or move an entry in a field so that the rightmost character of the field is in the rightmost position. Contrast with *left-adjust*.

RPG. A programming language specifically designed for writing application programs that meet common business data processing requirements.

screen design aid (SDA). The part of the Utilities Program Product that helps the user design, create, and maintain displays and menus. Additionally, SDA can generate specifications for RPG and WSU work station programs.

SDA. See *screen design aid*.

self-check field. A field, such as an account number, consisting of a base number and a check digit.

serialization. The consecutive numbering of statements.

SEU. See *source entry utility*.

shift in (SI) character (hex OF). The one position character at the end of an ideographic character string.

shift out (SO) character (hex OE). The one position character at the front of a ideographic character string.

sign off. To end a session at a display station.

sign on. (Verb) To begin a session at a display station.

source entry utility (SEU). The part of the Utilities Program Product used by the operator to enter and update source and procedure members.

source member. A library member that contains information in the form in which it was entered, such as RPG specifications. Contrast with *load member*.

source program. A set of instructions that are written in a programming language and that must be translated to machine language before the program can be run.

source statement. A statement written in a programming language.

special character. A character other than an alphabetic or numeric character. For example; *, +, and % are special characters.

specification sheets. Forms on which a program is coded and described.

spooling. The part of the System Support Program Product that saves output on disk for later printing.

SSP. See *System Support Program Product*.

statement. An instruction in a program or procedure.

status line. Line 1 of the display which contains general information about a job.

subroutine member. A library member that contains information that must be combined with one or more members before being run by the system.

subtype. See *library member subtype*.

syntax. The rules for the construction of a statement.

system library. The library, provided with the system, that contains the System Support Program Product and is named #LIBRARY.

system printer. The printer that is used for any printed output that is not specifically directed to another printer.

System Support Program Product (SSP). A group of licensed programs that manage the running of other programs and the operation of associated devices, such as the display station and printer. The SSP also contains utility programs that perform common tasks, such as copying information from diskette to disk.

truncate. To shorten a field or statement to a specified length.

unprotected field. A displayed field for which operators can enter, modify, or delete data.

Utilities Program Product. A program product that contains the data file utility (DFU), the source entry utility (SEU), the work station utility (WSU), and the screen design aid (SDA).

utility program. A System Support Program Product program that allows you to perform a common task, such as copying information from diskette to disk.

valid. (1) Allowed. (2) True, in conforming to an appropriate standard or authority.

variable. A name used to represent a data item whose value can change while the program is running. Contrast with *constant*.

work file. A file that is used for temporary storage of data being processed.

work station. A device that lets people transmit information to or receive information from a computer; for example, a display station or printer.

work station utility (WSU). The part of the Utilities Program Product that helps you to write programs for data entry, editing, and inquiry.

WSU. See *work station utility*.

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Y N   Is the table of contents helpful?
        What would make it more helpful?

_____

_____

Y N   Is the index complete?
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Y N   Is information organized appropriately?
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Y N   Is the purpose of this manual clear?
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_____

Y N   Is the information explained clearly?
        Which topics are unclear?

_____

_____

Y N   Are the examples clear?
        Which examples are unclear?

_____

_____

Y N   Are examples provided where they are needed?
        Where should examples be added or deleted?

_____

_____

Y N   Are terms defined clearly?
        Which terms are unclear?

_____

_____

Y N   Are terms used consistently?
        Which terms are inconsistent?

_____

_____

Y N   Are too many abbreviations and acronyms used?
        Which ones are not understandable?

_____

_____

Y N   Are the illustrations clear?
        Which ones are unclear?

_____

_____

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Y N   Does the information apply to your situation?
        Which topics do not apply?

_____

_____

Y N   Is the information accurate?
        What information is inaccurate?

_____

_____

Y N   Is the information complete?
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_____

_____

Y N   Is only necessary information included?
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_____

_____

Y N   Are the examples useful models?
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_____

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Y N   Is the format of the manual (shape, size, color) effective?
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Use the space below for any other opinions about this manual or about the entire set of manuals for this system.

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