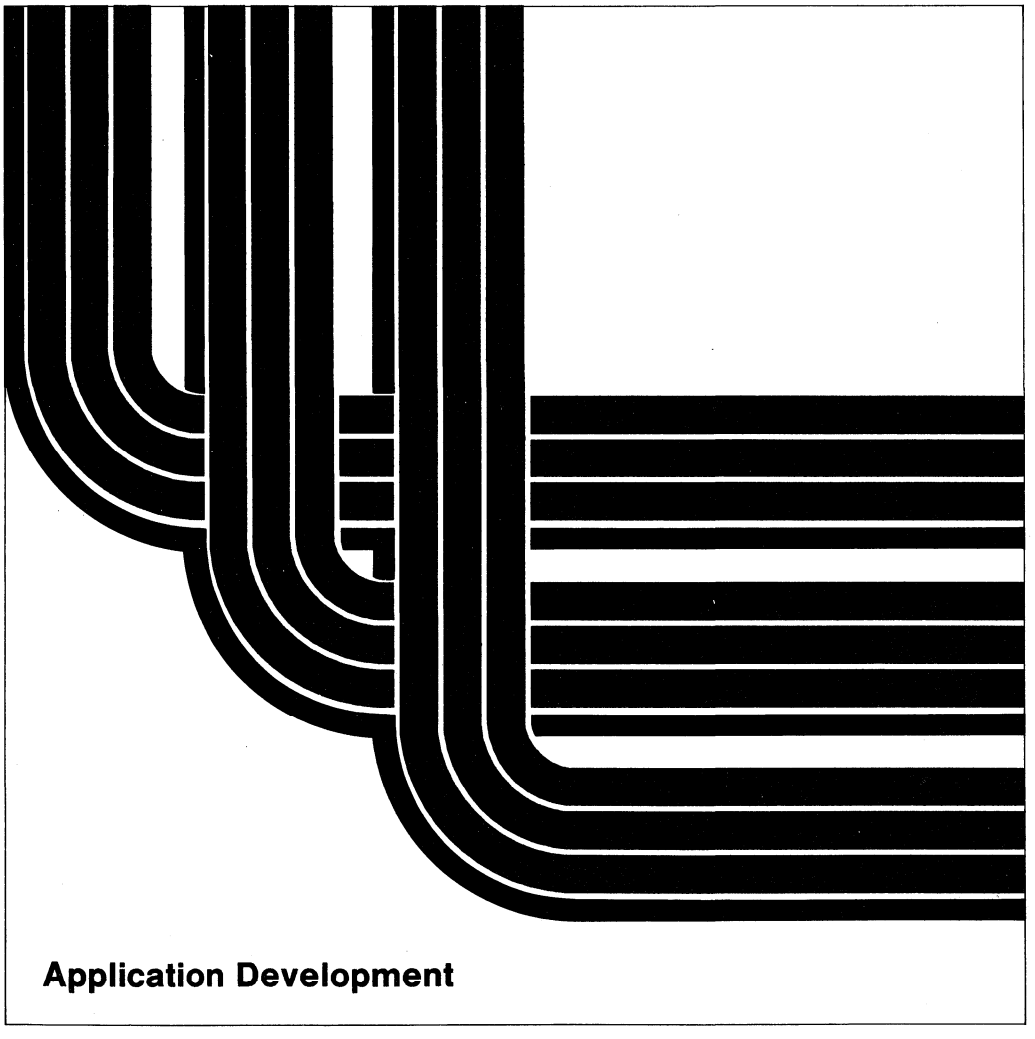
Application System/400

SC09-1416-02

Application Development Tools: Report Layout Utility User's Guide and Reference

Version 2



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Take Note!

Before using this information and the product it supports, be sure to read the general information under "Notices" on page ix.

Third Edition (September 1993)

This edition applies to Version 2 Release 3 Modification Level 0, of IBM AS/400 Application Development Tools, (Program 5738-PW1), and to all subsequent releases and modifications until otherwise indicated in new editions. Make sure you are using the correct edition for the level of the product.

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About This Manual

This manual contains exercises and reference information to help you learn how to use the report layout utility (RLU).

This manual contains information on:

- Starting RLU
- Creating and editing source members
- Using record formats and fields for your report designs
- Defining characteristics of printer files
- Saving report designs as Data Description Specifications (DDS) source members
- Printing prototypes of the reports

This manual also contains an example of designing a report.

This manual does not describe all the functions of RLU.

You may need to refer to other IBM manuals for more specific information about a particular topic. The *Publications Guide*, GC41-9678, provides information on all the manuals in the AS/400 library.

For a list of related publications, see the "Bibliography" on page 237.

Who Should Use This Manual

This manual is intended for application programmers and system programmers who work in an AS/400 environment. To use this manual effectively, you must know how to use your work station, understand and use messages, and have a general knowledge of the AS/400 system.

If you are unfamiliar with your work station, refer to the specific manual for it. If you are unfamiliar with the AS/400 system, use the *System Concepts*, GC41-9802.

Summary of Changes

The following enhancements have been made to RLU:

- The defaults on the *Insert marked data* and the *Delete marked data* prompts on the Change Session Defaults display are saved to your user profile when you change them. The saved defaults are restored as the new defaults for subsequent sessions. For more information, see "Copying or Moving Data" on page 134.
- The F11=Display unsorted function key is added to the Select Database Fields display so that you can change the sort order of your field list. For more information, see "Using a Database Field List" on page 158.
- Users with non-DBCS-capable terminals can open members in source files with the IGCDTA(*YES) parameter. For more information, see Appendix D, "Double-Byte Character Set Considerations" on page 231.
- An optional way of defining fields using a special command set similar to SDA commands is added. For more information, see Appendix E, "Defining Fields Using the SDA Format" on page 233.
- A Delete option is added to the Work with Fields display so that you can delete fields.

The following enhancements have been made to this manual:

- A new example of how to design a simple report is added. For more information, see "Designing a Simple Report" on page 59.
- The description of how to create a database file for use in the complex report example is rewritten. For more information, see "Example Requirements" on page 72.
- The topic of referencing database fields using the Define (or Specify) Field Information display and a keyword is rewritten. For more information, see "Using the Define (or Specify) Field Information Display and a Keyword" on page 147.
- The topic of data entry displays for keywords is rewritten. For more information, see "Data Entry Displays for Keywords" on page 173.

This manual contains many editorial changes that are not indicated by a vertical bar to the left of the change.

Chapter 1. Introducing the Report Layout Utility

Using the report layout utility (RLU), a part of the Application Development Tools licensed program, you can create and edit source members on the Application System/400* (AS/400*) system. RLU source members in source physical files contain the printer file Data Description Specifications (DDS) for a report design that you lay out by using RLU. The report design looks like an actual listing you generate with a high-level-language (HLL) program.

Using RLU, you specify the information required for DDS, and RLU creates or changes the source member. You can also print your report design or compile your source member to create a printer file. Your application can then use the printer file to print reports in the format you designed.

RLU helps you design a report in two ways. You can enter an image on a work screen while RLU interprets your design and defines DDS for you, or you can define DDS by specifying the appropriate information while RLU builds an image on the work screen based on the DDS.

In both cases, you are simultaneously creating the report design on the work screen and defining the DDS source statements that describe the report design. The DDS source statements are generated when you save and exit from RLU. You can print a prototype of your report, save it as an RLU source member, and create a printer file from the source member.

This chapter describes the use of RLU, its terms and features, and the basic procedures involved in designing reports.

Terms

To use RLU effectively, you should understand the following terms.

Designing and Prototyping

RLU allows you to do both of the following:

- **Design** a report by defining it on the work screen, saving it as DDS source, and creating a printer file
- **Prototype** a report by printing the report design at any time to make sure that it represents your desired result

DDS Keywords

You do not need extensive knowledge of DDS coding forms or syntax to use RLU. You should, however, understand that DDS uses a set of special words to define your report design. These special words are called **keywords**. Keywords associated with a field are called field-level keywords, keywords associated with a record are called record-level keywords, and keywords associated with an entire printer file are called file-level keywords.

The Design Report Display

The work screen in RLU is called the Design Report display. You can design a report by typing and editing text on this display, and defining DDS source statements.

Figure 1 shows you what a report design looks like on the Design Report display before you specify any of the information necessary for DDS.

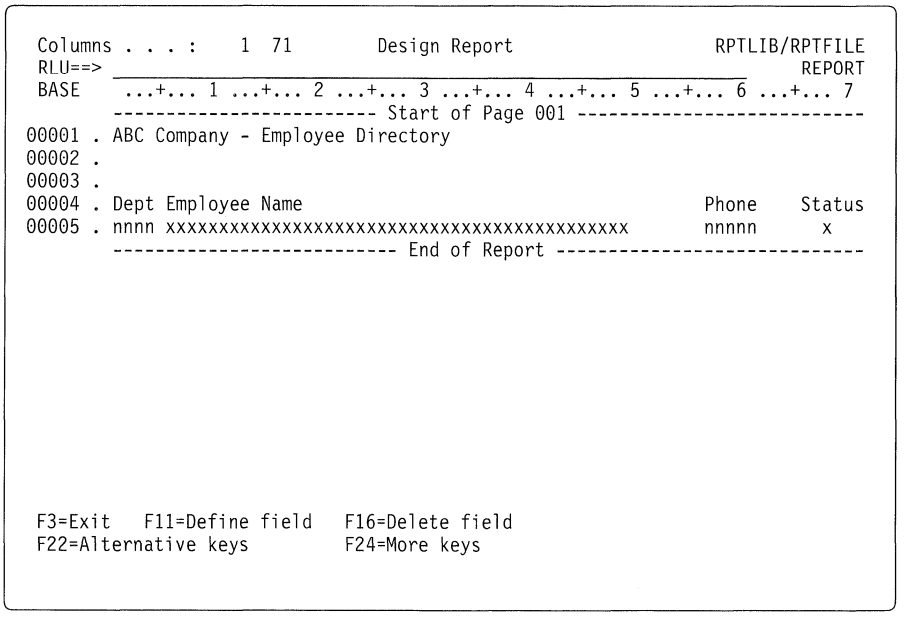

Figure 1. Design Report Display

See "The Design Report Display" on page 27 for more information about the Design Report display and how you use it.

Lines on the Design Report Display

The lines of text and blank lines that make up your report design on the Design Report display have two important aspects: the sequence number and the line type.

Sequence Numbers: Each line of a report design on the Design Report display has two parts: a sequence number and the record itself. The number of each line depends on the relative sequence of the line on each user-defined page of the report design. The report design shown in Figure 1 consists of only one page.

Line Types: For RLU to interpret the data that you type on the Design Report display and to create DDS for a report design, you must define each line of your report design as a report line, a filler line, or a sample line.

You can also define temporary records on the Design Report display. You use these records, called field lines, when you want to edit the fields in a record.

Report Lines: The DDS for a report design groups fields into record formats and record formats into a file. Any line on the Design Report display defined in DDS as part of a record format is a **report** line.

You define a line as a report line by including it in a record format, and you define a group of lines on the Design Report display as a record format by using an RLU line command.

On the Design Report display, RLU indicates that a line is defined as a report line by showing one of the following in the sequence number area:

- The name of the record format if the line is the first report line in the record format. Each time an unnamed record is created, RLU generates a record name of RCD*nnn*, where *nnn* is an incremented integer suffix.
- + if the line is a continuation line (not the first report line in the record format).

Figure 2 shows a report design on the Design Report display with report lines defined.

```
 Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
 RLU==> _____________________________________________________________     REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
 RCD001 ABC Company - Employee Directory
00002 +
00003 +
 RCD002 Dept Employee Name                                          Phone    Status
 RCD003 nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx        nnnnn      x
        -------------------------- End of Report -----------------------------









 F3=Exit   F11=Define field   F16=Delete field
 F22=Alternative keys         F24=More keys
```

Figure 2. Report Lines

See "Defining Record Formats" on page 103 for more information about defining record formats.

Filler Lines: All the lines in a report design on the Design Report display are initially **filler** lines, but any line that separates record formats you define, and that is not defined in the DDS source as part of a record format, remains a filler line. Note, however, that the DDS records the number of filler lines you include between record formats.

You leave a line as a filler line by including it in your report design on the Design Report display, but not defining it as a report line or a sample line.

On the Design Report display, RLU indicates that a line is still a filler line by showing . in the sequence number area.

Figure 3 shows a report design on the Design Report display with filler lines defined.

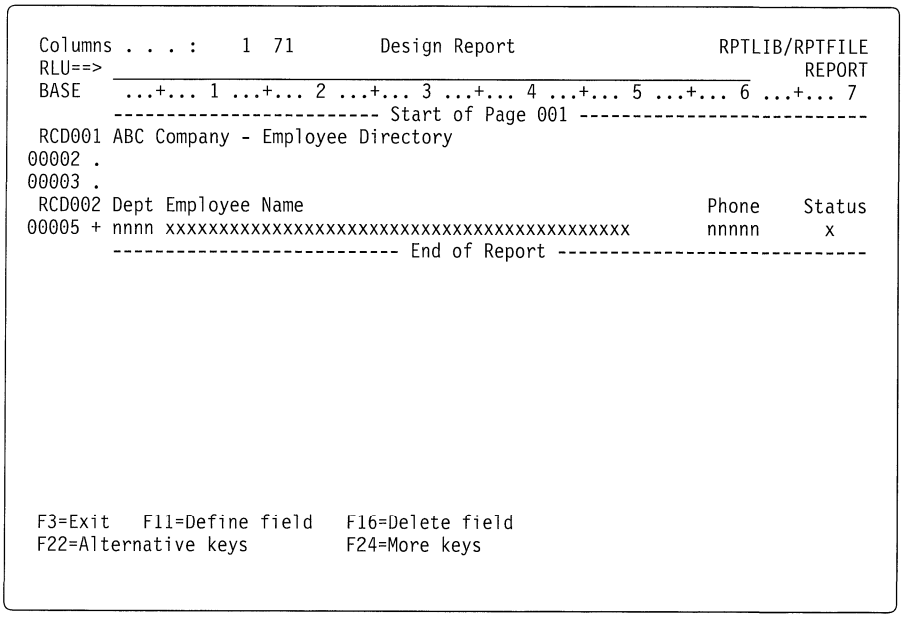

Figure 3. Filler Lines

Sample Lines: Any line that contains sample data associated with the fields in a record format you define is called a **sample** line. The purpose of sample lines is to give your report design a more realistic appearance, but RLU does not generate any DDS associated with sample data in the source member.

RLU can automatically create lines of sample data for you. You can use a line command to create sample lines on the Design Report display, and you can define existing lines as sample lines with another line command.

RLU indicates that a line is defined as a sample line by showing `S` in the sequence number area.

Figure 4 shows a report design on the Design Report display with some sample lines created for the fields in a record format.

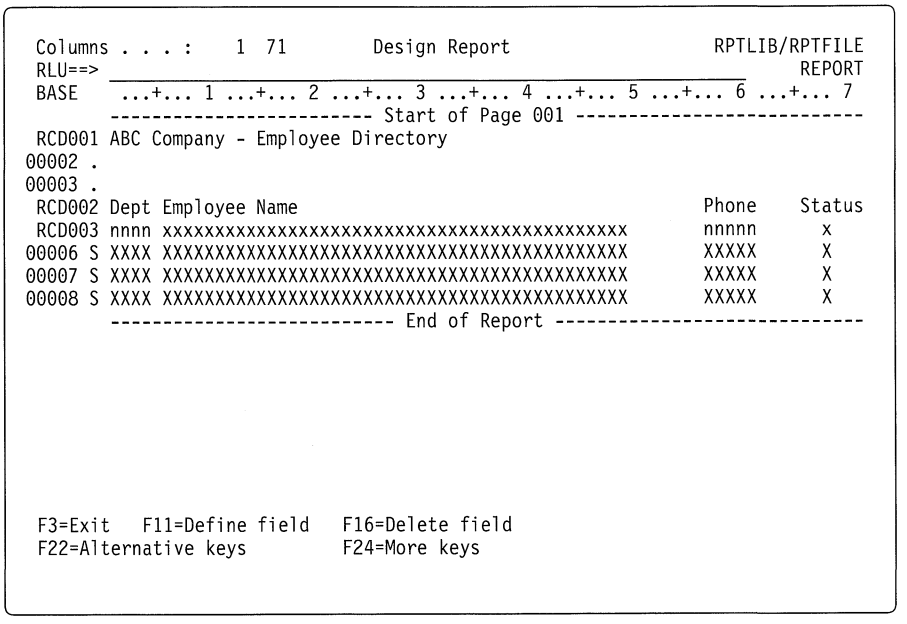

Figure 4. Sample Lines

See "Creating Sample Data" on page 130 for more information about creating sample lines for your report design.

Field Lines: Temporary records that you can display on the Design Report display above a report line are called **field** lines. You use them to indicate the field boundaries in the record, to edit the fields in the record, and to define fields using the SDA format. Field lines do not become part of the report design or the source member. Field lines are special records because they appear on the display but are not saved in the DDS source file.

Depending on the defaults for your current RLU session, field lines appear when you define fields or when you specifically request the field lines by using a line command.

Figure 5 shows a report design with the field lines displayed for every record. The FLD1 in the sequence number area indicates the field line.

```
 Columns . . . :    1  71       Design Report                  RPTLIB/RPTFILE
 RLU==> ____________________________________________________________ REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
FLD1    <.............................>
 RCD001 ABC Company - Employee Directory
00002 .
00003 .
FLD1    <..> <..........>                                     <...>    <....>
 RCD002 Dept Employee Name                                    Phone    Status
FLD1    <..> <.........................................>      <...>      *
00005 + nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx      nnnnn      x
        -------------------------- End of Report ----------------------------


 F3=Exit   F11=Define field   F16=Delete field
 F22=Alternative keys         F24=More keys
```

Figure 5. Field Lines

Use the Insert and Delete keys on the field lines to edit the fields in the associated records. By editing the field lines, you can perform the following operations:

- Change the position of a field
- Change the length of a field
- Define special constants
- Define referenced fields

See “Editing Fields Using Field Lines” on page 137 for information about editing fields using the field line.

See “Defining Constant Fields Using Keyword Constants” on page 128 for information about using the field line to create special constants.

You can also edit the field line by typing reference numbers in the appropriate positions to add referenced database field definitions to your source member. See “Using a List of Database Fields and Field Lines” on page 153 for information about using the field line to reference database fields.

Hidden Field Lines: It is possible to have three levels of field lines displayed to show the marked fields on a line. The first field line above the report line, identified by FLD1 in the sequence number area, shows the new fields as they have been edited. The field line above that, identified by FLD2, shows any fields that have been overlaid (covered in whole or in part) by another field. The third field line, identified by FLD3, shows any fields that have been overlaid by two or more fields.

It is possible to edit the first two field lines, but you cannot edit the third field line.

The third field line is displayed differently than the first two field lines. Instead of marking fields with right and left delimiters as the first two field lines do, the third field line marks all overlaid fields with one or more ampersands.

Figure 6 shows a record with hidden field lines displayed.

```
 Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
 RLU==> _____________________________________________________________ REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
FLD1    <.............................>
 RCD001 ABC Company - Employee Directory
00002 .
00003 .
FLD3                  &&&&
FLD2         <......>
FLD1    <..> <...........>                                      <...>    <....>
 RCD002 Dept Employee Name                                     Phone    Status
FLD1    <..> <.......................................>         <...>      *
00005 + nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx   nnnnn      x
        --------------------------- End of Report -----------------------------




 F3=Exit   F11=Define field   F16=Delete field
 F22=Alternative keys         F24=More keys
```

Figure 6. Hidden Field Lines

RLU Features

To edit your report design, RLU provides the following features, all of which you use either on the Design Report display or reach directly from the Design Report display.

Sequence Line Commands

You can use line commands on the Design Report display by typing the command in the sequence number area of the appropriate line or lines.

Use line commands to perform the following:

- Position your view
- Window
- Display a columns ruler, a format line, or a tabs line
- Copy lines
- Move lines
- Repeat lines
- Insert lines
- Set and insert skeleton lines
- Exclude lines
- Delete lines
- Shift data to the left and the right
- Define a record format
- Change a line type

- Define a new page
- Define a field (either named or constant)
- Center fields
- Space fields evenly
- Create sample data
- View field lines

Figure 7 contains an alphabetical list of the RLU sequence line commands, and the page numbers of descriptions of each command.

Figure 7. Sequence Line Commands

Command	Description
Center Field (CF)	"Centering Fields" on page 140
Change Line (CL*x*)	"Changing Line Types" on page 114
Copy Line (C)	"Copying Lines" on page 46 and "Example: Copying Lines in a Record Format" on page 110
Define Constant (DC)	"Defining Fields Using Line Commands" on page 124 and "Example: Defining Constant Fields Using Line Commands" on page 127
Define Field (DF)	"Defining Fields Using Line Commands" on page 124 and "Example: Defining Named Fields Using Line Commands" on page 126
Define Record (DR)	"Defining Record Formats" on page 103
Delete Line (D)	"Deleting Lines" on page 48 and "Example: Deleting Lines in a Record Format" on page 112
Exclude Line (X)	"Excluding, Showing, and Hiding Lines" on page 38
Format Line (F or COLS)	"Showing Column Numbers" on page 41
Insert Line (I)	"Inserting Lines" on page 48
Move Line (M)	"Moving Lines" on page 47
New Page (NP)	"Specifying Page Breaks" on page 113
Prompt Line	"Prompting" on page 42
Repeat Line (RP)	"Repeating Lines" on page 48
Sample Data (SD)	"Creating Sample Data" on page 130 and "Example: Creating Sample Data" on page 131
Shift Line (L or R)	"Shifting Data" on page 40
Show Line (S)	"Excluding, Showing, and Hiding Lines" on page 38
Skeleton Line (S)	"Defining and Inserting Skeleton Lines" on page 43
Space Field (SP)	"Evenly Spacing Fields" on page 141
Tabs Line (TABS)	"Showing and Setting Tabs" on page 44
Vertical Position (n)	"Vertical Positioning" on page 37
View Field (VF)	"Editing Fields Using Field Lines" on page 137
Window (W)	"Creating Horizontal Windows" on page 41

Command Line Commands

You can use session-specific display commands on the Design Report display by typing the command in the command line at the top of the display.

Use display commands to perform the following operations:

- Position the display
- Change editing options on the display
- Find character strings in the report design
- Change character strings you find
- Hide lines
- Save changes to the report design and exit RLU or continue editing
- Exit from RLU without saving changes

Figure 8 contains an alphabetical list of the RLU display commands, and the page numbers of descriptions of each command.

Figure 8. Command Line Commands

Command	Description
BOTTOM	"Vertical Positioning" on page 37
CANCEL	"Using the CANCEL Command" on page 171
CHANGE	"Using the CHANGE Command" on page 52
FILE	"Using the FILE Command" on page 172
FIND	"Using the FIND Command" on page 51
HIDE	"Excluding, Showing, and Hiding Lines" on page 38
SAVE	"Using the SAVE Command" on page 172
SET	"Using Commands to Tailor Your Edit Session" on page 36 and "Tailoring Your FIND/CHANGE Operations" on page 54
TOP	"Vertical Positioning" on page 37

Control Language Commands

You can press F21=System command to display a window that allows you to enter control language (CL) commands on the RLU work screen.

See "Entering Control Language Commands" on page 33 for more information about entering system commands during an RLU session.

Function Keys

You can press the appropriate function key to perform the following operations:

- Specify keywords for a record format
- Create or change a field definition
- Mark an area of data to move or copy
- Copy a marked area of data to another location
- Move a marked area of data to another location
- Specify keywords for a field
- Create a list of database fields to display and include in your report design
- Delete a field

- Work with a list of all the fields in a record format
- Set indicators to condition fields and keywords
- Specify keywords for your printer file

Most of these operations use additional RLU displays, which appear when you press a function key.

Not all functions keys are available on all displays. You can press Help for a list of available function keys on specific displays. The list is in numerical order and contains detailed information on the functions.

The function keys for a display are listed at the bottom of the screen.

Note: F1=Help, Help, and Enter are never listed, but are always valid.

If you are using full screen mode on the Design Report display, the function keys for that display are valid, even though they are not shown. For more information, see "Using Full Screen Mode" on page 57.

See "Function Keys" on page 29 for a complete list of the functions keys available on the Design Report display.

Figure 9 contains a description of the function keys available in RLU.

Note: When a function key in Figure 9 is described as being on the Browse display, the session is always a split edit/browse. There is no full screen browse session in RLU.

Figure 9 (Page 1 of 5). Description of Function Keys

Function Key	Name of Function Key	Description
F1	Help	Displays online help information about a display or a prompt on a display. Valid from all displays.
F3	Exit	Ends your current display and displays the Exit RLU display. Valid from the base keys on the Design Report and Browse displays.
		Ends your current display and returns the previous display. Valid from the Display Database Field Description display and the alternative keys on the Design Report display.
		Displays the Design Report display. Valid from the Work with Database Fields display, and from displays for individual keywords.
		Ends the current function without saving your work. The Design Report display appears. Valid from all other RLU displays.
F4	Fields	Displays a list of all the fields within the record format. To work with a field, select it from the list. Valid from the base keys on the Design Report display.
F4	Prompt	Displays the possible values for a prompt. Valid from the Add Database Fields display, the Work with Database Fields display, and from some displays for individual keywords.

Figure 9 (Page 2 of 5). Description of Function Keys

Function Key	Name of Function Key	Description
F4	Prompt	Displays the line on which the cursor is located in the lower portion of the display. You can then edit the line on which you pressed F4. Valid from the alternative keys on the Design Report display.
F5	Refresh	Clears your current display of all the changes you made since you last initiated processing by pressing Enter or a function key. Valid from most RLU displays.
F6	Condition display	Displays the Condition Design Report display, on which you specify field and keyword conditioning for your current report. Valid from the base keys on the Design Report and Browse displays.
	Move split line	Splits the display at the cursor position. Valid from the alternative keys on the Design Report and Browse displays.
F9	Input keyword parameters	Displays the Input Keywords display, on which you specify new keywords, and change the parameters and indicators for previously specified keywords. Valid from keyword list displays.
	Retrieve	Retrieves the last command you entered in the display command line. Valid from the base and alternative keys on the Design Report and Browse displays.
	Work with keywords	Displays a work with keywords display, on which you can specify additional keywords. Valid from fastpath displays.
F10	Database fields	Displays the Work with Database Fields display, on which you select database fields to include in your current report. Valid from the base keys on the Design Report and Browse displays.
	Cursor	Moves the cursor to the command line on the Design Report display. Valid from the alternative keys on the Design Report and Browse displays.
	Rename record	Displays the Rename Record Format display, on which you rename the record. Valid from the Input Record Keywords and Work with Record Keywords displays.
	Specify information	Displays the Specify Field Information display. Valid from the Input Field Keywords and Work with Field Keywords displays.
	Work with keywords	Displays the Work with Field Keywords display. Valid from the Define Field Information display.
F11	Convert to constant field	Converts the named field to a constant (unnamed) field. Valid from the Specify Field Information display.
	Convert to named field	Converts the constant (unnamed field) to a named field. Valid from the Specify Field Information display.

Figure 9 (Page 3 of 5). Description of Function Keys

Function Key	Name of Function Key	Description
F11	Default indicators to off	Changes the condition of the indicators. Valid from the Condition Edit Display.
	Default indicators to on	Changes the condition of the indicators. Valid from the Condition Edit Display.
	Define field	Displays the Work with Field Keywords display, on which you create a field definition. Valid from the base keys on the Design Report display.
	Display interpreted values	Displays the row number, column position, edited length, and status of the field. Valid from the Work with Fields display.
	Previous record	Places the previous record in a prompt when you are using prompts. Valid from the alternative keys on the Design Report display.
	Display specified values	Displays the line number, horizontal position, and length of the field. You also see any associated indicators. Valid from the Work with Fields display.
	Display text	Displays the text that describes each field. Valid from the Work with Fields display.
	Display unsorted	Changes the order of the named fields between sorted and unsorted. Valid from the Select Database Fields display.
F12	Cancel	Returns the previous display without saving your work. Valid from most RLU displays.
		Cancels the split Edit/Browse session. The single Design Report session appears. Valid from the base and alternative keys on the Design Report and Browse displays.
F13	Change session defaults	Displays the Change Session Defaults display, which shows information about your edit session. You can change this information. Valid from the alternative keys on the Design Report display.
	Mark/Unmark data	Marks a character, a field, or a block of text that you want to copy or move. Valid from the base keys on the Design Report and Browse displays.
F14	Find/Change options	Displays the Find/Change Options display. Valid from the alternative keys on the Design Report and Browse displays, and from the Change Session Defaults display.
	Copy marked data	Copies a marked area of text to another place in your report. Valid from the base keys on the Design Report display.
F15	Browse/Copy options	Displays the Browse/Copy Options display. Valid from the alternative keys on the Design Report and Browse displays, and from the Change Session Defaults display.

Figure 9 (Page 4 of 5). Description of Function Keys

Function Key	Name of Function Key	Description
F15	Move marked data	Moves a marked area of text to another place in your report. Valid from the base keys on the Design Report display.
F16	Delete all fields	Deletes all database fields from the list. Valid from the Work with Database Fields display.
	Delete field	Deletes an existing field. Valid from the base keys on the Design Report display.
	Remove all code points	Removes all code points that you specified. Valid from the Work with Define Characters display.
	Remove all colors	Removes all color keywords that you specified. Valid from the Work with Colors display.
	Remove all indicator text	Removes all the text that describes indicators. Valid from the Specify Indicator Text display.
	Remove all keywords	Removes all keywords that have been specified. Valid from keyword list displays.
	Remove all lines	Removes all lines that you defined. Valid from the Work with Define Line display.
	Remove keyword	Removes the keyword. Valid from individual keyword displays.
	Repeat find	Repeats a find operation. Valid from the alternative keys on the Design Report and Browse displays.
	Find	Processes a find operation. Valid from the Find/Change Options display.
F17	File keywords	Displays the Work with File Keywords display, on which you specify information about the printer file you are creating or changing. Valid from the base keys on the Design Report and Browse displays.
	Repeat change	Repeats a change operation. Valid from the alternative keys on the Design Report and Browse displays.
	Change	Processes a change operation. Valid from the Find/Change Options display.
F18	DBCS conversion	This function key is only used with double-byte character strings. Valid from the alternative keys on the Design Report display.
	Record keywords	Displays the Work with Record Keywords display, on which you specify information about a record format. Valid from the base keys on the Design Report display.
F19	Left	Positions records to the left. Valid from the base and alternative keys on the Design Report and Browse displays.
F20	Right	Positions records to the right. Valid from the base and alternative keys on the Design Report and Browse displays.

Figure 9 (Page 5 of 5). Description of Function Keys

Function Key	Name of Function Key	Description
F21	System command	Displays a window in which you enter a system command. Valid from the base and alternative keys on the Design Report and Browse displays.
F22	Alternative keys	Displays the alternative set of function keys. Valid from the base keys on the Design Report and Browse displays.
F22	Base keys	Displays the base set of function keys. Valid from the alternative keys on the Design Report and Browse displays.
F23	Field keywords	Displays the Work with Field Keywords display, on which you specify information about a field. Valid from the base keys on the Design Report display.
F24	More keys	Displays more function keys at the bottom of your current display. Valid from the base and alternative keys on the Design Report and Browse displays.
	Enter	Submits information on the display for processing.
	Help	Shows additional information about the display or option you selected.
	Page Down (Roll Up)	Moves forward to show additional information for the display.
	Page Up (Roll Down)	Moves backward to show additional information for the display.
	Print	Prints information shown on the display.
	Sysreq	Interrupts the job you are working on and, when you press Enter, shows a menu from which you can do tasks such as: • Start a second interactive job on the system at the same display station. • End the previous request. • Display information about the current job. • Display and send messages.

Services Displays

Services displays are used to change your edit environment when you work with your report design. You can use the services displays by pressing the appropriate function key. Each of these displays prompts you for the information required to perform a specific operation.

The following services displays are available:

- Change Session Defaults.

  Use this display to see the current information about your edit session and to change it. See "Changing Your Edit Session Environment" on page 34 for information about changing session defaults.

- Find/Change Options.

  Use this display to search for a particular character string in part or all of your report design, or to change a particular string in some or all lines. See "Find/Change and Browse/Copy Operations" on page 49 for information about performing find and change operations.

- Browse/Copy Options.

  Use this display while you are editing your report design to look at another existing source member, to copy another existing member into the one you are working with, or to copy specific records from another source member into the report design you are editing. See "Find/Change and Browse/Copy Operations" on page 49 for information about performing browse and copy operations.

Split Session Editing and Browsing

You can split the Design Report display into two parts so that you can edit one report design and display another source member at the same time.

You can use this feature with the Browse/Copy display to copy records from an existing source member shown on the display into the report design you are currently editing.

See "Split Session Editing and Browsing" on page 56 for more information about split session editing and browsing.

Full Screen Mode

You can set your Edit or Browse display to full screen mode so that additional lines are shown on the display. See "Using Full Screen Mode" on page 57 for more information.

Semantic Checking

RLU can check the DDS source you define with RLU to help you create and change error-free source members.

See Appendix C, "Semantic Checking in RLU" on page 221 for more information about how syntax and semantic checking works in RLU.

Using RLU to Design Reports

Figure 10 represents a typical task flow for designing a report using RLU.

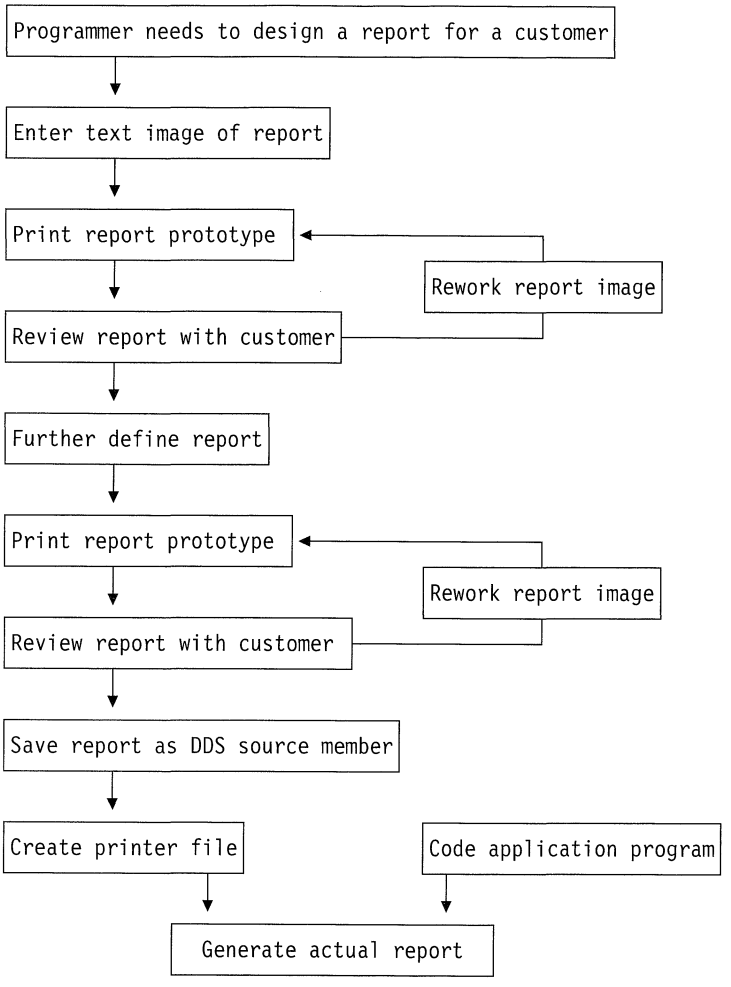

Figure 10. Report Design Task Flow

In very general terms, the following steps describe how you use RLU to perform the tasks shown in Figure 10.

- Start an RLU session with the Start RLU (STRRLU) command, specifying a new source member to create or an existing one to edit or print. For more information, see Chapter 2, "Starting RLU" on page 19.
- Edit a new or existing report design on the Design Report display. Use line commands to perform operations on the data you enter such as copying, moving, and deleting lines. Set tabs or display a columns ruler to make data entry easier. If you want to copy another existing report design, use the Browse/Copy feature. For more information, see Chapter 3, "Editing on the Design Report Display" on page 27.

- Define record formats and then fields within record formats by using RLU line commands and function keys. Specify information about record formats such as specific names and keywords. Specify information about fields such as name, type, length, position, and keywords. If you want to reference fields in a database file, define database references using RLU displays. To give your report design a more realistic appearance on the Design Report display and when you print it, create sample data for fields. Condition fields and keywords by defining indicators that you can set on or off at any time during the edit session. For more information, see Chapter 5, "Working with Record Formats" on page 103 and Chapter 6, "Working with Fields" on page 119.
- Print a prototype of your report at any time during an RLU edit session, by specifying that you want to print a prototype of your report as defined so far. For more information, see Chapter 8, "Ending an RLU Session" on page 167.
- Change record formats as required by using line commands to perform operations such as copying, moving, and inserting. You can merge record formats together, and specify page breaks between them. Edit field lengths and positions by using the field lines, or change field information by using function keys. You can also work with existing fields by selecting them from a list. For more information, see Chapter 5, "Working with Record Formats" on page 103 and Chapter 6, "Working with Fields" on page 119.
- Describe your printer file, if necessary, by using an RLU function key to specify file-level keywords. For more information, see Chapter 7, "Working with File Information" on page 163.
- Complete your edit session by using the Exit RLU display. You can save the changed member as DDS source, ignore the changes you made and leave the existing source member unchanged, or resume your edit session. You can create a printer file for your report design, and print a report prototype. For more information, see Chapter 8, "Ending an RLU Session" on page 167.

The steps that you use to design a report are discussed in Chapter 4, "Example: Designing a Report" on page 59.

Editing a Non-RLU Printer File

You can use RLU to edit existing printer file DDS that was not created using RLU. However, you should be aware of how RLU handles this source at load time. See "Non-RLU Source Considerations" on page 219 for information about how RLU changes non-RLU source.

Functions Not Supported in RLU

RLU does not support the following:

- Wrapping of fields when you create a printer file.

  RLU drops the entire field if the field is outside the report width boundaries.

- Some keyword assignments in the report image on the display.

  When you specify some keywords, such as HIGHLIGHT and UNDERLINE, the keyword is added to the DDS, but you do not see the effect of the keyword on the Design Report display.

- Specification or changing of the DDS keywords required for Advanced Function Printing Data Stream (AFPDS) support.

  For more information on how RLU processes the DDS keywords required for AFPDS support, see "RLU-Tolerated Advanced Function Printing Data Stream Keywords" on page 209.

- More than one record format on the same line.

  RLU does not allow you to print the end of one record format and the beginning of the next record format on the same line. In a case such as this, the Skip Before (SKIPB) spacing keyword is automatically specified.

Editing RLU Source Using SEU

You can use the source entry utility (SEU) on the AS/400 system to edit the DDS source created or changed with RLU. Be aware, however, that you risk making changes that can render the source member meaningless as an RLU member and report design. For information about SEU, refer to the *SEU User's Guide and Reference*.

Chapter 2. Starting RLU

This chapter describes how to start an RLU session and how RLU prepares a work space. It also provides a list of all tasks described in the manual, and their page references.

The STRRLU command can create an RLU source member but it cannot create the source file used to contain the source member. Use the Create Library (CRTLIB) command to create a library for the source file, and use the Create Source Physical File (CRTSRCPF) command to create a source file. For information about creating source files and libraries, see the *CL Reference*.

Using the Start Report Layout Utility (STRRLU) Command

By using the STRRLU command, you can either edit an RLU source member or print a report prototype.

Figure 11 shows the syntax for the STRRLU command. A description of the STRRLU command follows Figure 11.

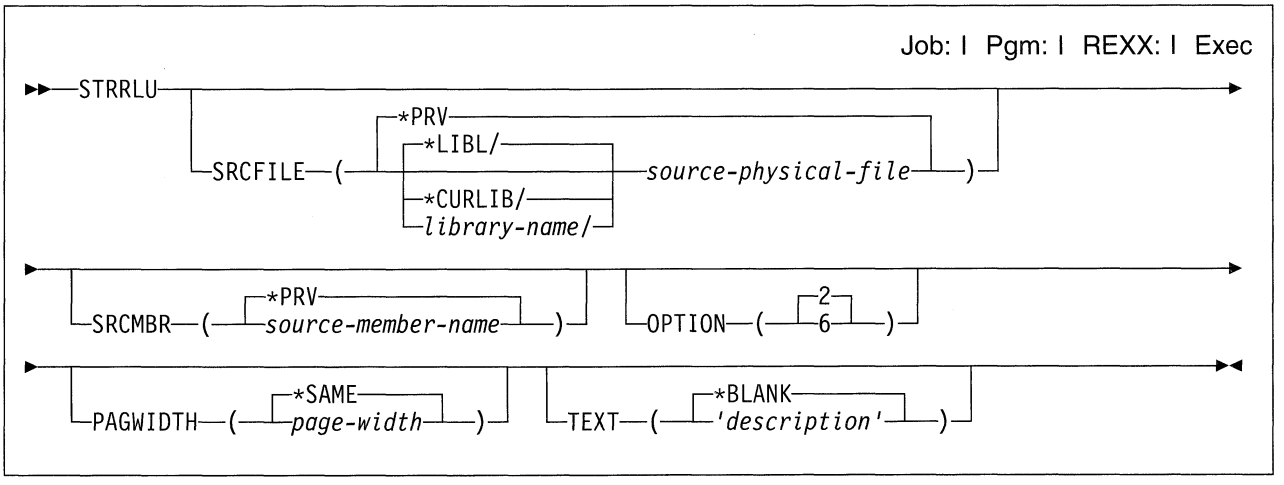

Figure 11. STRRLU (Start RLU) Command

Purpose

The STRRLU command starts the report layout utility (RLU) on the system.

Optional Parameters

SRCFILE

Specifies the qualified name of the source physical file that contains the member to be changed or created from a previous session, or the source physical file to store a new member.

***PRV:** The previous source physical file name is used.

The possible library values are:

***LIBL:** The library list is used to locate the source physical file.

***CURLIB:** The current library for the job is used to locate the source physical file. If no library is specified as the current library for the job, the QGPL library is used.

library-name: Specify the name of the library where the source physical file is located.

source-physical-file: Specify the qualified name of the source physical file.

SRCMBR

Specifies the name of the source member to be changed or created. The default value for this parameter will change when the user specifies the SRCFILE parameter.

***PRV:** The name of the previous source member is used.

source-member-name: Specify the name of the source member to be changed or created from a previous session, or the name to use if a new member is created.

OPTION

Specifies the option to use when working with a report.

2: This option changes a report.

6: This option prints the report.

PAGWIDTH

Specifies the page width for the report to be printed. The first time this command is used, the page width is set to 132 if another value is not specified. The default is *SAME.

***SAME:** Specifies the same report width used when you created or last changed the report.

page-width: Specify the width of the report. Valid values range from 1 through 378.

TEXT

Specifies text that describes the member. This text is stored in the text field for the member. For an expanded description of this parameter, see the *CL Reference*.

***BLANK:** This is the default for a new member. This value directs the RLU to specify blanks in the text field of the member. For an existing member, this value does not change the text field of the member.

'description': Specify no more than 50 characters of text, enclosed in apostrophes.

Example

```
STRRLU SRCFILE(*LIBL/QDDSSRC)
   SRCMBR(TBILLS) PAGWIDTH(80) OPTION(2)
   TEXT('Interest rates for all T-bill holdings')
```

This command starts RLU by searching your library list (*LIBL) for the source member TBILLS in source file QDDSSRC. The Design Report display is shown with an image of the report for you to change (OPTION(2)). The report image is 80 characters wide (PAGWIDTH(80)).

Prompting for Command Parameters

You can use prompts to specify command parameters. After you type STRRLU only, or STRRLU and some parameter values, press F4=Prompt. The Start Report Layout Utility display appears, as shown in Figure 12.

```
                    Start Report Layout Utility (STRRLU)

Type choices, press Enter.

Source file . . . . . .   *PRV_____     Name, *PRV
  Library . . . . . .       _____       Name, *LIBL, *CURLIB, *PRV
Source member . . . . .   *PRV_____     Name, *PRV
Option . . . . . .        2             2, 6
Page width . . . . . .    *SAME_        1-378, *SAME
Text 'description' . . .  *BLANK_____________________________________
_____

                                                                  Bottom
F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
F24=More keys
```

Figure 12. Start Report Layout Utility Display

The prompt display lists the parameters and supplies the default values. Press Enter to accept the default values, or type values for the parameters and then press Enter to process the command.

Starting RLU from the Programming Development Manager

You can also start RLU from the programming development manager (PDM) by doing one of the following:

- Type the STRRLU command and the appropriate parameters, or type the command and prompt for the parameters, on the command line of the AS/400 Programming Development Manager (PDM) menu.
- Use option 19=Change using RLU on the Work with Members display.

For information about PDM, refer to the *PDM User's Guide and Reference*.

Preparing the Work Space

After you enter the STRRLU command to edit a source member, RLU must prepare the work space before you can begin to work with the report design. The work space holds a copy of the source member you are working on, so the original source member remains unchanged until you decide to save any changes you make. The Load RLU Work Space display appears, confirming the operation, although you may not see the display if the source member is loaded quickly. The display is shown in Figure 13.

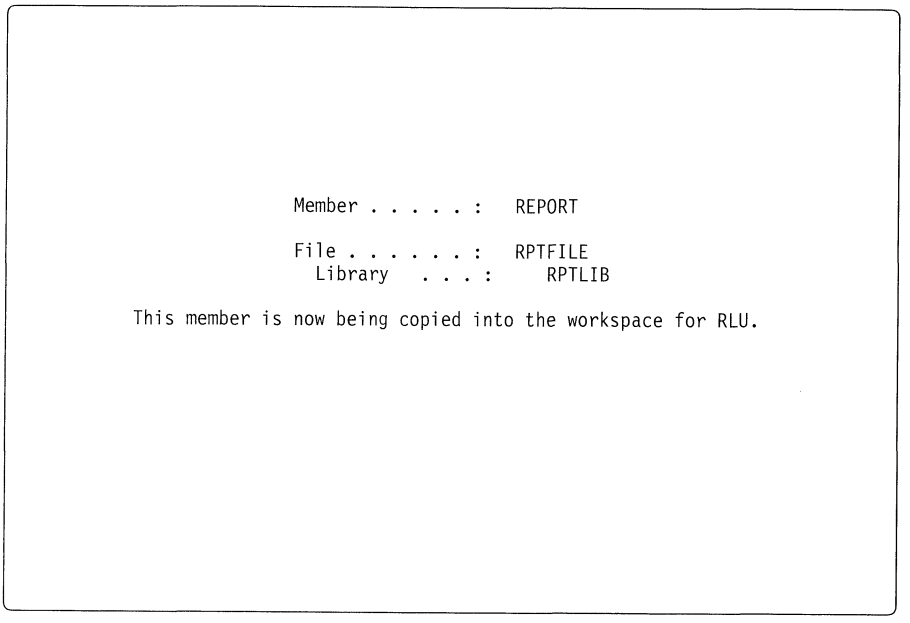

Figure 13. Load RLU Work Space Display

The display shows the name of the source member that RLU is copying into the work space, and the name of the file and library that contain the source member.

Tasks Described in This Manual

Figure 14 contains an alphabetical list of the RLU tasks described in this manual and where you can find descriptions of each task. More than one method is available in RLU to perform some tasks.

For more specific location of all the information topics included in the manual, use the index.

Figure 14 (Page 1 of 4). Tasks Described in This Manual

Task	Description
Browse other source members or spooled files	"Using the Browse/Copy Options Display" on page 54
Center fields	"Centering Fields" on page 140
Change character strings	"Using the Find/Change Options Display" on page 49 or "Using the CHANGE Command" on page 52

Figure 14 (Page 2 of 4). Tasks Described in This Manual

Task	Description
Change field data types	"Changing Field Information" on page 132
Change to full screen mode	"Using Full Screen Mode" on page 57
Change line types	"Changing Line Types" on page 114
Change the number of decimal positions in fields	"Changing Field Information" on page 132
Change session defaults	"Changing Your Edit Session Environment" on page 34
Change the record format spacing default	"Changing Your Edit Session Environment" on page 34 and "Specifying Record Format Spacing" on page 105
Condition fields	"Conditioning Fields and Keywords" on page 144
Condition keywords	"Conditioning Fields and Keywords" on page 144
Convert named fields to constant fields	"Converting a Named Field to a Constant Field" on page 123
Copy lines	"Copying Lines" on page 46 and "Copying, Moving, and Repeating Record Formats" on page 109
Copy record formats	"Copying Lines" on page 46 and "Copying, Moving, and Repeating Record Formats" on page 109
Create printer files	"Creating Printer Files" on page 169
Create sample data	"Creating Sample Data" on page 130
Define fields	"Defining Fields Using Function Keys" on page 119, "Defining Fields Using Line Commands" on page 124, and "Defining Constant Fields Using Keyword Constants" on page 128
Define record formats	"Defining Record Formats" on page 103
Define skeleton lines	"Defining and Inserting Skeleton Lines" on page 43
Delete fields	"Deleting Fields" on page 141
Delete lines	"Deleting Lines" on page 48 and "Deleting Record Formats" on page 111
Delete record formats	"Deleting Lines" on page 48 and "Deleting Record Formats" on page 111
Evenly space fields on lines	"Evenly Spacing Fields" on page 141
Exclude lines on the display	"Excluding, Showing, and Hiding Lines" on page 38
Exit RLU	"Using the Exit RLU Display" on page 167 or "Using Commands to Exit from RLU" on page 171
Find character strings	"Using the Find/Change Options Display" on page 49 or "Using the FIND Command" on page 51

Figure 14 (Page 3 of 4). Tasks Described in This Manual

Task	Description
Horizontally position the display	"Creating Horizontal Windows" on page 41
Insert skeleton lines	"Defining and Inserting Skeleton Lines" on page 43
Insert lines	"Inserting Lines" on page 48
Lengthen fields	"Changing Field Information" on page 132 or "Editing Fields Using Field Lines" on page 137
Mark and copy areas on the display	"Marking and Copying or Moving Areas of Data" on page 133
Mark and move areas on the display	"Marking and Copying or Moving Areas of Data" on page 133
Merge record formats	"Merging Record Formats" on page 113 and "Changing Line Types" on page 114
Move fields	"Changing Field Information" on page 132, "Marking and Copying or Moving Areas of Data" on page 133, "Editing Fields Using Field Lines" on page 137, "Centering Fields" on page 140, or "Evenly Spacing Fields" on page 141
Move lines	"Moving Lines" on page 47 and "Copying, Moving, and Repeating Record Formats" on page 109
Move record formats	"Moving Lines" on page 47 and "Copying, Moving, and Repeating Record Formats" on page 109
Prompt for data entry	"Prompting" on page 42
Prototype reports	"Creating Prototypes of the Report" on page 169
Reference database fields	"Referencing Database Fields" on page 146
Remove field-level keywords	"Removing Keywords" on page 143 or "Using the Fastpath" on page 143
Remove file-level keywords	"Removing Keywords" on page 164 or "Using the Fastpath" on page 164
Remove record-level keywords	"Removing Keywords" on page 117 or "Using the Fastpath" on page 118
Rename fields	"Changing Field Information" on page 132 or "Working with a List of Fields" on page 135
Rename record formats	"Changing Record Format Names" on page 108
Repeat lines	"Repeating Lines" on page 48 and "Copying, Moving, and Repeating Record Formats" on page 109
Repeat record formats	"Repeating Lines" on page 48 and "Copying, Moving, and Repeating Record Formats" on page 109
Save source members	"Saving Source Members" on page 168

Figure 14 (Page 4 of 4). Tasks Described in This Manual

Task	Description
Set tabs	"Showing and Setting Tabs" on page 44
Shift data and truncate if necessary	"Shifting Data" on page 40
Shift data without truncating	"Shifting Data" on page 40
Shorten fields	"Changing Field Information" on page 132 or "Editing Fields Using Field Lines" on page 137
Show column numbers on the display	"Showing Column Numbers" on page 41
Show previously excluded lines	"Excluding, Showing, and Hiding Lines" on page 38
Show tabs lines	"Showing and Setting Tabs" on page 44
Specify field-level keywords	"Keywords Automatically Specified" on page 123 and "Specifying Field-Level Keywords" on page 141 or "Using the Fastpath" on page 143
Specify file-level keywords	"Specifying File-Level Keywords" on page 163 or "Using the Fastpath" on page 164
Specify indicators	"Defining Indicators" on page 144
Specify page breaks	"Specifying Page Breaks" on page 113
Specify record-level keywords	"Specifying Record-Level Keywords" on page 116 or "Using the Fastpath" on page 118
Specify semantic checking	"How to Request Semantic Checking" on page 221
Split an edit session into an edit/browse session	"Split Session Editing and Browsing" on page 56
Vertically position the display	"Vertical Positioning" on page 37
Work with lists of fields	"Changing Field Information" on page 132 and "Working with a List of Fields" on page 135

Chapter 3. Editing on the Design Report Display

RLU allows you to design the textual image of your report without leaving the Design Report display. You can then save the report design and print it at the same time. This chapter describes how RLU helps you edit text on the Design Report display.

The following operations are described in this chapter:

- Entering commands on the display
- Changing the characteristics of your edit session
- Positioning the display
- Excluding, showing, and hiding lines on the display
- Shifting data on the display
- Creating windows on the display
- Showing column numbers on the display
- Prompting
- Defining and inserting skeleton lines on the display
- Showing and setting tabs on the display
- Copying, moving, repeating, inserting, and deleting lines
- Finding and changing character strings
- Browsing and copying from other source members

To define and edit record formats and fields, and to specify information about the printer file, you use line commands, display commands, and function keys on the Design Report display and on other displays that prompt you for information such as names and keywords. Following chapters in this manual describe in detail how to work with record formats and fields.

The Design Report Display

The Design Report display appears when you enter the STRRLU command. Figure 15 on page 28 shows the initial Design Report display for a new RLU source member.

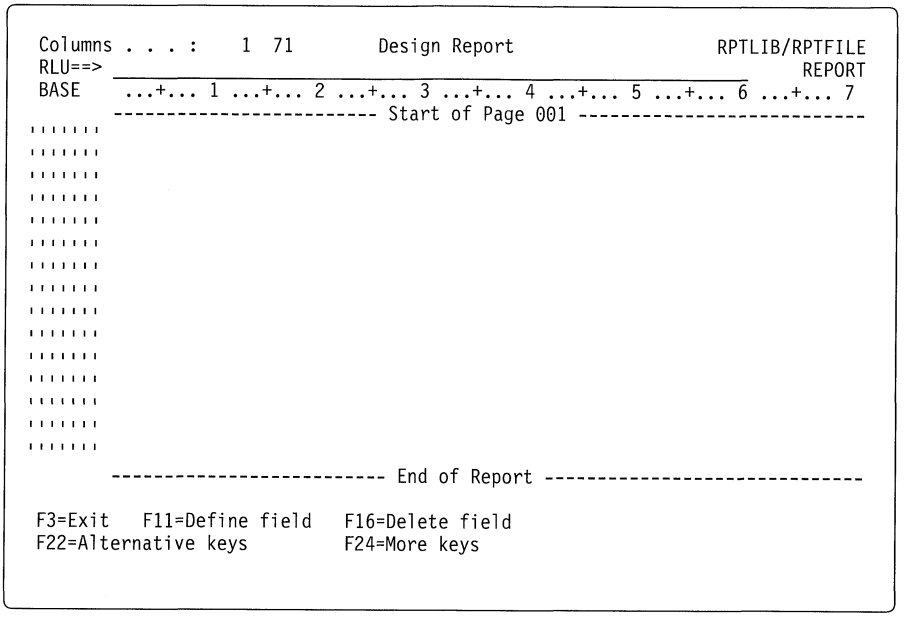

Figure 15. Blank Design Report Display

The heading section of the display consists of the following:

- Title line.

  The title line contains the following fields:

  - `Columns` indicates which columns of each line are currently shown on the display.
  - `Design Report` is the screen heading.
  - `Library name/File name` are the names of the library and the source physical file containing the source member you are currently editing.

- Command line and member name line.

  The second line of the display contains the following fields:

  - `RLU==>` points to the area in which you enter display commands such as TOP and BOTTOM.
  - `Member name` is the name of the source member you are currently editing. The `Member name` in Figure 15 is `REPORT`.

- Format line.

  - The third line of the display is a format line (unless you are using full screen mode). Figure 15 is not in full screen mode. Either BASE or ALT is displayed to indicate whether the base or alternative set of function keys is displayed.

The edit section of the display consists of the lines of text and blank lines that make up your report design. The edit section can also temporarily contain special lines such as field lines and tabs lines. Each line in the edit section begins with a sequence number, which RLU provides when it sequences the lines on the display. The sequence number area can also temporarily contain line commands. After you define record formats and sample data, the sequence number area will also contain the record format name or a character that indicates the line type. See "Line Types" on page 2 for a description of line types. See "Defining Record Formats" on page 103 and "Creating Sample Data" on page 130 for information about how you define report and sample lines.

`Start of Page 001` and `End of Report` lines are automatically shown to indicate the beginning and end of the report design. You cannot edit these special lines. You can, however, edit any additional start-of-page lines that you specify during your edit session.

The function key and message section of the display consists of the following:

- List of function keys.

  The second and third last lines list all the valid function keys for the display. On displays that do not have enough space to show all the function keys available for that display, press F2=More keys to see more function keys in the function key set that you are using. When you use full screen mode, function keys do not appear on the display. For more information about the function keys available on the Design Report display, see "Function Keys."

- Message line.

  The last line of the display lists error messages. To see more information about a message, position the cursor on the message and press Help or F1=Help.

  A plus sign (+) in the bottom right-hand corner of the display indicates additional messages. Position the cursor on the message and press the Page Up and Page Down keys to look at the messages.

The line above the function keys is used to display selected database fields when you are referencing a list of selected fields. A plus sign (+) at the end of the line indicates that there are more database fields to display. Position the cursor anywhere on the line and press the Page Up and Page Down keys to look at more fields from the list. For more information on selected database fields on the Design Report display, see Figure 178 on page 160.

Function Keys

The Design Report display in RLU supports two sets of function keys that allow you to perform specific tasks. Detailed descriptions of all the function keys available in RLU are described in "Function Keys" on page 9.

Base Function Keys on the Design Report Display

Figure 16 on page 29 shows the function keys that are immediately available to you on the Design Report display. When the base function keys are displayed, you see BASE on the third line of the Design Report display. To display the alternative set of keys that you can use, press F22=Alternative keys.

Note: Throughout this manual, (B) after the function key indicates that the key is part of the base set of keys on the Design Report display.

Figure 16. Description of Base Function Keys

Function Key	Name of Function Key	Description
F1	Help	Displays online help information about a display or a prompt on a display.
F3	Exit	Exits from the current display and displays the Exit RLU display.
F4	Fields	Displays a list of all the fields within the record format. To work with the field, select it from the list.
F5	Refresh	Clears your current display of all the changes you made since you last initiated processing by pressing Enter or a function key.
F6	Condition display	Displays the Condition Design Report Display, on which you specify field and keyword conditioning for your current report.
F9	Retrieve	Retrieves the last command you entered in the display command line.
F10	Database fields	Displays the Work with Database Fields display, on which you select database fields to include in your current report.
F11	Define field	Displays the Work with Field Keywords display, on which you create a field definition.
F12	Cancel	Returns the previous display.
F13	Mark/Unmark data	Marks a character, a field, or a block of text that you want to copy or move.
F14	Copy marked data	Copies a marked area of text to another place in your report.
F15	Move marked data	Moves a marked area of text to another place in your report.
F16	Delete field	Deletes an existing field.
F17	File keywords	Displays the Work with File Keywords display, on which you specify information about the printer file you are creating or changing.
F18	Record keywords	Displays the Work with Record Keywords display, on which you specify information about a record format.
F19	Left	Positions records to the left.
F20	Right	Positions records to the right.
F21	System command	Displays a window, in which you enter a system command.
F22	Alternative keys	Displays the alternative set of function keys.
F23	Field keywords	Displays the Work with Field Keywords display, on which you specify information about a field.
F24	More keys	Displays more function keys at the bottom of your current display.

Alternative Function Keys on the Design Report Display

Figure 17 shows the function keys that are available to you on the Design Report display when you press F22=Alternative keys in the base set. When the alternative function keys are displayed, you see ALT on the third line of the Design Report display.

Note: Throughout this manual, (A) after the function key indicates that the key is part of the alternative set of keys on the Design Report display.

Figure 17. Description of Alternative Function Keys

Function Key	Name of Function Key	Description
F1	Help	Displays online help information about a display or a prompt on a display.
F3	Exit	Exits the current display and returns the previous display.
F4	Prompt	Displays the line on which the cursor is located in the lower portion of the display. You can then edit the line on which you pressed F4.
F5	Refresh	Clears your current display of all the changes you made since you last initiated processing by pressing Enter or a function key.
F6	Move split line	In a split edit/browse session, splits the display at the cursor position.
F9	Retrieve	Retrieves the last command you entered in the display command line.
F10	Cursor	Moves the cursor to the command line.
F11	Previous record	Places the previous record in a prompt when you are using prompts.
F12	Cancel	Returns the previous display.
F13	Change session defaults	Displays the Change Session Defaults display, on which you see the current information about your edit session. You can change this information.
F14	Find/Change options	Displays the Find/Change Options display.
F15	Browse/Copy options	Displays the Browse/Copy Options display.
F16	Repeat find	Repeats a find operation.
F17	Repeat change	Repeats a change operation.
F18	DBCS Conversion	This function key is only used with double-byte character strings.
F19	Left	Positions records to the left.
F20	Right	Positions records to the right.
F21	System command	Displays a window in which you enter a system command.
F22	Base keys	Displays the base set of function keys.
F24	More keys	Displays more function keys at the bottom of your current display.

Entering Sequence Line Commands

When you are entering line commands to perform various operations on the Design Report display, be aware of the following rules:

- Type the line command anywhere in the sequence number area, if the sequence number area contains a sequence number.
- Type the line command starting in the first position of the sequence number area followed by a blank, if the sequence number area does not contain a sequence number.
- Type suffixes (such as numbers) immediately after the command and without a blank separating the suffix and the command.
- You can perform more than one operation at a time if the line commands (Delete, Move, and a positional command, for example) do not conflict.
- The following commands cannot overlap, meaning that they cannot affect the same line on the display:
  - Copy
  - Move
  - Repeat
  - Insert
  - Shift
  - Exclude
  - Show
  - Delete.
- If you enter only some of the necessary line commands for an operation, the operation is pending and RLU indicates this at the top of the display, in the area normally occupied by the library and file name of your current source member.

For a complete list of the sequence line commands available in RLU, and where they are described in this manual, see Figure 7 on page 8.

Entering Command Line Commands

When you are entering commands in the command line to perform various operations on the Design Report display, be aware of the following rules:

- Type the command anywhere in the command line at the top of the display.
- When you enter commands during a split session on the Design Report display, a command is either session-dependent, meaning that the command performs its function on one session only, or session-independent, meaning that the command performs its function on both sessions, regardless of the location of the cursor.

  The following commands are session-dependent:
  - FIND
  - CHANGE
  - SET MATCH
  - SET SHIFT
  - SET TABS
  - TOP
  - BOTTOM
  - FILE

- SAVE
- HIDE.

For a complete list of the command line commands available in RLU, and where they are described in this manual, see Figure 8 on page 9.

Entering Control Language Commands

While you are working on the Design Report display in RLU, you can enter CL commands. Press F21=System command to display the System Command window, in which you enter CL commands. The window is shown in Figure 18.

```
 Columns . . . :    1  71        Design Report               RPTLIB/RPTFILE
 RLU==> ____________________________________________________________ REPORT
 BASE     ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
         ------------------------ Start of Page 001 --------------------------
00001 . ABC Company - Employee Directory
00002 .
00003 .
00004 . Dept Employee Name                                Phone    Status
00005 . nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx      nnnnn      x
        -------------------------- End of Report ----------------------------






 ......................................................................
 :                               System Command                       :
 :                                                                    :
 :  ===> _____________________________________________________________ :
 :  F4=Prompt   F9=Retrieve   F12=Cancel                              :
 :  (C) COPYRIGHT IBM CORP. 1981, 1993.                               :
 :....................................................................:
```

Figure 18. System Command Window

Depending on the cursor location, the System Command window may appear in the top portion or in the bottom portion of the Design Report display. You cannot enter data on the display while the System Command window is showing.

For help in selecting a system command, press F4=Prompt without typing anything in the window. For help in entering a system command, type the command in the window and press F4=Prompt. To see more information about a system command, type the command and press Help or F1=Help.

Processing the Design Report Display

In general, RLU processes the Design Report display as follows:

- Updates the work space with text changes made to the report design on the display.
- Interprets any changes to field lines, then line commands and then the RLU command line.
- Processes changes to field lines.

  Changes on the field line are processed from left to right, except that database references are processed first, and keyword constants are processed second.

- Completes line commands.
- Performs requests from the RLU command line.
- Processes function keys.
- Performs find and change operations.
- Processes F3=Exit to save the changed source member.

Changing Your Edit Session Environment

Before you begin to edit your report design or while you are in your edit session, you can change the defaults that determine, for example, how you see the Design Report display, what kind of input is allowed, and whether or not semantic checking is active.

To change or to look at these defaults, press F13=Change session defaults (A) on the Design Report display.

The Change Session Defaults display appears as shown in Figure 19 and Figure 20 on page 35.

```
                          Change Session Defaults

Type choices, press Enter.

  Amount to roll . . . . . .  H__        H=Half, F=Full
                                         C=Cursor, D=Data
                                         1-999
  Uppercase input only . . . . . .  N    Y=Yes, N=No
  Show all field lines . . . . . .  Y    Y=Yes, N=No
  Full screen mode . . . . . .  N        Y=Yes, N=No

  Insert marked data . . . . . .  N      Y=Yes, N=No
  Replace marked data  . . . . . .  N    Y=Yes, N=No
  Semantic checking:
    When added/modified  . . . . . .  Y  Y=Yes, N=No
    From page number . . . . . .  ___    000-999
      Line number  . . . . . .  _____    00000-32767
    To page number . . . . . .  ___      000-999
      Line number  . . . . . .  _____    00000-32767
  Printer device type  . . . . . .  1    1=SCS, 2=IPDS, 3=AFPDS
                                                  More...
F3=Exit      F5=Refresh   F12=Cancel
F14=Find/Change options   F15=Browse/Copy options
```

Figure 19. Change Session Defaults Display (Part 1)

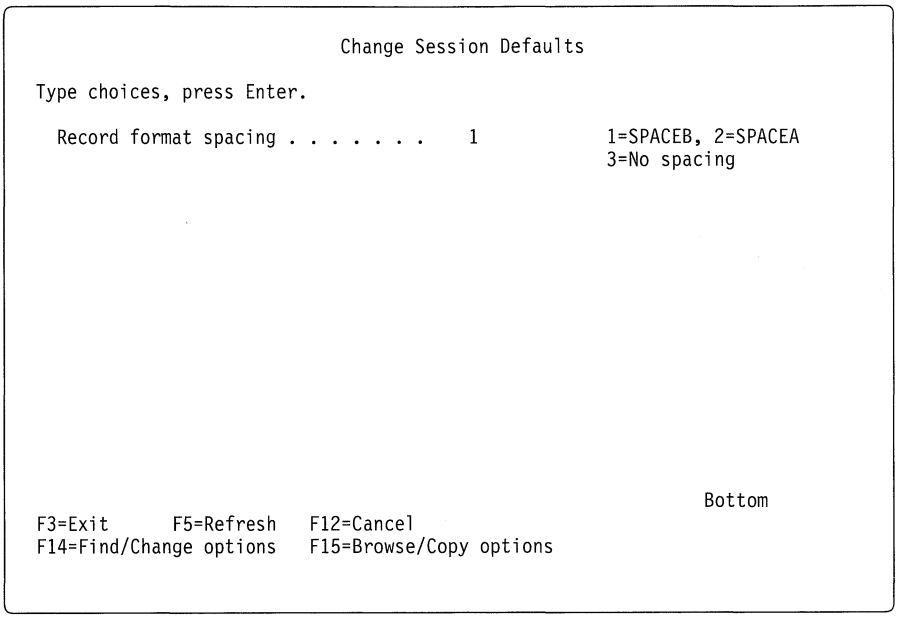

Figure 20. Change Session Defaults Display (Part 2)

The default is shown for each field on the Change Session Defaults display. Specify a new value for each field or press Enter to use the default values. Some default values are dependent on the value you entered and used during your last RLU edit session.

By typing the appropriate values on this display, you can do the following:

- Use the *Amount to roll* prompt to specify the number of lines to move when you press the roll keys.
- Use the *Uppercase input only* prompt to allow mixed case input during your edit session.
- Use the *Show all field lines* prompt to automatically display all the field lines for all lines that contain at least one field and all the field lines displayed with a line command.
- Use the *Full screen mode* prompt to use RLU in full screen mode.
- Use the *Insert marked data* prompt to specify whether or not you want RLU to insert marked blocks of data for a copy or move operation, rather than overlay existing data in the target area.
- Use the *Replace marked data* prompt to specify whether or not you want RLU to shift existing data to the left to replace the marked data during a move operation, rather than replace the marked data with blanks.
- Use the *Semantic checking* prompts to:
  - Specify whether or not you want RLU to check each line as you add or change it.
  - Specify the particular range of lines that you want RLU to check for a one-time semantic check.

- Use the *Printer device type* prompt to specify the type of printer you are using. Semantic checking is sensitive to the printer device type. For example, some keywords are only valid for certain printers. The printer device type you specify determines the default parameter value for DEVTYPE on the Create Printer File (CRTPRTF) display. For more information about how semantic checking works in RLU, see Appendix C, "Semantic Checking in RLU" on page 221.
- Use the *Record format spacing* prompt to select the default record spacing keyword assigned when you define a new record format. You can select one of the following:

  SPACEB This is the default record format spacing keyword generated by RLU. If you accept the SPACEB default, the SPACEB(001) keyword is automatically added when a new record is defined if there are no filler lines preceding the record.

  SPACEA If you specify SPACEA as the default record spacing keyword, the SPACEA(001) keyword is automatically added when the record is defined if the record does not span multiple lines (that is, there are no continuation lines for the new record).

  No spacing If there are no associated filler lines or continuation lines, no spacing keyword is added to the new record.

  Note: The default record format spacing value you specify will be overridden if it conflicts with RLU spacing rules. For more information on RLU spacing rules and on selecting record format spacing, refer to "Specifying Record Format Spacing" on page 105.

For more information about the possible values for each prompt, place your cursor on the appropriate line of this display as you use RLU and press Help or F1=Help. You will see online help information that explains how to use the prompt.

Using Commands to Tailor Your Edit Session

You can also tailor your edit session by using the SET command. The SET command is shown in Figure 21.

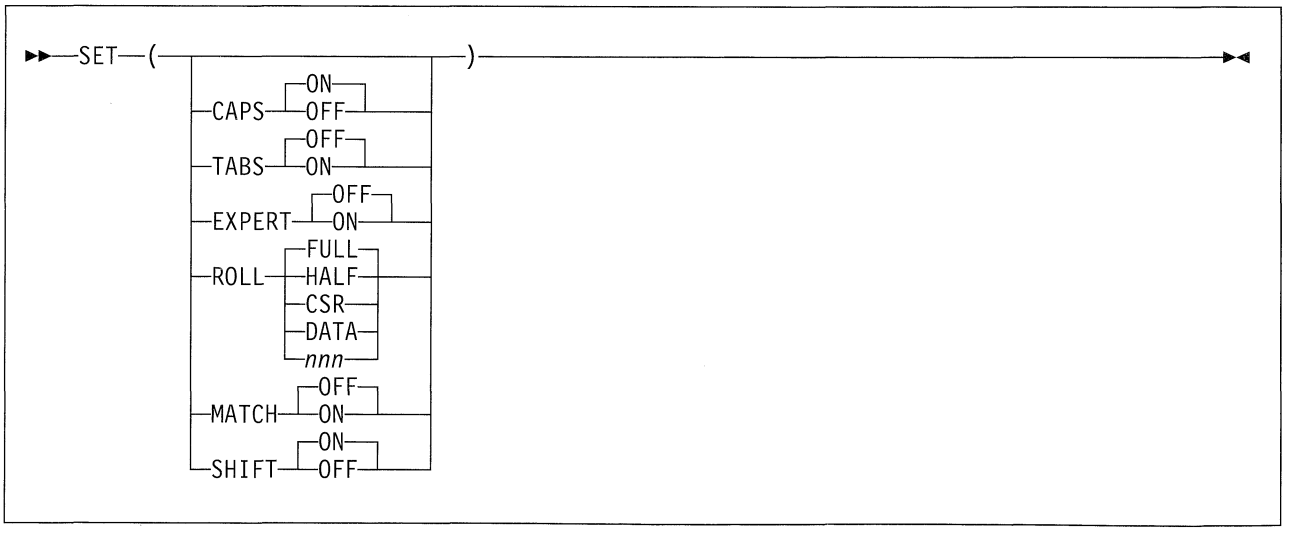

Figure 21. Syntax of the RLU SET Command

SET changes various editing options on the Design Report display. Type SET or S in the display command line followed by one of the following options:

- CAPS to specify which case is valid for text that you enter and for any find or change string. The default value is ON, but you can also specify OFF.
- TABS to specify whether or not the tabs you set with the Tabs line command are active. The default value is OFF, but you can also specify ON. See "Showing and Setting Tabs" on page 44 for more information about setting tabs.
- EXPERT to set your edit or browse session to full screen mode or normal mode. The default value is OFF (normal mode), but you can also specify ON. See "Using Full Screen Mode" on page 57 for more information about using full screen mode.
- ROLL to set the number of lines or columns that move on the display at one time when you use the Page Up key, Page Down key, F19=Left, or F20=Right. The default value is FULL (one full screen), but you can also specify any of the following:
  - HALF or H to move half a screen
  - CSR or C to move by the position of the cursor
  - DATA or D to move a full screen minus one line or column
  - 1 through 999 to move by a specific number of lines or columns.

The values you specify for the SET command (except for TABS) also appear in the corresponding prompts on the Change Session Defaults display. For more information on the MATCH and SHIFT options of the SET command, see "Tailoring Your FIND/CHANGE Operations" on page 54.

Positioning the Display

Before you begin to edit your report design, or while you are in your edit session or split edit/browse session, you can specify which lines or which parts of lines you see on the Design Report display.

This section describes how you perform these operations in RLU.

Vertical Positioning

While you are editing a report design, you can use commands to position your report image on the display or to move the report image forwards or backwards by a specific number of lines.

Type one of the following commands in the sequence number area of the appropriate line:

n	(Where *n* is a line number) to move the display so that line *n* is at the top
+n	(Where *n* is a number) to move forward by *n* lines
-n	(Where *n* is a number) to move backward by *n* lines

You can also position your report image by typing either the TOP command or the BOTTOM command in the command line at the top of the Design Report display.

Type the TOP command to position the display to the first screen of data as follows:

```
TOP or T
```

Type the BOTTOM command to position the display to the last screen of data as follows:

```
BOTTOM or B
```

You can also use the roll keys to position the display.

Excluding, Showing, and Hiding Lines

You can use a line command to exclude one or more lines from appearing on the Design Report display, although they remain in your source member when you save it. You can use another line command to show one or more lines from a previously excluded group of lines on the Design Report display.

To exclude lines, type one of the following commands in the sequence number area of the appropriate lines:

X	To exclude this line from the display
X*n*	(Where *n* is a number) to exclude *n* lines (beginning with this one) from the display
XX	To exclude all the lines between (and including) this one and the next occurrence of XX from the display

To show lines from a group of lines you previously excluded, type one of the following commands in the sequence number area of the appropriate lines:

SF	To show the first line in this group of excluded lines
SF*n*	(Where *n* is a number) to show the first *n* lines in this group of excluded lines
SL	To show the last line in this group of excluded lines
SL*n*	(Where *n* is a number) to show the last *n* lines in this group of excluded lines

Note the following about using Exclude and Show line commands:

- You can use the Exclude line command with the Find/Change Options display to search only certain lines
- You can press F5=Refresh to show all excluded records
- Semantic checking is not affected by the Exclude line command

You can also use the HIDE display command to hide lines that contain a particular character string. The HIDE command is shown in Figure 22.

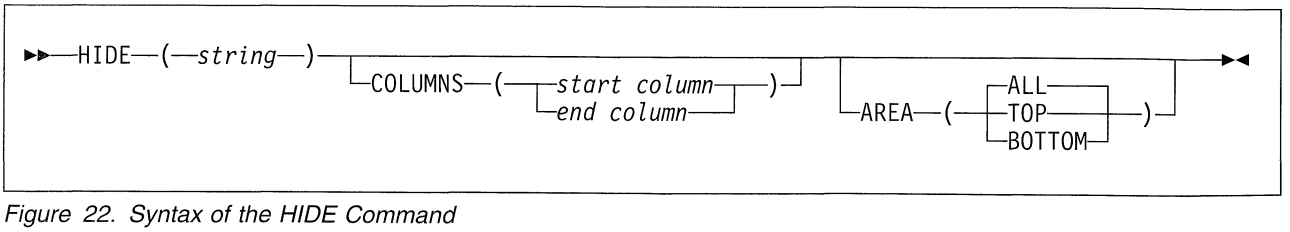

Figure 22. Syntax of the HIDE Command

The HIDE command has three parameters: string, columns, and area. String is a required positional parameter. The short form of HIDE is H. You can enter the command on any RLU command line.

The HIDE command is session dependent on split displays. For example, if you enter the HIDE command on the RLU command line of the top session, only the member in the top session is affected. In addition, the HIDE command in the bottom session of a split display hides up to 100 blocks of records only. A HIDE request beyond this limit is ignored.

When you enter a valid HIDE command, RLU searches for the lines that contain the specified string. You can specify that the search be from the position of the cursor to the end of the member, from the position of the cursor to the beginning of the member, or of all records in the member. You can also specify that the search is for the area between particular columns. The records that match the conditions that you specify are hidden but remain in the member.

In an Edit session, a special record is displayed with a message that states the number of records that are hidden from the display. In a Browse session, the special record is not displayed; however, a message is displayed once to show the number of hidden records.

String parameter

Specify the character string that you want to find. If the string includes leading, embedded, or trailing blanks, apostrophes, or quotation marks, enclose the string in apostrophes or quotation marks.

Columns parameter

Specify the columns within which you want to conduct the search. If the columns parameter is not specified, the default is to search for occurrences of the string in all columns. You can specify the column from which you begin the search and the column in which you end the search. If you specify both column numbers, enter them next to each other, separated by a blank. The hide function then searches for the strings that are within this range of columns inclusive. If only one column number is specified, RLU begins the search there.

Area parameter

Specify the area of the member to search.

TOP or **T** Hides all records that contain the specified string from the line containing the cursor to the top of the member.

BOTTOM or **B** Hides all records that contain the specified string from the line containing the cursor to the end of the member.

ALL or **A** Hides all records in the member that contain the specified string. The default is ALL.

Here are some examples:

- HIDE '*' 7 7 A

  Hides all records in the member that contain '*' in column 7. You can use this HIDE command to hide all comments in a COBOL source member.

- HIDE '*%%' T

  Hides all records from the cursor position to the top of the member that contain '*%%'. Because the columns are not specified, the string can occur in any position in the line. You can use this HIDE command to hide comments in a PRTF member that was created in RLU.

You can redisplay the hidden lines by using the Show line command.

Shifting Data

You can use a line command to shift data in a line or in a block of lines without truncating the data.

Type one of the following commands in the sequence number area of the appropriate lines:

L	To shift the data in this line one position to the left
L*n*	(Where *n* is a number) to shift the data in this line *n* positions to the left
LL	To shift the data in all the lines between (and including) this one and the next occurrence of LL one position to the left
LL*n*	(Where *n* is a number) to shift the data in all the lines between (and including) this one and the next occurrence of LL *n* positions to the left
R	To shift the data in this line one position to the right
R*n*	(Where *n* is a number) to shift the data in this line *n* positions to the right
RR	To shift the data in all the lines between (and including) this one and the next occurrence of RR one position to the right
RR*n*	(Where *n* is a number) to shift the data in all the lines between (and including) this one and the next occurrence of RR *n* positions to the right

When you are shifting a block of data, you can specify *n* in either of the commands when you are using pairs of LL, LL*n*, RR, or RR*n* Shift commands.

You can also shift data right or left and allow data to be truncated if necessary. Use one of the following commands to perform this operation:

LT	To shift the data in this line one position to the left, losing data off the beginning of the record if necessary
LT*n*	(Where *n* is a number) to shift the data in this line *n* positions to the left, losing data off the beginning of the record if necessary
LLT	To shift the data in all the lines between (and including) this one and the next occurrence of LL one position to the left, losing data off the beginning of the record if necessary

LLT*n* (Where *n* is a number) to shift the data in all the lines between (and including) this one and the next occurrence of LL *n* positions to the left, losing data from the beginning of the record if necessary

RT To shift the data in this line one position to the right, losing data off the end of the record if necessary

RT*n* (Where *n* is a number) to shift the data in this line *n* positions to the right, losing data off the end of the record if necessary

RRT To shift the data in all the lines between (and including) this one and the next occurrence of RR one position to the right, losing data off the end of the record if necessary

RRT*n* (Where *n* is a number) to shift the data in all the lines between (and including) this one and the next occurrence of RR *n* positions to the right, losing data off the end of the record if necessary

When you shift data in a line that contains fields, all the field positions are shifted accordingly. See Chapter 6, "Working with Fields" on page 119 for information about working with fields in RLU.

Creating Horizontal Windows

When you are editing a report design, you can work with parts of lines not currently shown on the display (because their length is greater than the width of the display) by creating a window.

To define your window and specify which columns of the report design you want to work with, type one of the following commands in the sequence number area:

W To work with the data starting at column 1 of the report design lines

W*n* (Where *n* is a number) to work with the data starting at column *n* of the report design lines

Entering New Data on the Display

When you are entering new data on the Design Report display, RLU provides a number of line commands to help make this task easier.

This section describes these line commands.

Showing Column Numbers

The third line on the Design Report display is always a format line that marks the columns across the display (unless the display is in full screen mode). While you are editing a report design, you can use a line command to show a format line anywhere else on the display.

To show a format line, type one of the following commands in the sequence number area of the line above which you want the format line:

COLS To display a format line above this line

F To display a format line above this line

Note: In RLU, the COLS command and the F command produce the same results.

To show a format line and insert a blank line immediately below the format line, type the following command in the sequence number area of the line below which you want the format line:

`IF` To display a format line and insert a blank line below this line

Figure 23 shows you what a format line looks like in the edit section of the Design Report display.

```
Columns . . . :    1  71        Design Report                 RPTLIB/RPTFILE
RLU==> _____________________________________________________________ REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
00001 . ABC Company - Employee Directory
00002 .
00003 .
FMT **  ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
00004 . Dept Employee Name                                        Phone    Status
00005 . nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx       nnnnn      x
       -------------------------- End of Report -----------------------------




F3=Exit   F11=Define field   F16=Delete field
F22=Alternative keys         F24=More keys
```

Figure 23. Columns Line

Prompting

While you are editing a report design, you can use a line command to request a prompt for any data record.

RLU uses free-format prompts only. The free-format prompt displays an entire line as one field. If a record is wider than the display area, the contents of the record are displayed on successive lines.

To show a prompt, type the following command in the sequence number area of the line for which you want the prompt:

`P` To display a prompt for this record

Figure 24 shows you what a prompt looks like on the Design Report display.

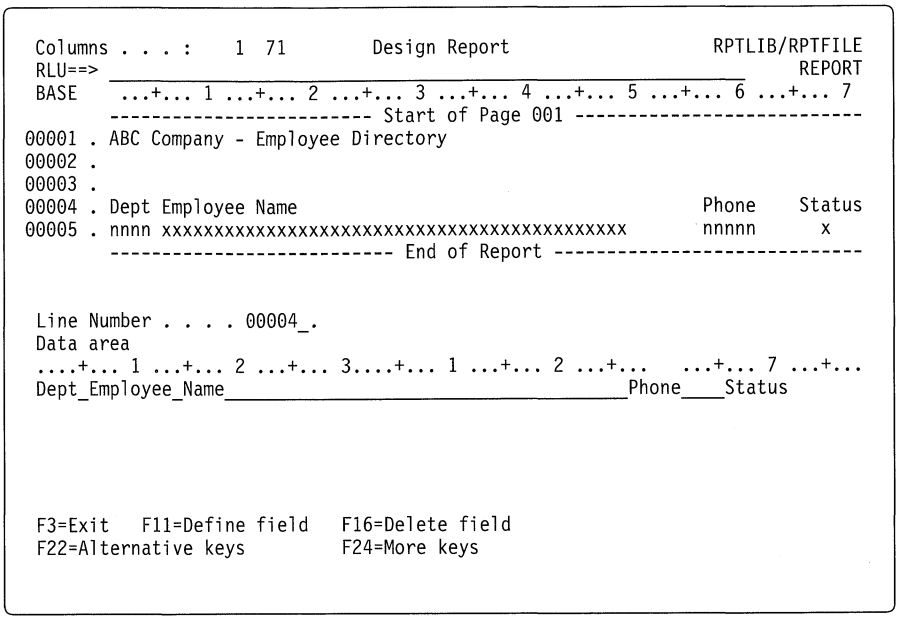

Figure 24. Prompt

You can also prompt for a new record by typing the following command in the sequence number area of the line below which you want the new record:

`IP` To insert a new record below this line using a prompt

RLU inserts a blank line and then places a prompt at the bottom of the display.

Each time you press Enter, RLU places the next existing record in the prompt (for `P`) or inserts another blank line in the prompt (for `IP`). This continues until you do one of the following:

- Press F5=Refresh
- Press F12=Cancel
- Press Enter without typing any data in the prompt line
- Reach the end or the beginning of the report design
- Reposition the Design Report display so that the line in the prompt is not on the display

Defining and Inserting Skeleton Lines

You can use a line command to define a line of data that you type repeatedly as a skeleton line and then insert it whenever you need it, keeping the same data or using it as a template.

To create and insert skeleton lines, type one of the following commands in the sequence number area of the appropriate lines:

`S` To define the contents of this line as the skeleton line

`IS` To insert the current skeleton line immediately below this line

`ISn` (Where *n* is a number) to insert the current skeleton line *n* times immediately below this line

Note: After you select a skeleton line, RLU keeps it as the skeleton line until you select another one. You must type data or a blank on an inserted skeleton line and press Enter to make it part of the report design.

If you type `S` in the sequence number area of a line and then move the cursor to a column position in the same line before you press Enter, RLU remembers the cursor position for any subsequent skeleton line insert operations.

Showing and Setting Tabs

Tabs can be set on or off using line commands. To turn tabs on, use the SET TABS ON command. To turn tabs off, use the SET TABS OFF command.

If you changed your session defaults to specify that you want tabs set on by using the SET TABS ON command, you can use a line command on the Design Report display to show a line across the display that indicates your current tab settings.

If you have not set any tabs, you see a blank tabs line and you can set your tabs by typing characters in the appropriate positions. You can use any characters you want, because RLU converts each character to a dash (-) when it creates the tabs line for you.

Type the following command in the sequence number area of the line above which you want the tabs line:

`TABS` To set and show the tabs on the display

Figure 25 shows you what a tabs line looks like on the Design Report display. The dashes (-) indicate your current tab settings.

```
Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
RLU==> _____________________________________________________________ REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
00001 . ABC Company - Employee Directory
00002 .
00003 .
00004 . Dept Employee Name                                        Phone    Status
TABS    -                        -                        -
00005 . nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx       nnnnn      x
       --------------------------- End of Report -----------------------------









F3=Exit   F11=Define field   F16=Delete field
F22=Alternative keys         F24=More keys
```

Figure 25. Tabs Line

To set new tabs, you type a character for each tab setting you want on the tabs line, as shown in Figure 26.

```
Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
RLU==> _____________________________________________________________ REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
00001 . ABC Company - Employee Directory
00002 .
00003 .
00004 . Dept Employee Name                                        Phone    Status
TABS    o    o                                                   o          o
00005 . nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx       nnnnn      x
       --------------------------- End of Report -----------------------------









F3=Exit   F11=Define field   F16=Delete field
F22=Alternative keys         F24=More keys
```

Figure 26. Setting Tabs

When you press Enter, RLU replaces each character you typed with a dash (-) and shows you your new tabs line. RLU does not create tabs for two consecutive columns.

You can move from one tabs setting (-) to the next on the tabs line by pressing Enter. To clear the settings, replace each dash with a blank. To set new tabs, replace the dashes with characters in new positions. To turn tabs off, use the SET TABS OFF command.

To remove the tabs line from your display, press F5=Refresh or use the Delete line command.

Copying, Moving, Repeating, Inserting, and Deleting Lines

To edit the data you enter on the Design Report display, you can use line commands for copying, moving, repeating, inserting, and deleting lines on the display. This section describes these line commands.

There are specific effects on record formats and line types when you are performing copy, move, repeat, insert, delete, and print operations within defined record formats. For more information about working with record formats, see Chapter 5, "Working with Record Formats" on page 103. For more information about how line commands affect record formats and line types, see "Editing Record Formats" on page 108.

Copying Lines

You can use a line command to copy lines in your report design to another location in the same report design.

Type one of the following commands in the sequence number area of the appropriate lines:

`C`	To copy this line to another location
`Cn`	(Where *n* is a number) to copy *n* lines (beginning with this line) to another location
`CC`	To copy all the lines between (and including) this one and the next occurrence of `CC` to another location
`CR`	To copy this line to another location and retain the `CR` command in the sequence area of the display for repeated copy operations
`CCR`	To copy the lines between (and including) this line and the next occurrence of `CCR` to another location and retain the `CCR` command in the sequence area of the display for repeated copy operations

Also, type one of the following commands to specify the new location for copied lines:

`A`	To add the copied lines after this line
`An`	(Where *n* is a number) to add the copied lines after this line *n* times
`B`	To add the copied lines before this line
`Bn`	(Where *n* is a number) to add the copied lines before this line *n* times
`O`	To overlay this line with the copied line

`On` (Where *n* is a number) to overlay *n* lines (including this line) with the copied lines

`OO` To overlay the group of lines between (and including) this line and the next occurrence of `OO` with the copied lines

If you are overlaying the copied lines and specify more lines to overlay than you are copying, RLU reuses the lines to copy the required number of lines.

For information about further considerations when you are copying lines **after** defining record formats, see "Copying, Moving, and Repeating Record Formats" on page 109.

Moving Lines

You can use a line command to move lines in your report design to another location in the same report design.

Type one of the following commands in the sequence number area of the appropriate lines:

`M` To move this line to another location

`Mn` (Where *n* is a number) to move *n* lines (beginning with this line) to another location

`MM` To copy all the lines between (and including) this one and the next occurrence of `MM` to another location

Also, type one of the following commands to specify the new location for moved lines:

`A` To add the moved lines after this line

`An` (Where *n* is a number) to add the moved lines after this line *n* times

`B` To add the moved lines before this line

`Bn` (Where *n* is a number) to add the moved lines before this line *n* times

`O` To overlay this line with the moved line

`On` (where *n* is a number) to overlay *n* lines (including this line) with the moved lines

`OO` To overlay the group of lines between (and including) this line and the next occurrence of `OO` with the moved lines

If you are overlaying the moved lines and specify more lines to overlay than you are moving, RLU reuses the lines to move the required number of lines.

For information about further considerations when you are moving lines **after** defining record formats, see "Copying, Moving, and Repeating Record Formats" on page 109.

Repeating Lines

You can use a line command to repeat a line or a block of lines immediately below the original line or block of lines you want to repeat.

Type one of the following commands in the sequence number area of the appropriate lines:

`RP`	To repeat this line immediately below this line
`RP`*n*	(Where *n* is a number) to repeat this line *n* times immediately below this line
`RPP`	To repeat all the lines between (and including) this one and the next occurrence of `RPP` immediately below the next occurrence of `RPP`
`RPP`*n*	(Where *n* is a number) to repeat all the lines between (and including) this one and the next occurrence of `RPP` *n* times immediately below the next occurrence of `RPP`

Because the repeat operation always puts the repeated lines immediately below the original lines being repeated, you do not need to specify a destination for the repeated lines.

For information about further considerations when you are repeating lines **after** defining record formats, see "Copying, Moving, and Repeating Record Formats" on page 109.

Inserting Lines

You can use a line command to insert blank lines on the Design Report display to add new lines of text.

Type one of the following commands in the sequence number area of the appropriate lines:

`I`	To insert one blank line immediately below this line
`I`*n*	(Where *n* is a number) to insert *n* blank lines immediately below this line

RLU inserts a new blank line each time you type data on the inserted blank line until you press F5=Refresh, press Enter without changing the inserted line, or move the cursor off the line.

If the value of *n* in an `I`*n* line command is greater than the number of records below the record on where you enter the line command, RLU supplies only the number of blank lines that can fit on the display.

Deleting Lines

You can use a line command to delete lines on the Design Report display, including a format line, a tabs line, a field line, and a start-of-page line (except for the first one).

Type one of the following commands in the sequence number area of the appropriate lines:

`D`	To delete this line
`Dn`	(Where *n* is a number) to delete *n* lines (beginning with this line)
`DD`	To delete all the lines between (and including) this one and the next occurrence of `DD`

You can process more than one Delete line command, or pair of commands, at the same time.

For information about further considerations when you are deleting lines **after** defining record formats, see "Deleting Record Formats" on page 111.

Find/Change and Browse/Copy Operations

You can perform find and change operations in RLU by using the Find/Change Options display, which prompts you for the information required, or by using the FIND and CHANGE commands.

You can perform browse and copy operations by using the Browse/Copy Options display.

This section describes these operations.

Using the Find/Change Options Display

Use the Find/Change Options display to do the following:

- Search for a specific string in the specified line or column numbers
- Change a specific string in the specified line or column numbers

When you press F14=Find/Change options (A) on the Design Report display, the Find/Change Options display appears as shown in Figure 27 on page 50.

Note: Throughout this manual, (A) after the function key indicates that the key is part of the alternative set of keys, and (B) after the function key indicates that the key is part of the base set of keys, on the Design Report display.

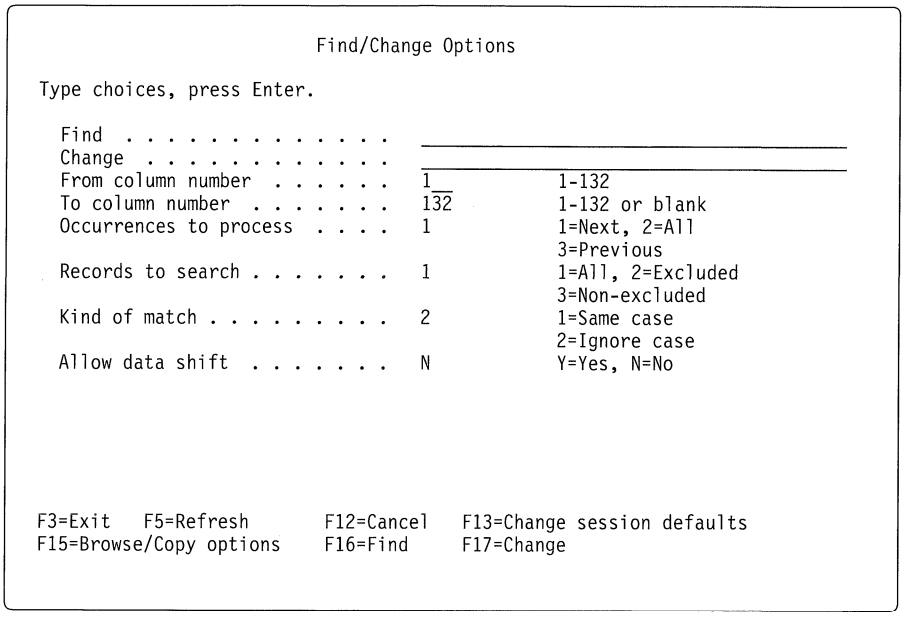

Figure 27. Find/Change Options Display

The first time you use the Find/Change Options display in your edit session, it contains the default values for each field. When you use the display again, some of the defaults reflect the values you changed the last time. To save current values, press Enter, F16=Find, or F17=Change.

You specify the following on the Find/Change Options display:

- The character string you want to find
- The character string to replace the one you are finding
- The range (in column numbers) of the data you want to search for the character string
- The occurrences of the character string that you want to change: the next occurrence, all occurrences, or the previous occurrence
- The lines you want to search for the character string: all lines, excluded lines only, or nonexcluded lines only
- The kind of match you want to find: matches with the same case, or matches ignoring the case
- Whether or not you want to shift characters as appropriate when the character string you are finding is replaced by the new string and the new string is shorter or longer than the original string

For detailed information about each prompt on this display, place your cursor on the appropriate line of the display as you use RLU and press Help or F1=Help. You will see online help information that explains how to use the prompt.

Using the FIND Command

You can also use the FIND command on the Design Report display to find character strings in your report design. FIND searches for the occurrences of the string you specify.

The FIND command is shown in Figure 28.

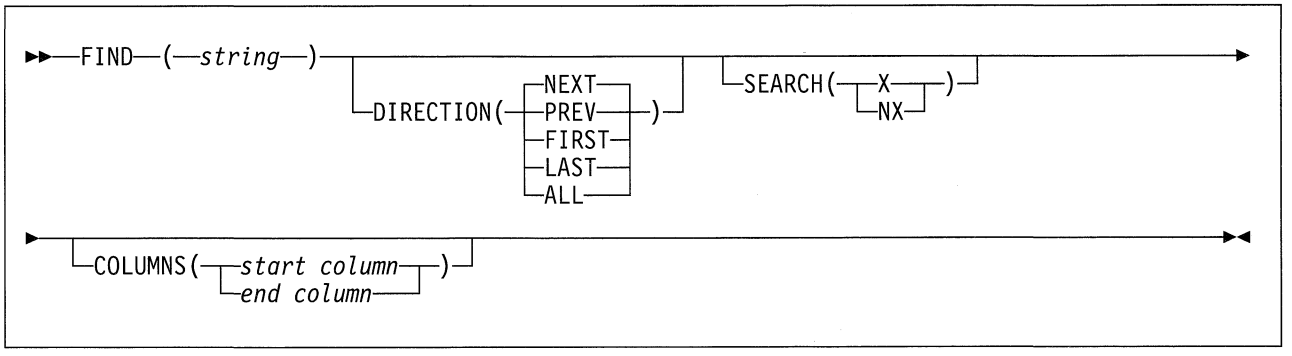

Figure 28. Syntax of the FIND Command

Type `FIND` or `F` in the display command line followed by one or more of the following parameters:

- The character string you want to find.

  This is a required parameter.

  Enclose the string in quotes if it contains leading, imbedded, or trailing blanks, special values, apostrophes, or quotes. Type an asterisk to use the string you used in a previous FIND operation.

- The direction you want to search.

  This is an optional parameter.

  Type one of the following:

  - `NEXT` or `N` to search for the next occurrence.
  - `PREV` or `P` to search for the previous occurrence.
  - `FIRST` or `F` to search for the first occurrence.
  - `LAST` or `L` to search for the last occurrence.
  - `ALL` or `A` to search for all occurrences.

  The default RLU uses is NEXT.

- Which lines you want to search.

  This is an optional parameter.

  Type one of the following:

  - `X` to search in excluded lines only.
  - `NX` to search in nonexcluded lines only.

  The default is blank. If a parameter is not specified, RLU searches for occurrences of the string in all records.

- The column range in which you want to search.

  This is an optional parameter.

  Type a numeric value (representing the starting column) and another numeric value (representing the ending column), separated by a blank. If you only type one numeric value, RLU assumes the value to represent the starting column.

  The default is blank. If a parameter is not specified, RLU searches for occurrences of the string in all columns.

For the FIND command, the values you enter also appear in the corresponding prompts on the Find/Change Options display.

The FIND command is optional when you use F16=Find to begin a search. When you type a character string on the RLU command line and press F16, RLU searches the member for that string. The CHANGE, C, FIND, and F commands are processed as commands when you use them with F16. If you want to use these characters in a search string with F16, you must delimit them with single quotation marks. For example, to find the string CHANGE, type `'CHANGE'` and press F16.

Using the CHANGE Command

You can also use the CHANGE command on the Design Report display to find character strings in your report design and change them. CHANGE searches for occurrences of the string you specify and changes it to another string.

The CHANGE command is shown in Figure 29.

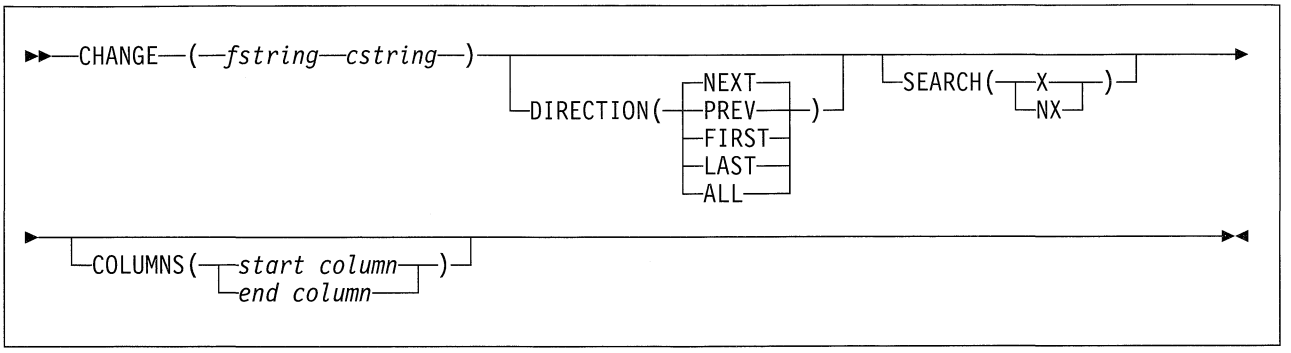

Figure 29. Syntax of the CHANGE Command

Type CHANGE or C in the display command line followed by one or more of the following parameters:

- The character string you want to find and the string you want to replace it with.

  This is a required parameter.

  Separate the strings with a single blank. Enclose the strings in quotes if they contain leading, imbedded, or trailing blanks, special values, apostrophes, or quotes. Type an asterisk to use a string you used in a previous CHANGE operation.

- The direction you want to search.

  This is an optional parameter.

  Type one of the following:

  - NEXT or N to search for the next occurrence.
  - PREV or P to search for the previous occurrence.
  - FIRST or F to search for the first occurrence.
  - LAST or L to search for the last occurrence.
  - ALL or A to search for all occurrences.

  The default RLU uses is NEXT.

- Which lines you want to search.

  This is an optional parameter.

  Type one of the following:

  - X to search in excluded lines only.
  - NX to search in nonexcluded lines only.

  The default is blank. If a parameter is not specified, RLU searches for occurrences of the string in all records.

- The column range in which you want to search.

  This is an optional parameter.

  Type a numeric value (representing the starting column) and another numeric value (representing the ending column), separated by a blank. If you only type one numeric value, RLU assumes the value to represent the starting column.

The default is blank. If a parameter is not specified, RLU searches for occurrences of the string in all columns.

For the CHANGE command, the values you enter also appear in the corresponding prompts on the Find/Change Options display.

Tailoring Your FIND/CHANGE Operations

To tailor your find and change operations, use the SET command with the MATCH and SHIFT options, on the Design Report display.

SET changes some of the FIND and CHANGE options. Type `SET` or `S` in the RLU command line followed by one of the following:

- `MATCH` allows you to specify whether or not uppercase and lowercase letters must match in the search string.

  The default value is OFF.

- `SHIFT` allows you to specify whether or not you want to shift data when replacing a string.

  The default value is ON.

The value you specify for the SET command also appears in the corresponding prompts on the Find/Change Options display. For more information about the SET command, see "Using Commands to Tailor Your Edit Session" on page 36.

Using the Browse/Copy Options Display

Use the Browse/Copy Options display to do the following:

- Look at another source member or a spooled file while editing your report design
- Look at a report prototype you printed as a spooled file while editing your report design
- Look at an output queue to select a spool file to browse while editing your report design
- Copy an existing report image into the source member you are currently editing

When you press F15=Browse/Copy options (A) on the Design Report display, the Browse/Copy Options display appears as shown in Figure 30.

```
                        Browse/Copy Options

Type choices, press Enter.

  Selection . . . . . .  1             1=Member
                                       2=Spool file
                                       3=Output queue
  Copy all records  . . . . . .  N     Y=Yes, N=No
  Browse/copy member  . . . . .  REPORT____  Name, F4 for list
    File  . . . . . .  . . . .    RPTFILE___  Name, F4 for list
      Library . . . . . .  . .      RPTLIB____ Name, *CURLIB, *LIBL

  Browse/copy spool file  . . . .  REPORT____  Name, F4 for list
    Job . . . . . .  . . . . .    REPORT____  Name
      User  . . . . . .  . . .      USERID____ Name, F4 for list
      Job number  . . . . . .       *LAST_    Number, *LAST
    Spool number  . . . . . .     *LAST       Number, *LAST, *ONLY

  Display output queue  . . . . .  QPRINT____  Name, *ALL
    Library . . . . . .  . . . .    *LIBL_____ Name, *CURLIB, *LIBL

F3=Exit       F4=Prompt       F5=Refresh       F12=Cancel
F13=Change session defaults   F14=Find/Change options
```

Figure 30. Browse/Copy Options Display

You specify the following on the Browse/Copy Options display:

- The type of object you want to browse: source member, spooled file, or output queue
- Whether or not you want to copy all the records from the source member you are browsing
- The name, file, and library of the source member to browse
- The name, job name, user profile name, job number, and number of the spooled file to browse
- The name and library of the output queue to browse

For detailed information about each prompt on this display, place your cursor on the appropriate line of the display as you use RLU and press Help or F1=Help. You will see online help information that explains how to use the prompt.

Split Session Editing and Browsing

When you specify another source member or a spool file on the Browse/Copy Options display, as shown in Figure 30 on page 55, and press Enter, your screen appears as shown in Figure 31.

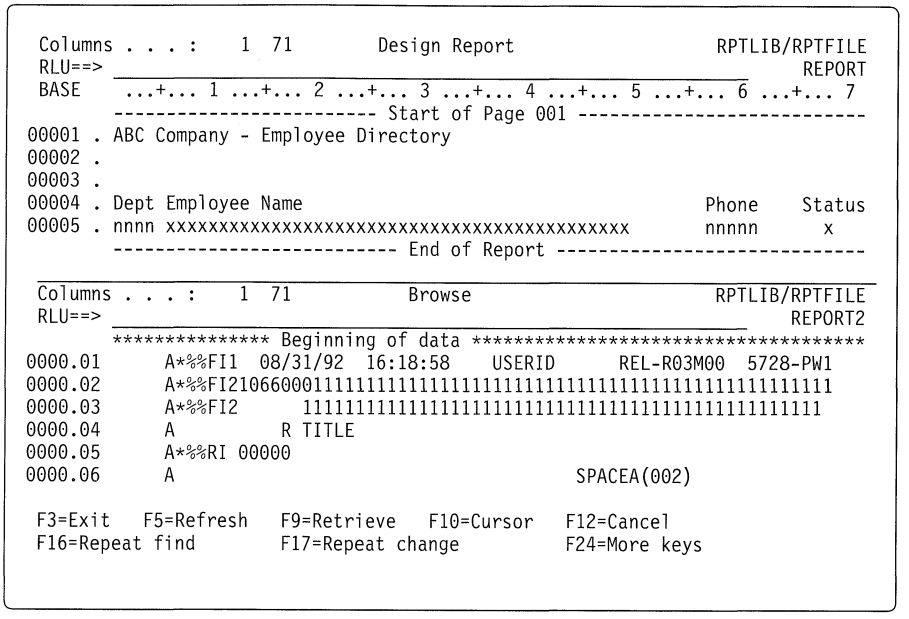

Figure 31. Split Edit/Browse Display

You can perform the same operations in the split edit session as you can on the Design Report display, except for requesting a prompt.

You can perform all operations in the browse session that you can perform on the browse display. For more information about using the browse display, see "Using the Browse Display" on page 57.

You can also do the following on the split edit display:

- Move the split line by positioning the cursor and pressing F6=Move split line (A)
- Return to a single-screen edit session by pressing F12=Cancel

The following function keys on a split edit display are session-dependent, meaning that they only perform an operation in the session containing the cursor:

- F5=Refresh
- F9=Retrieve
- F10=Cursor (A)
- F13=Change session defaults (A)
- F14=Find/Change options (A)
- F16=Repeat find (A)
- F17=Repeat change (A)
- F19=Left
- F20=Right

Using the Browse Display

The browse display allows you to look at a source member without the risk of accidentally changing it. You can use the scanning and positional operations available on the Design Report display, but you cannot alter the data.

You can also do the following on the browse display:

- Change the browse session environment by using F13=Change session defaults (A) or the SET command
- Perform find operations by using F14=Find options (A) or the FIND command

For detailed information about the function keys on the browse display, place your cursor on the function key area of the display as you use RLU and press Help or F1=Help. You will see online help information that explains the function keys.

For more information about the FIND and SET commands, see "Using the FIND Command" on page 51, "Using the CHANGE Command" on page 52, and "Using Commands to Tailor Your Edit Session" on page 36.

Using Full Screen Mode

Once you are familiar with the Design Report display, you might prefer to see more records on the display. Full screen mode on the Design Report display allows you to remove the format line from the top and the function key list from the bottom, displaying four additional records to work with. The function keys are still valid for the display in full screen mode, even though you cannot see them. Figure 32 shows the Design Report display in full screen mode.

```
 Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
 RLU==> _____________________________________________________________      REPORT
        ------------------------ Start of Page 001 ---------------------------
 RCD001 ABC Company - Employee Directory
00002 +
00003 +
 RCD002 Dept Employee Name                                          Phone    Status
 RCD003 nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx        nnnnn      x
00006 S XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX       XXXXX      X
00007 S XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX       XXXXX      X
00008 S XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX       XXXXX      X
00009 S XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX       XXXXX      X
00010 S XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX       XXXXX      X
        ------------------------ Start of Page 002 ---------------------------
 RCD003 ABC Company - Employee Directory
00002 +
00003 +
 RCD004 Dept Employee Name                                          Phone    Status
 RCD005 nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx        nnnnn      x
00006 S XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX       XXXXX      X
00007 S XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX       XXXXX      X
00008 S XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX       XXXXX      X
00009 S XXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX       XXXXX      X
```

Figure 32. Full Screen Mode

To switch to full screen mode during your edit session, press F13=Change session defaults (A) on the Design Report display. For information about using the Change Session Defaults display, see "Changing Your Edit Session Environment" on page 34.

To cancel full screen mode and return to the normal screen mode of RLU, press F13=Change session defaults (A) again.

You can also start and end full screen mode by using the SET EXPERT ON and SET EXPERT OFF commands. For more information about the SET command, see "Using Commands to Tailor Your Edit Session" on page 36.

Printing a Report Prototype

While you are designing a report on the Design Report display, and even before you define any record formats or fields, you can print a sample that shows you how the report will look when you actually generate it. You can also print a report sample for an existing RLU source member when you start your session by using option 6 on the STRRLU command.

For more information about printing report prototypes, see Chapter 8, "Ending an RLU Session" on page 167.

Chapter 4. Example: Designing a Report

You are now familiar with the basic RLU features, the STRRLU command, and with the Design Report display. This chapter contains two complete examples of how to design reports and save them in new RLU source members.

In the first example, you design a simple report using some of the basic RLU features. In the second example, you design a more complex report using a wider variety of RLU features.

After you are familiar with the basic procedures used to create a report, you can use the more detailed information provided in the chapters and appendixes that follow.

Designing a Simple Report

In this example, you create a new source member SREPORT in the existing source physical file QDDSSRC in library QGPL. The source member you create is a PRTF (printer) type source member and contains the printer file DDS for the report layout you define by using RLU.

This example shows you how to:

- Start RLU
- Define record formats
- Define constant fields
- Center a field
- Reference database fields
- Reference database field column headings
- Save a source member
- Create a prototype of a report
- Create a printer file

The finished report consists of a report title, five fields with column headings that reference a database file, and five lines of sample data. An example of the finished report is shown in Figure 33 on page 60.

```
                        ABC COMPANY - Customer Report

                                          Last        Last
Customer                                  Date       Amount       Accts Rec
 Number    Customer Name                  Paid        Paid         Balance
 XXXXX  XXXXXXXXXXXXXXXXXXX    99/99/99    99999999    999,999.99-
 XXXXX  XXXXXXXXXXXXXXXXXXX    99/99/99    99999999    999,999.99-
 XXXXX  XXXXXXXXXXXXXXXXXXX    99/99/99    99999999    999,999.99-
 XXXXX  XXXXXXXXXXXXXXXXXXX    99/99/99    99999999    999,999.99-
 XXXXX  XXXXXXXXXXXXXXXXXXX    99/99/99    99999999    999,999.99-
 XXXXX  XXXXXXXXXXXXXXXXXXX    99/99/99    99999999    999,999.99-
```

Figure 33. Simple Report

Example Requirements

This example uses source physical file CUSDATA in library QPDA to reference database fields. This file is shipped with Application Development Tools.

Starting RLU

To start an RLU session, do the following:

1. Type the STRRLU command on the command line on the AS/400 Main Menu as shown in Figure 34.

```
MAIN                              AS/400 Main Menu
                                                        System:   TORAS40Z
Select one of the following:

     1. User tasks
     2. Office tasks
     3. General system tasks
     4. Files, libraries, and folders
     5. Programming
     6. Communications
     7. Define or change the system
     8. Problem handling
     9. Display a menu
    10. Information Assistant options
    11. PC Support tasks

    90. Sign off

Selection or command
===> strrlu_____________________________________________________________
F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel   F13=Information Assistant
F23=Set initial menu
```

Figure 34. AS/400 Main Menu with STRRLU Command Typed

2. Press F4=Prompt to see the parameters for the STRRLU command. The Start Report Layout Utility (STRRLU) display appears.

3. Specify that you want to work with source file QDDSSRC, in library QGPL, and with source member SREPORT. For this example, also specify a page width of 71. This is shown in Figure 35.

```
                    Start Report Layout Utility (STRRLU)

Type choices, press Enter.

Source file . . . . . .  QDDSSRC___    Name, *PRV
  Library . . . . . .      QGPL_____   Name, *LIBL, *CURLIB, *PRV
Source member . . . . .  SREPORT___    Name, *PRV
Option . . . . . .       2             2, 6
Page width . . . . . .   71____        1-378, *SAME
Text 'description' . . .  *BLANK_____________________________________
_____

                                                                  Bottom
F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
F24=More keys
```

Figure 35. Start Report Layout Utility (STRRLU) Display

4. Press Enter. The Load RLU Work Space display indicates that the contents of the source member are being loaded into the work space. If loading occurs quickly you may not see the display. You then see the Design Report display on which you define the report design. The Design Report display is shown in Figure 36.

```
Columns . . . :    1  71        Design Report                  QGPL/QDDSSRC
RLU==> _____________________________________________________       SREPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
'''''''
'''''''
'''''''
'''''''
'''''''
'''''''
'''''''
'''''''
'''''''
'''''''
'''''''
'''''''
'''''''
'''''''
'''''''
        ------------------------- End of Report -----------------------------

 F3=Exit   F11=Define field   F16=Delete field
 F22=Alternative keys         F24=More keys
Member SREPORT added to file QGPL/QDDSSRC.
```

Figure 36. Design Report Display for a New Source Member

Defining Record Formats and Fields

To begin defining your report design, do the following:

1. Type the text of a report title on the first blank line as shown in Figure 37.

```
Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
RLU==> _____________________________________________________________ SREPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
''''''' ABC COMPANY - Customer Report
'''''''
'''''''
'''''''
'''''''
```

Figure 37. Design Report Display with Report Title Text Typed

2. Press Enter. The line containing text shows a sequence number in the sequence number area.
3. To define this line as a single-line record format, type the Define Record (DR) line command in the sequence number area as shown in Figure 38.

```
Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
RLU==> _____________________________________________________________ SREPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
DR     ABC COMPANY - Customer Report
       -------------------------- End of Report ----------------------------
```

Figure 38. Design Report Display with Define Record (DR) Command Typed

4. Press Enter. The name of the record format appears in the sequence number area of the line as shown in Figure 39.

   Note: The naming convention RLU uses for record format names is RCD*nnn*, where *nnn* is a 3-digit number beginning with 001 for the first record format you create in your edit session. The 3-digit number is incremented for each subsequent record format created.

```
Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
RLU==> _____________________________________________________________ SREPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
RCD001 ABC COMPANY - Customer Report
       -------------------------- End of Report ----------------------------
```

Figure 39. Design Report Display with Record Format Defined

5. Because the text on the report line is the report title, define it as a constant field. Type the Define Constant (DC) command as shown in Figure 40 on page 63.

```
Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
RLU==> _____________________________________________________________ SREPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
DC 001 ABC COMPANY - Customer Report
       --------------------------- End of Report -----------------------------
```

Figure 40. Design Report Display with the Define Constant (DC) Command Typed

6. Press Enter. You see a message indicating that an unnamed (constant) field is created in the record format. You also see a field line immediately above the field you just created.
7. Before you define more fields and record formats, center the report title by using the Center Field (CF) line command as shown in Figure 41.

```
Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
RLU==> _____________________________________________________________ SREPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
FLD1   <.........................>
 CF    ABC COMPANY - Customer Report
       --------------------------- End of Report -----------------------------









 F3=Exit   F11=Define field   F16=Delete field
 F22=Alternative keys         F24=More keys
DC created 1 fields in record format RCD001
```

Figure 41. Design Report Display with Center Field (CF) Command Typed

8. Press Enter. RLU centers the field relative to the report page width you specified when you started RLU, and this new position is reflected in the field definition.

Referencing Database Fields

Now that your report design has a title field, the next step is to add some fields by referencing a database file. To add the next five fields to your report, use the source physical file CUSDATA in library QPDA. This file contains fields for a customer report. For this example you select the following fields from the file:

- ARBAL
- CUST
- LSTAMT
- LSTDAT
- NAME

Note: For more information on this method of referencing database fields, see "Using a List of Database Fields and Field Lines" on page 153.

To add these fields to your report, perform the following steps:

1. Press F10=Database fields (B). You see the Work with Database Fields display as shown in Figure 42.

   Note: Throughout this manual, (A) after the function key indicates that the key is part of the alternative set of keys, and (B) after the function key indicates that the key is part of the base set of keys, on the Design Report display.

```
                          Work with Database Fields

Type options, press Enter.
  1=Add field   4=Remove   8=Display field description

Option     Field          Library        File           Record
  _        __________     __________     __________     __________

  (No database fields selected)









                                                                  Bottom
F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F16=Delete all fields
```

Figure 42. Work with Database Fields Display

2. Type option 1 (Add field) in the *Option* prompt, QPDA in the *Library* prompt, CUSDATA in the *File* prompt, and CUSMST in the *Record* prompt. The CUSMST record contains the fields for the report. The Work with Database Fields display, with the information typed, is shown in Figure 43.

```
                          Work with Database Fields

Type options, press Enter.
  1=Add field   4=Remove   8=Display field description

Option     Field          Library        File           Record
  1        __________     QPDA_____      CUSDATA___     CUSMST____

  (No database fields selected)
```

Figure 43. Work with Database Fields Display with Fields Added

3. Press Enter. The Select Database Fields display appears showing the fields available for selection into your report, as shown in Figure 44 on page 65.

```
                          Select Database Fields

File . . . . . :   CUSDATA         Record . . . . . :   CUSMST
  Library  . . . . . :     QPDA

 Position to . . . . .  _________   Field
 Subset  . . . . . .    *ALL_____   *ALL, name, *generic*

Type options, press Enter.
  1=Select   8=Display field description

                                                                 Column
Opt     Field       Length  Type                                 Heading
 _      ADDRESS         20  Character                            Street Address
 _      ARBAL          8,2  Zoned decimal                        Accts Rec Balance
 _      CITY            20  Character                            City
 _      CRDLMT         8,2  Zoned decimal                        Credit Limit
 _      CUST              5  Character                            Customer Number
 _      CUTYPE            1  Character                            Cust Type
 _      LSTAMT         8,2  Zoned decimal                        Last Amount Paid
 _      LSTDAT         6,0  Zoned decimal                        Last Date Paid
                                                                              More...
F5=Refresh   F11=Display unsorted      F12=Cancel
```

Figure 44. Select Database Fields Display

4. To select the fields ARBAL, CUST, LSTAMT, LSTDAT, and NAME for your report, type option 1 (Select) in the Opt column next to each field. The field NAME is on the next page of the display, so use the roll keys to find it.
5. Press Enter. You see the selected fields identified by the > symbol to the left of the field name, as shown in Figure 45.

```
                          Select Database Fields

File . . . . . :   CUSDATA         Record . . . . . :   CUSMST
  Library  . . . . . :     QPDA

 Position to . . . . .  _________   Field
 Subset  . . . . . .    *ALL_____   *ALL, name, *generic*

Type options, press Enter.
  1=Select   8=Display field description

                                                                 Column
Opt     Field       Length  Type                                 Heading
 _      ADDRESS         20  Character                            Street Address
 _  >   ARBAL          8,2  Zoned decimal                        Accts Rec Balance
 _      CITY            20  Character                            City
 _      CRDLMT         8,2  Zoned decimal                        Credit Limit
 _  >   CUST              5  Character                            Customer Number
 _      CUTYPE            1  Character                            Cust Type
 _  >   LSTAMT         8,2  Zoned decimal                        Last Amount Paid
 _  >   LSTDAT         6,0  Zoned decimal                        Last Date Paid
                                                                              More...
F5=Refresh   F11=Display unsorted      F12=Cancel
```

Figure 45. Select Database Fields Display with Selected Fields

6. Press Enter again. The Work with Database Fields display is returned with a list of the selected fields, as shown in Figure 46 on page 66.

```
                          Work with Database Fields

Type options, press Enter.
  1=Add field   4=Remove   8=Display field description

Option     Field          Library        File           Record
  _        __________     __________     __________     __________

           ARBAL          QPDA           CUSDATA        CUSMST
           CUST           QPDA           CUSDATA        CUSMST
           LSTAMT         QPDA           CUSDATA        CUSMST
           LSTDAT         QPDA           CUSDATA        CUSMST
           NAME           QPDA           CUSDATA        CUSMST
```

Figure 46. Work with Database Fields Display with Selected Fields

7. Press Enter again to return to the Design Report display. The selected database fields appear at the bottom of the display as shown in Figure 47.

```
 Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
 RLU==> ____________________________________________________________ SREPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
FLD1                          <.........................>
 RCD001                       ABC COMPANY - Customer Report
        --------------------------- End of Report -----------------------------









 1:ARBAL   2:CUST   3:LSTAMT   4:LSTDAT   5:NAME
 F3=Exit   F11=Define field   F16=Delete field
 F22=Alternative keys         F24=More keys
```

Figure 47. Design Report Display with Selected Fields

8. To show the selected database fields on your report design, create a second record using the Insert (I) line command. Type `I2` in the sequence number area of the existing report line and press Enter. You see two new blank lines.
9. The first blank line remains as a filler line. To define the second record, use the Define Record (DR) line command in the first position of the second blank line as shown in Figure 48 on page 67.

```
Columns . . . :    1  71        Design Report                  QGPL/QDDSSRC
RLU==> _____________________________________________________________ SREPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
FLD1                        <.........................>
 RCD001                     ABC COMPANY - Customer Report
'''''''
DR''''''
       --------------------------- End of Report -----------------------------
```

Figure 48. Design Report Display with DR Line Command

10. Press Enter. The second record is defined, as shown in Figure 49.

```
Columns . . . :    1  71        Design Report                  QGPL/QDDSSRC
RLU==> _____________________________________________________________ SREPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
FLD1                        <.........................>
 RCD001                     ABC COMPANY - Customer Report
00002 .
 RCD002
       --------------------------- End of Report -----------------------------
```

Figure 49. Design Report Display with Second Record Defined

11. Use the View Field (VF) line command to create a FLD1 field line for the second record. Type `VF` in the sequence number of the second record and press Enter. The FLD1 field line appears as shown in Figure 50.

```
Columns . . . :    1  71        Design Report                  QGPL/QDDSSRC
RLU==> _____________________________________________________________ SREPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
FLD1                        <.........................>
 RCD001                     ABC COMPANY - Customer Report
00002 .
FLD1
 RCD002
       --------------------------- End of Report -----------------------------
```

Figure 50. Design Report Display with Define Record Command

The FLD1 field line is used to add the selected database fields to your report design. The fields are placed on the FLD1 field line in the order that you want them to appear on the report.

12. Move the cursor to column 1 on the FLD1 field line of the second record and type `2C`, which places the CUST field on this line starting in column 1. The C adds the defined column heading in the report design. Move the cursor to column 9 and type `5C`, at column 33 type `4C`, at column 45 type `3C`, and at column 57 type `1C`, as shown in Figure 51 on page 68.

Note: For more information on adding database references onto the FLD1 field line, see "Adding Database References to the Field Line" on page 161.

```
 Columns . . . :    1  71        Design Report                      QGPL/QDDSSRC
 RLU==> _____________________________________________________________   SREPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
FLD1                         <.........................>
 RCD001                      ABC COMPANY - Customer Report
00002 .
FLD1    2C      5C                     4C          3C          1C
 RCD002
        --------------------------- End of Report -----------------------------









 1:ARBAL   2:CUST   3:LSTAMT   4:STDAT   5:NAME
 F3=Exit   F11=Define field   F16=Delete field
 F22=Alternative keys         F24=More keys
```

Figure 51. Design Report Display with Database References

13. Press Enter. The selected database fields are added to the report design as shown in Figure 52, and a new record format for the column headings is created.

```
 Columns . . . :    1  71        Design Report                      QGPL/QDDSSRC
 RLU==> _____________________________________________________________   SREPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
FLD1                         <.........................>
 RCD001                      ABC COMPANY - Customer Report
00002 .
FLD1                                        <..>       <..>
 RCD003                                     Last       Last
FLD1    <......>                           <..>      <....>     <.......>
00004 + Customer                           Date      Amount     Accts Rec
FLD1     <....>        <..>                <..>       <..>       <.....>
00005 +  Number        Name                Paid       Paid       Balance
FLD1     <...>   <................>   <......>   <......>   <.........>
 RCD002  XXXXX   XXXXXXXXXXXXXXXXXX   99/99/99   99999999   999,999.99-
        --------------------------- End of Report -----------------------------









 F3=Exit   F11=Define field   F16=Delete field
 F22=Alternative keys         F24=More keys
```

Figure 52. Design Report Display with Selected Fields Displayed

14. To make your prototype report and the report design on the display appear more like a finished report, create 5 lines of sample data for the fields in the record format RCD002. Type the Sample Data (SD) line command on the report line as shown in Figure 53 on page 69.

```
Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
RLU==> _____________________________________________________________ SREPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
FLD1                        <.........................>
 RCD001                     ABC COMPANY - Customer Report
00002 .
FLD1                                          <..>       <..>
 RCD003                                       Last       Last
FLD1    <......>                              <..>      <....>     <.......>
00004 + Customer                              Date      Amount     Accts Rec
FLD1     <....>        <..>                   <..>       <..>       <.....>
00005 +  Number        Name                   Paid       Paid       Balance
FLD1     <...>   <.................>   <......>   <......>   <.........>
SD5      XXXXX   XXXXXXXXXXXXXXXXXXX   99/99/99   99999999   999,999.99-
       --------------------------- End of Report -----------------------------
```

Figure 53. Design Report Display with SD Line Command

15. Press Enter. Five lines of sample data are displayed immediately below the report line as shown in Figure 54.

```
Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
RLU==> _____________________________________________________________ SREPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
FLD1                        <.........................>
 RCD001                     ABC COMPANY - Customer Report
00002 .
FLD1                                          <..>       <..>
 RCD003                                       Last       Last
FLD1    <......>                              <..>      <....>     <.......>
00004 + Customer                              Date      Amount     Accts Rec
FLD1     <....>        <..>                   <..>       <..>       <.....>
00005 +  Number        Name                   Paid       Paid       Balance
FLD1     <...>   <.................>   <......>   <......>   <.........>
 RCD002  XXXXX   XXXXXXXXXXXXXXXXXXX   99/99/99   99999999   999,999.99-
00007 S  XXXXX   XXXXXXXXXXXXXXXXXXX   99/99/99   99999999   999,999.99-
00008 S  XXXXX   XXXXXXXXXXXXXXXXXXX   99/99/99   99999999   999,999.99-
00009 S  XXXXX   XXXXXXXXXXXXXXXXXXX   99/99/99   99999999   999,999.99-
00010 S  XXXXX   XXXXXXXXXXXXXXXXXXX   99/99/99   99999999   999,999.99-
00011 S  XXXXX   XXXXXXXXXXXXXXXXXXX   99/99/99   99999999   999,999.99-

 F3=Exit   F11=Define field   F16=Delete field
 F22=Alternative keys         F24=More keys
```

Figure 54. Design Report Display with Sample Lines

Printing the Report Prototype and Exiting from RLU

For this example, you are finished designing your report and ready to do the following:

- Leave the Design Report display
- Save the source member
- Print a prototype of the report
- Create a printer file
- Exit from RLU

To finish creating your simple report, perform the following steps:

1. Press F3=Exit. You see the Exit RLU display as shown in Figure 55 on page 70.

```
                            Exit RLU

Type choices, press Enter.

  Option . . . . . . . . . . . . . .  1          1=Save and exit
                                                 2=Exit without saving
                                                 3=Resume
    Member . . . . . . . . . . . . .   SREPORT___  Name
    File . . . . . . . . . . . . . .   QDDSSRC___  Name
    Library . . . . . . . . . . . . .  QGPL______  Name
    Text . . . . . . . . . . . . . .   ______________________________________

  Create printer file . . . . . . .  N          Y=Yes, N=No
    Change defaults . . . . . . . .    N        Y=Yes, N=No
  Prototype report  . . . . . . . .  N          Y=Yes, N=No
    Change defaults . . . . . . . .    N        Y=Yes, N=No
  Submit to batch . . . . . . . . .  N          Y=Yes, N=No
    Job description . . . . . . . .    *USRPRF___  Name, *USRPRF, *RLU
    Library . . . . . . . . . . . .    __________  Name, *LIBL, *CURLIB


F5=Refresh   F12=Cancel
```

Figure 55. Exit RLU Display for New Source Member

2. Specify that you want to save the report design. The default values for the source member, source file, and the library, are those that you specified on the Start Report Layout Utility (STRRLU) display when you started the example exercise. Also specify that you want to create a printer file and create a prototype of the report as shown in Figure 56.

```
                            Exit RLU

Type choices, press Enter.

  Option . . . . . . . . . . . . . .  1          1=Save and exit
                                                 2=Exit without saving
                                                 3=Resume
    Member . . . . . . . . . . . . .   SREPORT___  Name
    File . . . . . . . . . . . . . .   QDDSSRC___  Name
    Library . . . . . . . . . . . . .  QGPL______  Name
    Text . . . . . . . . . . . . . .   ______________________________________

  Create printer file . . . . . . .  Y          Y=Yes, N=No
    Change defaults . . . . . . . .    N        Y=Yes, N=No
  Prototype report  . . . . . . . .  Y          Y=Yes, N=No
    Change defaults . . . . . . . .    N        Y=Yes, N=No
  Submit to batch . . . . . . . . .  N          Y=Yes, N=No
    Job description . . . . . . . .    *USRPRF___  Name, *USRPRF, *RLU
    Library . . . . . . . . . . . .    __________  Name, *LIBL, *CURLIB


F5=Refresh   F12=Cancel
```

Figure 56. Exit RLU Display with Create Printer File and Prototype Report Specified

3. Press Enter. The following messages appear at the bottom of the display:

```
Member is being saved.
Printer file being created.
Prototype report printer file being created.
Prototype report printing.
```

You exit from RLU and return to the AS/400 Main Menu, where the following message is displayed:

```
Member SREPORT added to file QGPL/QDDSSRC created with 80 records.
```

Note: You can also create a prototype of the report by specifying the value 6 for the OPTION parameter of the STRRLU command. For more information, see "Using the Start Report Layout Utility (STRRLU) Command" on page 19.

Type the WRKSPLF (Work with Spooled File) command on the AS/400 Main Menu. The Work with All Spooled Files display appears. From this display you send your files to the printer.

The prototype of the report should look like the example in Figure 33 on page 60. If you want to make any changes to your report design, do the steps of the example again. When you are finished, you can print another prototype of the report to make sure it appears as you want it.

Designing a Complex Report

This example assumes that you want to create a new source member REPORT in the existing source physical file QDDSSRC in library QGPL. The source member you create is a PRTF (printer) type source member, and contains the printer file DDS for the report layout you define by using RLU.

This example shows you how to:

- Start RLU
- Define record formats
- Define constant fields
- Center a field
- Specify field indicators
- Define named fields
- Reference database fields
- Save a source member
- Create a prototype of a report
- Change session defaults
- Specify record-level keywords
- Rename record formats
- Specify field-level keywords
- Edit the field line
- Work with a list of fields
- Create sample data
- Mark and move data
- Condition the display
- Create a printer file

The finished report consists of an underlined report title, 3 fields with column headings, and five lines of sample data. An example of the finished report is shown in Figure 57 on page 72.

```
ABC COMPANY - Employee Directory
_______________________________
DeptEmployee name                                           Phone
nnnnxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx        xnnnn
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX        XXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX        XXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX        XXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX        XXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX        XXXXX
```

Figure 57. Complex Report

Example Requirements

Because referencing database fields is a task in this example, a database file called DBPF must exist in library QGPL. The DBPF file must contain DDS for a field reference file that includes the following:

- A 4-character field named DEPT with a column heading `Dept`
- A 5-character field named PHONE with a column heading `Phone`

To create the required database file using SEU, do the following:

1. Type the STRSEU (Start SEU) command on the command line on the AS/400 Main Menu, and press F4=Prompt to see the parameters for the STRSEU command.
2. Specify that you want to work with source file QDDSSRC, in library QGPL, with source member DBPF, and source type PF. Press Enter and the Edit display appears.
3. Type the DDS source statements shown in Figure 58 on the Edit display.

```
FMT PF .....A..........T.Name++++++RLen++TDpB......Functions++++++++++++++
            A          R INFOR
            A            NAME          20          COLHDG('Name')
            A            DEPT           4          COLHDG('Dept')
            A            PHONE          5          COLHDG('Phone')
```

Figure 58. Example DDS

Note: When referencing database fields from the complex report, you use the DEPT field and the PHONE field in this database file. The NAME field in the report is created using another method.

4. Press F3=Exit. You see the Exit display.
5. Specify that you want to create the member and press Enter. The AS/400 Main Menu appears.
6. To compile the DDS source statements, type the STRPDM (Start PDM) command on the AS/400 Main Menu command line. The AS/400 Programming Development Manager (PDM) menu appears.

7. Select option 3 (Work with members) and press Enter to see the Specify Members to Work With display.
8. Specify that you want to work with file QDDSSRC, in library QGPL, and member name DBPF.
9. Press Enter and the Work with Members Using PDM display appears. Select option 14 (Compile) to compile the DDS in member DBPF.
10. Press Enter and the AS/400 Main Menu returns.
11. To finish creating the database file, type the CRTPF (Create Physical File) command on the AS/400 Main Menu command line. Press F4=Prompt and the Create Physical File (CRTPF) display appears.
12. Specify that you want file DBPF in library QGPL, source file QDDSSRC, and source member DBPF. Press Enter and the AS/400 Main Menu returns.

Starting RLU

To start an RLU session, do the following:

1. Type the STRRLU command on the command line on the AS/400 Main Menu, as shown in Figure 59.

```
MAIN                              AS/400 Main Menu
                                                        System:   TORAS40Z
Select one of the following:

     1. User tasks
     2. Office tasks
     3. General system tasks
     4. Files, libraries, and folders
     5. Programming
     6. Communications
     7. Define or change the system
     8. Problem handling
     9. Display a menu
    10. Information Assistant options
    11. PC Support tasks

    90. Sign off

Selection or command
===> strrlu_____________________________________________________________
_____________________________________________________________________
F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel   F13=Information Assistant
F23=Set initial menu
```

Figure 59. AS/400 Main Menu with STRRLU Command Typed

2. Press F4=Prompt to see the parameters for the STRRLU command. The Start Report Layout Utility (STRRLU) display appears.
3. Specify that you want to work with source file QDDSSRC in library QGPL, and with source member REPORT. For this example, also specify a page width of 71. This is shown in Figure 60 on page 74.

```
                    Start Report Layout Utility (STRRLU)

 Type choices, press Enter.

 Source file  . . . . . .  QDDSSRC___    Name, *PRV
   Library  . . . . . .      QGPL_____   Name, *LIBL, *CURLIB, *PRV
 Source member  . . . . .  REPORT____    Name, *PRV
 Option . . . . . . . . .  2             2, 6
 Page width . . . . . .    71____        1-378, *SAME
 Text 'description' . . .  *BLANK_____________________________________
_____

                                                                    Bottom
 F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
 F24=More keys
```

Figure 60. Start Report Layout Utility (STRRLU) Display

4. Press Enter. The Load RLU Work Space display indicates that the contents of the source member are being loaded into the work space. If loading occurs quickly you may not see the display. You then see the Design Report display on which you define the report design. The Design Report display is shown in Figure 61.

```
 Columns . . . :    1  71        Design Report                  QGPL/QDDSSRC
 RLU==> ____________________________________________________________ REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
         ------------------------- Start of Page 001 --------------------------
'''''''
'''''''
'''''''
'''''''
'''''''
'''''''
'''''''
'''''''
'''''''
'''''''
'''''''
'''''''
'''''''
'''''''
'''''''

         ------------------------- End of Report ------------------------------

 F13=Change session defaults   F14=Find/Change options
 F15=Browse/Copy options       F24=More keys
Member REPORT added to file QGPL/QDDSSRC.
```

Figure 61. Design Report Display for a New Source Member

Defining Record Formats and Fields

To begin defining your report design, do the following:

1. Type the text of a report title on the first blank line, as shown in Figure 62.

```
Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
RLU==> _____________________________________________________________ REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
''''''' ABC COMPANY - Employee Directory
'''''''
'''''''
'''''''
'''''''
```

Figure 62. Design Report Display with Report Title Text Typed

2. Press Enter. The line containing text shows a sequence number in the sequence number area.
3. To define this line as a single-line record format, type the Define Record (DR) line command in the sequence number area, as shown in Figure 63.

```
Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
RLU==> _____________________________________________________________ REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
DR     ABC COMPANY - Employee Directory
       ------------------------- End of Report ------------------------------
```

Figure 63. Design Report Display with Define Record (DR) Command Typed

4. Press Enter. The name of the record format is displayed in the sequence number area of the line as shown in Figure 64.

   Note: The naming convention for record format names is RCD*nnn*, where *nnn* is a 3-digit number beginning with 001 for the first record format you create in your edit session. The 3-digit number is incremented for each subsequent record format created.

```
Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
RLU==> _____________________________________________________________ REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
RCD001 ABC COMPANY - Employee Directory
       ------------------------- End of Report ------------------------------
```

Figure 64. Design Report Display with Record Format Defined

5. Because the text on the report line is the report title, define it as a constant field. Type the Define Constant (DC) command as shown in Figure 65 on page 76.

```
Columns . . . :    1  71        Design Report                  QGPL/QDDSSRC
RLU==> _____________________________________________________________ REPORT
BASE     ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
DC 001 ABC COMPANY - Employee Directory
       -------------------------- End of Report ----------------------------
```

Figure 65. Design Report Display with the Define Constant (DC) Command Typed

6. Press Enter. You see a message indicating that an unnamed (constant) field is created in the record format. You also see a field line immediately above the field you just created.
7. Before you define more fields and record formats, center the report title by using the Center Field (CF) line command, as shown in Figure 66.

```
Columns . . . :    1  71        Design Report                  QGPL/QDDSSRC
RLU==> _____________________________________________________________ REPORT
BASE     ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
FLD1   <.............................>
CF     ABC COMPANY - Employee Directory
       -------------------------- End of Report ----------------------------




F13=Change session defaults   F14=Find/Change options
F15=Browse/Copy options       F24=More keys
DC created 1 fields in record format RCD001
```

Figure 66. Design Report Display with Center Field (CF) Command Typed

8. Press Enter. RLU centers the field relative to the report page width you specified when you started RLU, and this new position is reflected in the field definition.
9. To continue designing your report, use the Insert line command to add four new blank lines to the display. Type `I4` in the sequence number area of the existing report line and press Enter. You see four new blank lines.
10. Leave the first blank line as a filler line and then type the text for four headings and four fields on the next two blank lines, as shown in Figure 67 on page 77.

```
Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
RLU==> _____________________________________________________________ REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
FLD1                    <.............................>
 RCD001                 ABC COMPANY - Employee Directory
'''''''
''''''' Employee name                                        Dept    Phone    Status
''''''' xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx    nnnn    xnnnn      x
'''''''
        --------------------------- End of Report -----------------------------
```

Figure 67. Design Report Display with More Text Typed

11. To define the line containing the headings as a record format, type the Define Record (DR) line command, as shown in Figure 68.

```
Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
RLU==> _____________________________________________________________ REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
FLD1                    <.............................>
 RCD001                 ABC COMPANY - Employee Directory
'''''''
DR''''' Employee name                                        Dept    Phone    Status
''''''' xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx    nnnn    xnnnn      x
'''''''
        --------------------------- End of Report -----------------------------
```

Figure 68. Design Report Display with Define Record (DR) Command Typed

12. Press Enter.
13. Define the first field in the line by positioning the cursor on the first character of the first heading. Press F11=Define field (B). You see the Define Field Information display shown in Figure 69.

```
                          Define Field Information

Edited length . . . . . . . . . . . . :  13
Record format . . . . . . . . . . . . :  RCD002
Number of keywords  . . . . . . . . . :  0
Number of indicators  . . . . . . . . :  0

Type choices, press Enter.

  Field . . . . . . . . . . . . . . .  FLD002____   Name
  Option indicators . . . . . . . . .  ___ ___ ___  01-99, N01-N99
    More indicators . . . . . . . . .    N         Y=Yes, N=No
  Starting line . . . . . . . . . . .  ___         1-255
  Starting position . . . . . . . . .  __1         1-255, +nn
  Length of data  . . . . . . . . . .  _13         1-378, +nn, -nn
  Data type . . . . . . . . . . . . .  1           1=Character
                                                   2=Zoned
                                                   3=Floating point
  Decimal positions . . . . . . . . .   __         0-31, +n, -n

                                                                    More...
F3=Exit   F5=Refresh   F10=Work with keywords   F11=Convert to constant field
F12=Cancel
```

Figure 69. Define Field Information Display

RLU generates a field name for you. You can change this field name by positioning your cursor on the field and typing a new name.

14. Because the field represents a heading, define the field as a constant field by using F11=Convert to constant field. When you press F11=Convert to constant field on the Define Field Information display, the display changes as shown in Figure 70.

```
                          Define Field Information

Edited length . . . . . . . . . . . . :   13
Record format . . . . . . . . . . . . :   RCD002
Number of keywords  . . . . . . . . . :   1
Number of indicators  . . . . . . . . :   0
Constant keyword  . . . . . . . . . . :   'Employee name'




Type choices, press Enter.

  Option indicators . . . . . . . . . .   __ __ __    01-99, N01-N99
    More indicators . . . . . . . . . .     N        Y=Yes, N=No
  Starting line . . . . . . . . . . . .   ___        1-255
  Starting position . . . . . . . . . .   __1        1-255, +nn

F3=Exit   F5=Refresh   F10=Work with keywords   F11=Convert to named field
F12=Cancel
```

Figure 70. Define Field Information Display for New Constant Field

15. Press Enter to return the Design Report display.
16. Define the Dept and Phone fields as constants. Use the function keys F11=Define field and F11=Convert to constant field described in steps 13 on page 77 and 14.
17. Define the Status field as a constant, and define an indicator for it so that you can condition it on the Design Report display or when you prototype the report. Use the *Option indicators* prompt to define an indicator for the field, as shown in Figure 71 on page 79.

    For more information on conditioning fields, see "Conditioning Fields" on page 97.

```
                         Define Field Information

Edited length . . . . . . . . . . . . . :   6
Record format . . . . . . . . . . . . . :   RCD002
Number of keywords  . . . . . . . . . . :   1
Number of indicators  . . . . . . . . . :   0
Constant keyword  . . . . . . . . . . . :   'Status'





Type choices, press Enter.

  Option indicators . . . . . . . . . . .   01_ ___ ___       01-99, N01-N99
    More indicators . . . . . . . . . . .     N               Y=Yes, N=No
  Starting line . . . . . . . . . . . . .   ___               1-255
  Starting position . . . . . . . . . . .   +4               1-255, +nn

F3=Exit   F5=Refresh   F10=Work with keywords   F11=Convert to named field
F12=Cancel
```

Figure 71. Define Field Information Display with Indicator Specified

The field is not conditioned until you turn the indicator on or off using the Condition Design Report display.

18. Press Enter to return to the Design Report display.
19. Define the text you typed on the display under the headings as another record format by entering DR in the sequence number area of the line.
20. Define the text in the record format as four separate fields by using the Define Fields (DF) line command, as shown in Figure 72.

```
 Columns . . . :    1  71        Design Report                       QGPL/QDDSSRC
 RLU==> ________________________________________________________________ REPORT
 BASE     ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 ---------------------------
FLD1                      <.............................>
 RCD001                   ABC COMPANY - Employee Directory
00002 .
FLD1    <..........>                                   <..>     <...>     <....>
 RCD002 Employee name                                  Dept     Phone     Status
DF      xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx  nnnn     xnnnn       x
        -------------------------- End of Report -----------------------------







 F3=Exit   F11=Define field   F16=Delete field
 F22=Alternative keys         F24=More keys
```

Figure 72. Design Report Display with Define Fields (DF) Command Typed

21. Press Enter. RLU defines each text string separated by two or more blanks as a new field and you see a message at the bottom of the display indicating that four fields are created in the record format, as shown in Figure 73.

```
 Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
 RLU==> _____________________________________________________________ REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 -------------------------
FLD1                      <.............................>
 RCD001                   ABC COMPANY - Employee Directory
00002 .
FLD1    <...........>                                    <..>    <...>    <....>
 RCD002 Employee name                                    Dept    Phone    Status
FLD1    <.......................................>       <..>    <...>     *
 RCD003 xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx    nnnn    xnnnn     x
        -------------------------- End of Report -----------------------------




 F3=Exit   F11=Define field   F16=Delete field
 F22=Alternative keys         F24=More keys
DF created 4 fields in record format RCD003.
```

Figure 73. Design Report Display with Four New Fields Created

22. Accept the default values for the first field in the line (a field length of 44, for example, and a data type of character, because you typed 44 characters to represent the field on the display).

23. Refer to a database file for the field definitions of the next two fields on the line. To specify the database field to reference for the first of the two fields, move the cursor to the first position of the field and press F23=Field keywords. The Work with Field Keywords display appears as shown in Figure 74 on page 81.

    Note: This example references database fields using a field keyword. For more information on this method, see "Using the Define (or Specify) Field Information Display and a Keyword" on page 147.

    You can also reference database fields by building a list of them and adding the reference number to the field line. For more information on this method, see "Using a List of Database Fields and Field Lines" on page 153. If you use this method, continue with this example at step 32 on page 84.

```
                        Work with Field Keywords

Field . . . . . :   FLD007        Record format . . . . :   RCD003

Type options, press Enter.
  2=Specify   4=Remove

Opt     Keyword           Opt     Keyword           Opt     Keyword
 _      ALIAS              _      EDTCDE             _      SKIPA
 _      BARCODE            _      EDTWRD             _      SKIPB
 _      BLKFOLD            _      FLTFIXDEC          _      SPACEA
 _      CDEFNT             _      FLTPCN             _      SPACEB
 _      CHRID              _      FNTCHRSET          _      TEXT
 _      CHRSIZ             _      FONT               _      TIME
 _      COLOR              _      HIGHLIGHT          _      TRNSPY
 _      CPI                _      INDTXT             _      UNDERLINE
 _      CVTDTA             _      MSGCON
 _      DATE               _      PAGNBR
 _      DFT                _      PRTQLTY
 _      DLTEDT             _      REFFLD
                                                            Bottom
F3=Exit   F5=Refresh   F9=Input keyword parameters   F10=Specify information
F12=Cancel   F16=Remove all keywords
```

Figure 74. Work with Field Keywords Display for New Field

24. Specify the database field to reference by using the Reference Field (REFFLD) keyword. Select the REFFLD keyword by typing 2 in the keyword list, as shown in Figure 75.

```
                        Work with Field Keywords

Field . . . . . :   FLD007        Record format . . . . :   RCD003

Type options, press Enter.
  2=Specify   4=Remove

Opt     Keyword           Opt     Keyword           Opt     Keyword
 _      ALIAS              _      EDTCDE             _      SKIPA
 _      BARCODE            _      EDTWRD             _      SKIPB
 _      BLKFOLD            _      FLTFIXDEC          _      SPACEA
 _      CDEFNT             _      FLTPCN             _      SPACEB
 _      CHRID              _      FNTCHRSET          _      TEXT
 _      CHRSIZ             _      FONT               _      TIME
 _      COLOR              _      HIGHLIGHT          _      TRNSPY
 _      CPI                _      INDTXT             _      UNDERLINE
 _      CVTDTA             _      MSGCON
 _      DATE               _      PAGNBR
 _      DFT                _      PRTQLTY
 _      DLTEDT             2      REFFLD
                                                            Bottom
F3=Exit   F5=Refresh   F9=Input keyword parameters   F10=Specify information
F12=Cancel   F16=Remove all keywords
```

Figure 75. Work with Field Keywords Display with REFFLD Selected

25. Press Enter. The Specify Referenced Field display appears as shown in Figure 76 on page 82.

    Note: If you already used one of the database reference displays in this RLU session, the *Record format*, *File*, and *Library* prompts may contain default values.

```
                        Specify Referenced Field

Keyword . . . . . :   REFFLD
Field . . . . . :   FLD006
Record format . . . . . :   RCD003

Type choices, press Enter.

  Field . . . . . .  _________     Name
                                   F4 for list
    Record format . . . . . .  _________     Name
                                   F4 for list

  File  . . . . . .  _________     Name
                                   *SRC
                                   F4 for list
    Library . . . . . .  _________     Name
                                   *CURLIB
                                   *LIBL


F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 76. Specify Referenced Field Display for New Field

26. Using the information from the database file that you created at the beginning of the example, specify the database field, record format, file, and library to reference, as shown in Figure 77.

```
                        Specify Referenced Field

Keyword . . . . . :   REFFLD
Field . . . . . :   FLD006
Record format . . . . . :   RCD003

Type choices, press Enter.

  Field . . . . . .  DEPT_____     Name
                                   F4 for list
    Record format . . . . . .    INFOR_____     Name
                                   F4 for list

  File  . . . . . .  DBPF_____     Name
                                   *SRC
                                   F4 for list
    Library . . . . . .    QGPL_____     Name
                                   *CURLIB
                                   *LIBL


F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 77. Specify Referenced Field Display with Database Reference Specified

27. Press Enter. You see a message indicating that errors exist because you have not yet specified in the field definition that this is a referenced field. Press Enter again to continue and you return to the Work with Field Keywords display. You see a symbol next to REFFLD in the list to indicate that REFFLD is now specified for the field, as shown in Figure 78 on page 83.

```
                        Work with Field Keywords

Field . . . . . :   FLD007        Record format . . . . :   RCD003

Type options, press Enter.
  2=Specify   4=Remove

Opt     Keyword           Opt     Keyword           Opt     Keyword
 _      ALIAS              _      EDTCDE             _      SKIPA
 _      BARCODE            _      EDTWRD             _      SKIPB
 _      BLKFOLD            _      FLTFIXDEC          _      SPACEA
 _      CDEFNT             _      FLTPCN             _      SPACEB
 _      CHRID              _      FNTCHRSET          _      TEXT
 _      CHRSIZ             _      FONT               _      TIME
 _      COLOR              _      HIGHLIGHT          _      TRNSPY
 _      CPI                _      INDTXT             _      UNDERLINE
 _      CVTDTA             _      MSGCON
 _      DATE               _      PAGNBR
 _      DFT                _      PRTQLTY
 _      DLTEDT             _   >  REFFLD
                                                             Bottom
F3=Exit   F5=Refresh   F9=Input keyword parameters   F10=Specify information
F12=Cancel   F16=Remove all keywords
Specify reference in FLD005 for REFFLD.
```

Figure 78. Work with Field Keywords Display with REFFLD Specified

28. Add the database reference to the field definition by pressing F10=Specify information. The Specify Field Information display appears as shown in Figure 79. To see the bottom part of this display, use the roll keys.

```
                        Specify Field Information

Edited length . . . . . :   4
Record format . . . . . :   RCD003
Number of keywords  . . . . . :   1
Number of indicators  . . . . . :   0

Type choices, press Enter.

  Reference a field . . . . . .   N            Y=Yes, N=No
    Use referenced values . . . . . .   Y      Y=Yes, N=No

                                                             Bottom
F3=Exit   F5=Refresh   F11=Convert to constant field   F12=Cancel
```

Figure 79. Specify Field Information Display (Bottom Half)

29. Use the values (length and data type) from the referenced database field for the field you are currently defining. You can overwrite the referenced values later in this edit session by defining a different length or data type for the field. Specify that you are referencing a database field and that you are using the values from the database field definition, as shown in Figure 80 on page 84.

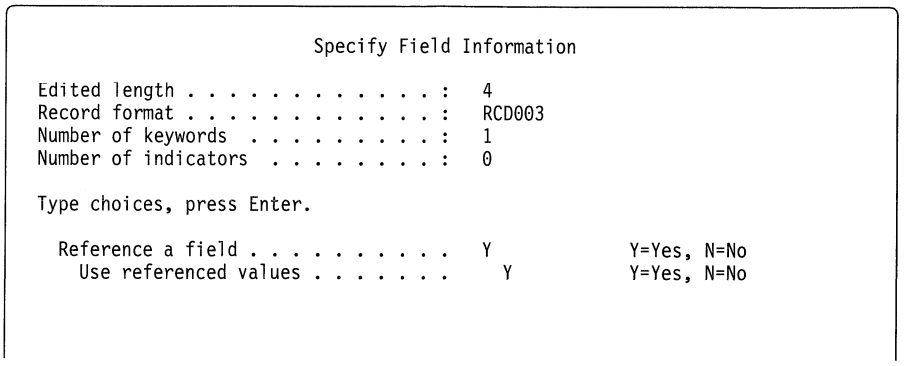

Figure 80. Specify Field Information Display with Reference and Referenced Values Specified

30. Press Enter and you return to the Work with Field Keywords display. Then press Enter again and return to the Design Report display. Note that because you referenced a database field using the REFFLD keyword only, RLU does not resolve the database reference for the Design Report display and you do not see the column heading associated with the database field on the display.
31. Move the cursor to the next field in the current line. Reference the field named PHONE in record format INFOR from file DBPF in library QGPL. Specify a database field to reference using the REFFLD keyword and the *Reference a field* prompt on the Specify Field Information display, as you did for the previous field (described in steps 23 on page 80 to 30).
32. Move the cursor to the last field on the line. Specify an indicator for this field to condition the field on and off. Press F23=Field keywords and then press F10=Specify information. Specify the same indicator (01) you defined for the Status field constant as described in step 17 on page 78.

Printing the Report Prototype

To leave the Design Report display temporarily to save what you have defined so far in the source member and print a prototype of the report to make sure that it appears as you want it to, perform the following steps:

1. Press F3=Exit and you see the Exit RLU display, as shown in Figure 81 on page 85.

```
                                Exit RLU

Type choices, press Enter.

  Option . . . . . . . . . . . . . .  1               1=Save and exit
                                                      2=Exit without saving
                                                      3=Resume
    Member . . . . . . . . . . . . .    REPORT____    Name
    File . . . . . . . . . . . . . .    QDDSSRC___    Name
    Library . . . . . . . . . . . . .   QGPL______    Name
    Text . . . . . . . . . . . . . .    ______________________________________

  Create printer file . . . . . . . . N               Y=Yes, N=No
    Change defaults . . . . . . . . .   N             Y=Yes, N=No
  Prototype report . . . . . . . . .  N               Y=Yes, N=No
    Change defaults . . . . . . . . .   N             Y=Yes, N=No
  Submit to batch . . . . . . . . . . N               Y=Yes, N=No
    Job description . . . . . . . . .   *USRPRF___    Name, *USRPRF, *RLU
    Library . . . . . . . . . . . . .   __________    Name, *LIBL, *CURLIB


F5=Refresh   F12=Cancel
```

Figure 81. Exit RLU Display for New Source Member

2. Specify that you want to save the report design in the source member, source file, and library that you specified when you started your edit session. Also specify that you want to create a prototype of the report.

   This is shown in Figure 82.

```
                                Exit RLU

Type choices, press Enter.

  Option . . . . . . . . . . . . . .  1               1=Save and exit
                                                      2=Exit without saving
                                                      3=Resume
    Member . . . . . . . . . . . . .    REPORT____    Name
    File . . . . . . . . . . . . . .    QDDSSRC___    Name
    Library . . . . . . . . . . . . .   QGPL______    Name
    Text . . . . . . . . . . . . . .    ______________________________________

  Create printer file . . . . . . . . N               Y=Yes, N=No
    Change defaults . . . . . . . . .   N             Y=Yes, N=No
  Prototype report . . . . . . . . .  Y               Y=Yes, N=No
    Change defaults . . . . . . . . .   N             Y=Yes, N=No
  Submit to batch . . . . . . . . . . N               Y=Yes, N=No
    Job description . . . . . . . . .   *USRPRF___    Name, *USRPRF, *RLU
    Library . . . . . . . . . . . . .   __________    Name, *LIBL, *CURLIB


F5=Refresh   F12=Cancel
```

Figure 82. Exit RLU Display with Prototype Report Specified

3. Press Enter. The following messages appear at the bottom of the display:

```
Member is being saved.
Prototype report printer file being created.
Prototype report printing.
```

You exit from RLU and return to the AS/400 Main Menu, where another message describes the source member you saved and the number of records in the source member that you added or changed.

Note: You can also create a prototype of the report by specifying the value 6 for the OPTION parameter of the STRRLU command. For more information, see "Using the Start Report Layout Utility (STRRLU) Command" on page 19.

Changing Record Formats and Fields

To resume report design and edit the existing record formats and fields, perform the following steps:

1. Restart RLU from the AS/400 Main Menu, as shown in Figure 83.

```
MAIN                              AS/400 Main Menu
                                                        System:   TORAS40Z
Select one of the following:

     1. User tasks
     2. Office tasks
     3. General system tasks
     4. Files, libraries, and folders
     5. Programming
     6. Communications
     7. Define or change the system
     8. Problem handling
     9. Display a menu
    10. Information Assistant options
    11. PC Support tasks

    90. Sign off

Selection or command
===> strrlu_____________________________________________________________
F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel   F13=Information Assistant
F23=Set initial menu
Member REPORT added to file QGPL/QDDSSRC.
```

Figure 83. AS/400 Main Menu with STRRLU Command Typed Again

2. RLU recalls which source member you worked with in your last session and uses that source member as the default value for the STRRLU command. Press Enter and you see the report design you created in the last RLU session on the Design Report display, as shown in Figure 84 on page 87.

```
Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
RLU==> _____________________________________________________________ REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
FLD1                     <.............................>
 RCD001                  ABC COMPANY - Employee Directory
00002 .
FLD1    <...........>                                    <..>    <...>    <....>
 RCD002 Employee name                                    Dept    Phone    Status
FLD1    <.....................................>          <..>    <...>      *
 RCD003 xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx     nnnn    xnnnn      x
       --------------------------- End of Report -----------------------------




F3=Exit   F11=Define field   F16=Delete field
F22=Alternative keys         F24=More keys
```

Figure 84. Design Report Display with Existing Report Design

3. Change some of your edit session defaults. Press F22=Alternative keys, and then press F13=Change session defaults. The Change Session Defaults display appears as shown in Figure 85.

```
                          Change Session Defaults

Type choices, press Enter.

  Amount to roll . . . . . . . . . . .  H__          H=Half, F=Full
                                                     C=Cursor, D=Data
                                                     1-999
  Uppercase input only . . . . . . . .  N            Y=Yes, N=No
  Show all field lines . . . . . . . .  Y            Y=Yes, N=No
  Full screen mode . . . . . . . . . .  N            Y=Yes, N=No

  Insert marked data . . . . . . . . .  N            Y=Yes, N=No
  Replace marked data  . . . . . . . .  N            Y=Yes, N=No
  Semantic checking:
    When added/modified  . . . . . . .  Y            Y=Yes, N=No
    From page number . . . . . . . . .  ___          000-999
      Line number  . . . . . . . . . .    _____      00000-32767
    To page number . . . . . . . . . .  ___          000-999
      Line number  . . . . . . . . . .    _____      00000-32767
  Printer device type  . . . . . . . .  1            1=SCS, 2=IPDS, 3=AFPDS
                                                              More. . .
F3=Exit      F5=Refresh   F12=Cancel
F14=Find/Change options   F15=Browse/Copy options
```

Figure 85. Change Session Defaults Display with Initial Defaults

4. Specify that you want to replace marked data when you are marking and moving an area of data during your edit session. Also specify that you want to insert marked data when you move it. Unless you change these defaults again, the data to the right of the data you move shifts to the left to replace the moved data and data in the target area shifts to the right to accommodate the moved data. Leave all the other defaults unchanged.

   This is shown in Figure 86 on page 88.

```
                          Change Session Defaults

Type choices, press Enter.

  Amount to roll . . . . . .  H__        H=Half, F=Full
                                         C=Cursor, D=Data
                                         1-999
  Uppercase input only . . . . . .  N    Y=Yes, N=No
  Show all field lines . . . . . .  Y    Y=Yes, N=No
  Full screen mode . . . . . .  N        Y=Yes, N=No

  Insert marked data . . . . . .  Y      Y=Yes, N=No
  Replace marked data  . . . . . .  Y    Y=Yes, N=No
  Semantic checking:
    When added/modified  . . . . . .  Y  Y=Yes, N=No
    From page number . . . . . .  ___    000-999
      Line number  . . . . . .  _____    00000-32767
    To page number . . . . . .  ___      000-999
      Line number  . . . . . .  _____    00000-32767
  Printer device type  . . . . . .  1    1=SCS, 2=IPDS, 3=AFPDS
                                                  More. . .
F3=Exit      F5=Refresh   F12=Cancel
F14=Find/Change options   F15=Browse/Copy options
```

Figure 86. Change Session Defaults Display with Marked Data Options Specified

5. Press Enter. You return to the Design Report display.
6. Change the names that RLU automatically generated for the record formats in your report design to more meaningful names. Press F22=Base keys to see the base set of function keys at the bottom of the display. Then position the cursor on record format RCD001 and press F18=Record keywords. The Work with Record Keywords display appears as shown in Figure 87.

```
                          Work with Record Keywords

Record format  . . . . :   RCD001

Type options, press Enter.
  2=Specify   4=Remove

Opt     Keyword            Opt     Keyword            Opt     Keyword
 _      CDEFNT              _      SKIPA
 _      CHRSIZ              _      SKIPB
 _      CPI                 _      SPACEA
 _      DFNCHR              _      SPACEB
 _      DRAWER              _      TEXT
 _      FNTCHRSET
 _      FONT
 _      HIGHLIGHT
 _      INDTXT
 _      LPI
 _      PAGRTT
 _      PRTQLTY
                                                              Bottom
F3=Exit      F5=Refresh   F9=Input keyword parameters   F10=Rename record
F12=Cancel   F16=Remove all keywords
```

Figure 87. Work with Record Keywords Display for Record Format RCD001

7. Press F10=Rename record. The Rename Record Format display appears as shown in Figure 88 on page 89.

```
                          Rename Record Format

Number of keywords . . . . . :   0

Type choice, press Enter.

  Record format  . . . . . .   RCD001___   Name









F3=Exit   F5=Refresh   F12=Cancel
```

Figure 88. Rename Record Format Display for Record Format RCD001

8. Specify a new name for the record format as shown in Figure 89.

```
                          Rename Record Format

Number of keywords . . . . . :   0

Type choice, press Enter.

  Record format  . . . . . .   TITLE____   Name
```

Figure 89. Rename Record Format Display with New Name Specified

9. Press Enter. RLU renames the record format on the Design Report display and in the source. You return to the Work with Record Keywords display. Press Enter again to return to the Design Report display. You see the record format renamed, as shown in Figure 90.

```
 Columns . . . :    1  71       Design Report                    QGPL/QDDSSRC
 RLU==> ____________________________________________________________ REPORT
 BASE     ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
 FLD1                     <.............................>
   TITLE                  ABC COMPANY - Employee Directory
 00002 .
 FLD1    <..........>                                    <..>   <...>   <....>
  RCD002 Employee name                                   Dept   Phone   Status
 FLD1    <.......................................>      <..>   <...>     *
  RCD003 xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx    nnnn   xnnnn     x
        --------------------------- End of Report -----------------------------
```

Figure 90. Design Report Display with Record Format Renamed

10. On the Design Report display, you left a filler line below the record format you are working with. Delete the filler line and define two blank lines separating the record format from the next record format.

    Note: If you leave a filler line between 2 records, RLU generates the Space Before keyword with a value of 2 lines [SPACEB(002)] for the second record format. For more information on spacing, see "Specifying Record Format Spacing" on page 105.

    Type `D` in the sequence number area of the filler line and press Enter to delete the filler line.

11. Use a keyword for record format RCD002 to add two blank lines immediately before it. Position the cursor on record format RCD002 and press F18=Record keywords. The Space Before (SPACEB) keyword is already specified for RCD002, with a value of 1 line. Specify additional spacing lines by selecting SPACEB on the Work with Record Keywords display, as shown in Figure 91.

```
                          Work with Record Keywords

Record format  . . . . :   RCD002

Type options, press Enter.
  2=Specify   4=Remove

Opt     Keyword            Opt     Keyword            Opt     Keyword
 _      CDEFNT              _      SKIPA
 _      CHRSIZ              _      SKIPB
 _      CPI                 _      SPACEA
 _      DFNCHR              2   >  SPACEB
 _      DRAWER              _      TEXT
 _      FNTCHRSET
 _      FONT
 _      HIGHLIGHT
 _      INDTXT
 _      LPI
 _      PAGRTT
 _      PRTQLTY
                                                                    Bottom
F3=Exit      F5=Refresh   F9=Input keyword parameters   F10=Rename record
F12=Cancel   F16=Remove all keywords
```

Figure 91. Work with Record Keywords with the SPACEB Keyword Selected

12. Press Enter. The Specify Space Before display appears as shown in Figure 92 on page 91.

```
                          Specify Space Before

Keyword . . . . . . . . . . . . . . :  SPACEB
Record format . . . . . . . . . . . :  RCD002
Number of indicators . . . . . . . . :  0


Type choices, press Enter.

  Number of lines to space before
    printing . . . . . . . . . . . .  __1          0-255

  Option indicators . . . . . . . .  ___ ___ ___   01-99, N01-N99

    More indicators . . . . . . . .    N          Y=Yes, N=No









F3=Exit   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 92. Specify Space Before Display for Record Format RCD002

13. Specify that you want a space of two additional blank lines before record format RCD002 for a total of 3 lines to space before printing, as shown in Figure 93.

```
                          Specify Space Before

Keyword . . . . . . . . . . . . . . :  SPACEB
Record format . . . . . . . . . . . :  RCD002
Number of indicators . . . . . . . . :  0


Type choices, press Enter.

  Number of lines to space before
    printing . . . . . . . . . . . .  __3          0-255

  Option indicators . . . . . . . .  ___ ___ ___   01-99, N01-N99

    More indicators . . . . . . . .    N          Y=Yes, N=No









F3=Exit   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 93. Specify Space Before Display with Space Lines Specified

14. Press Enter. SPACEB is specified for the record format with a new value and you return to the Work with Record Keywords display.
15. Press Enter again to return to the Design Report display. The two blank lines you specified with SPACEB appear on the display as filler lines before record format RCD002. This is shown in Figure 94 on page 92.

```
Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
RLU==> ____________________________________________________________ REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
FLD1                      <.............................>
  TITLE                   ABC COMPANY - Employee Directory
00002 .
00003 .
FLD1    <...........>                                    <..>    <...>    <....>
 RCD002 Employee name                                    Dept    Phone    Status
FLD1    <.........................................>     <..>    <...>      *
 RCD003 xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx    nnnn    xnnnn      x
       --------------------------- End of Report ----------------------------




F17=File keywords     F18=Record keywords
F23=Field keywords    F24=More keys
```

Figure 94. Design Report Display with Space Lines Added

16. Rename record formats RCD002 and RCD003. Specify HEADING as the new name for RCD002 and DETAILS as the new name for RCD003. Refer to steps 6 on page 88 through 9 on page 89 to rename record formats.

17. Define the constant field that represents the title of the report further by specifying that the field be underlined. Position the cursor on the field and press F23=Field keywords. The Work with Field Keywords display appears. Select the UNDERLINE keyword for the field as shown in Figure 95.

```
                          Work with Field Keywords

Field . . . . . :   'ABC CO...    Record format . . . . :   TITLE

Type options, press Enter.
  2=Specify   4=Remove

Opt     Keyword           Opt     Keyword           Opt     Keyword
 _      ALIAS              _      EDTCDE             _      SKIPA
 _      BARCODE            _      EDTWRD             _      SKIPB
 _      BLKFOLD            _      FLTFIXDEC          _      SPACEA
 _      CDEFNT             _      FLTPCN             _      SPACEB
 _      CHRID              _      FNTCHRSET          _      TEXT
 _      CHRSIZ             _      FONT               _      TIME
 _      COLOR              _      HIGHLIGHT          _      TRNSPY
 _      CPI                _      INDTXT             2      UNDERLINE
 _      CVTDTA             _      MSGCON
 _      DATE               _      PAGNBR
 _   >  DFT                _      PRTQLTY
 _      DLTEDT             _      REFFLD
                                                              Bottom
F3=Exit   F5=Refresh   F9=Input keyword parameters   F10=Specify information
F12=Cancel   F16=Remove all keywords
```

Figure 95. Work with Field Keywords Display with the UNDERLINE Keyword Selected

18. Press Enter. The Specify Underline display appears as shown in Figure 96 on page 93.

```
                          Specify Underline

Keyword . . . . . . . . . . . . . . . :   UNDERLINE
Field . . . . . . . . . . . . . . . . :   'ABC CO...
Record format . . . . . . . . . . . . :   TITLE
Number of indicators . . . . . . . . . :  0

Type choices, press Enter.

  Option indicators . . . . . . . . .   ___ ___ ___   01-99, N01-N99

    More indicators . . . . . . . . .     N           Y=Yes, N=No









F3=Exit   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 96. Specify Underline Display for Existing Field

19. Press Enter and return to the Work with Field Keywords display. RLU specifies underlining for the field. When you return to the Design Report display, the field does not appear underlined. The field definition is changed, however, and to see how the field appears when printed, you can print a prototype of the report.
20. Press Enter again on the Work with Field Keywords display to return to the Design Report display.
21. Change the position of the report title so that it begins at the start of the line.

    To move the report title, edit the field line by deleting blanks between the first position in the field line and the left field delimiter, as shown in Figure 97.

```
Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
RLU==> _____________________________________________________________ REPORT
BASE     ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
FLD1    <.............................>
  TITLE                   ABC COMPANY - Employee Directory
00002 .
00003 .
FLD1    <...........>                                  <..>    <...>    <....>
HEADING Employee name                                  Dept    Phone    Status
FLD1    <.......................................>     <..>    <...>      *
DETAILS xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx   nnnn    xnnnn      x
        -------------------------- End of Report -----------------------------
```

Figure 97. Design Report Display with Field Line Edited

22. Press Enter. The field on the report line moves to the start of the line on the display and in the field definition. If you use the delete or insert keys to move the field text rather than the field representation on the field line, the text will physically move on the display but the field definition does not change. You must use the field line to change the field position with the delete and insert keys.

23. To work with the fields in record format HEADING on the display, use a list of all the fields in the record format. Position your cursor on record format HEADING and press F4=Fields. The Work with Fields display appears as shown in Figure 98.

```
                              Work with Fields

Record format  . . . . :   HEADING

Type options, press Enter.
  2=Change   5=Work with keywords


Opt  Field                  Line   Position   Length   -Indicators--
 _   'Employee_name'_____             1
 _   'Dept'______________            +35
 _   'Phone'_____________             +4
 _   'Status'____________             +4               01

                                                                Bottom
F3=Exit   F5=Refresh   F11=Display interpreted values   F12=Cancel
```

Figure 98. Work with Fields Display for Record Format HEADING

24. Specify that you want to work with keywords for the fourth field in the list, as shown in Figure 99.

```
                              Work with Fields

Record format  . . . . :   HEADING

Type options, press Enter.
  2=Change   5=Work with keywords


Opt  Field                  Line   Position   Length   -Indicators--
 _   'Employee name'_____             1
 _   'Dept'______________            +35
 _   'Phone'_____________             +4
 5   'Status'____________             +4               01

                                                                Bottom
F3=Exit   F5=Refresh   F11=Display interpreted values   F12=Cancel
```

Figure 99. Work with Fields Display with Field Specified

25. Press Enter. The Work with Field Keywords display appears.
26. Specify that you want the field to appear in bold type. Select the Highlight (HIGHLIGHT) keyword in the list by typing 2 next to HIGHLIGHT.

27. Press Enter and the Specify Highlight display appears as shown in Figure 100.

```
                          Specify Highlight

Keyword . . . . . . . . . . . . . . :   HIGHLIGHT
Field . . . . . . . . . . . . . . . :   'Status'
Record format . . . . . . . . . . . :   HEADING
Number of indicators . . . . . . . . :  0

Type choices, press Enter.

  Option indicators . . . . . . . . .   __ __ __    01-99, N01-N99

    More indicators . . . . . . . . .     N         Y=Yes, N=No









F3=Exit   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 100. Specify Highlight Display for Existing Field

28. The only parameters to specify are option indicators, so press Enter to specify HIGHLIGHT for the field and return to the Work with Field Keywords display. Press Enter again to return to the Work with Fields list display. Press Enter once more to return to the Design Report display.

29. To give your report design a more realistic appearance on the display and when you prototype the report, create five lines of sample data for the fields in the record format DETAILS. Type the Sample Data (SD) line command on the report line as shown in Figure 101.

```
Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
RLU==> _____________________________________________________________ REPORT
BASE     ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
         ------------------------ Start of Page 001 --------------------------
FLD1     <.............................>
  TITLE ABC COMPANY - Employee Directory
00002 .
00003 .
FLD1     <...........>                                  <..>    <...>    <....>
HEADING Employee name                                   Dept    Phone    Status
FLD1     <.......................................>     <..>    <...>      *
SD5      xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx    nnnn    xnnnn      x
         --------------------------- End of Report ----------------------------
```

Figure 101. Design Report Display with Sample Data (SD) Command Typed

30. Press Enter. RLU generates five lines of sample data immediately below the report line, as shown in Figure 102 on page 96.

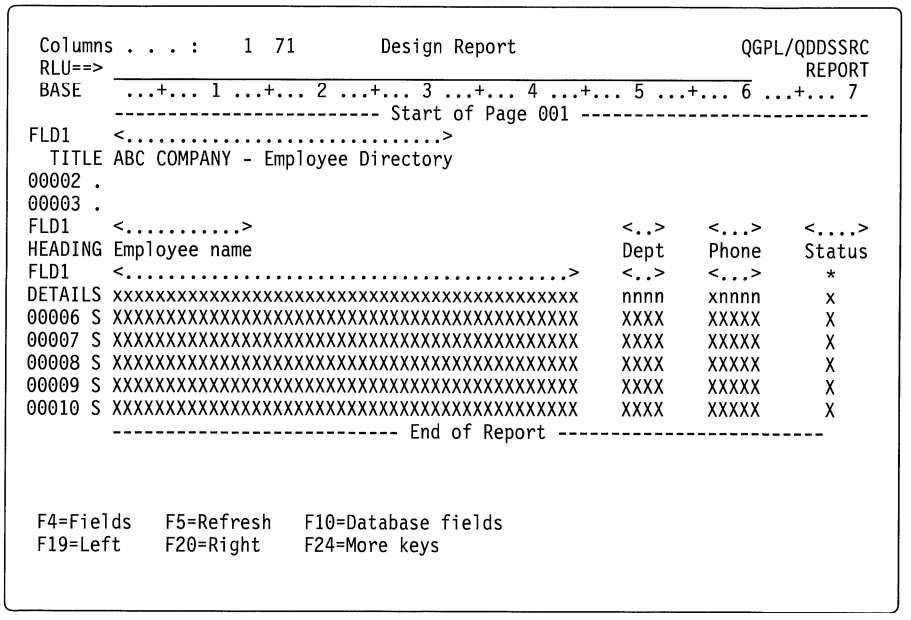

Figure 102. Design Report Display with Sample Data Created

31. You will move the second field and its associated sample data in record format DETAILS to a new position as the first field in the record format, starting at the beginning of the line. You will also move the constant `Dept` above the field in the record format HEADING.

    Mark the data area and then move it to perform this operation. Note that you previously changed your session defaults to specify that you want to insert moved data and shift data to replace blank space when you perform mark and move operations. For more information, see steps 3 on page 87 to 5 on page 88.

    To move the field, first mark the top-left corner of the data area by placing the cursor on the first position of the constant `Dept` and press F13=Mark/Unmark data. The constant `Dept` appears in reverse image.

32. Next, mark the bottom-right corner of the data area by placing the cursor anywhere in the field below `Dept` in record format DETAILS and press F13=Mark/Unmark data. The entire field, and `Dept`, now appear in reverse image.

33. Move the data area by placing the cursor in the first position of the record format HEADING and press F15=Move marked data. The Design Report display appears as shown in Figure 103 on page 97.

```
 Columns . . . :    1  71        Design Report                  QGPL/QDDSSRC
 RLU==> ___________________________________________________________ REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
FLD1    <............................>
  TITLE ABC COMPANY - Employee Directory
00002 .
00003 .
FLD1    <..><..........>                                      <...>    <....>
HEADING DeptEmployee name                                     Phone    Status
FLD1    <..><.......................................>         <...>      *
DETAILS nnnnxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx       xnnnn      x
00006 S XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX       XXXXX      X
00007 S XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX       XXXXX      X
00008 S XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX       XXXXX      X
00009 S XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX       XXXXX      X
00010 S XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX       XXXXX      X
        -------------------------- End of Report ------------------------


 F13=Mark/Unmark data   F14=Copy marked data
 F15=Move marked data   F24=More keys
```

Figure 103. Design Report Display with Marked Data Moved

The field, along with the constant, have moved to the new position you specified. The data already in the target area shifted to the right. All the field definitions are automatically changed in the source to reflect the new positions.

Conditioning Fields

In "Defining Record Formats and Fields" on page 75, you specified an indicator for two fields: the constant `Status` in record format HEADING, and the last field in record format DETAILS (described in steps 17 on page 78 and 32 on page 84). For more information on indicators, see "Conditioning Fields and Keywords" on page 144 and the *DDS Reference*.

To condition the Design Report display so that the indicator specified for these two fields is off and the field does not show on the display, perform the following steps:

1. Press F6=Condition display and the Condition Design Report Display appears, as shown in Figure 104 on page 98.

```
                    Condition Design Report Display

Number of indicators specified for
  new fields and keywords . . . . :   0

Type choices, press Enter.

  Condition display . . . . . .  .   N               Y=Yes, N=No
   For choice Y=Yes:
      Indicators on . . . . . . .    __ __ __ __ __  01-99
                                     __ __ __ __ __
                                     __ __ __ __ __
                                     __ __ __ __ __
                                     __ __ __ __ __
                                     __ __ __ __ __
  Indicators for new fields and
    keywords  . . . . . . . . . .   ___ ___ ___      01-99, N01-N99
    More indicators . . . . . . .     N             Y=Yes, N=No
  Generate reference field keyword  Y               Y=Yes, N=No


F3=Exit   F5=Refresh   F11=Default indicators to on   F12=Cancel
```

Figure 104. Condition Design Report Display to Condition Fields

2. Press F11=Default indicators to on so that the *Indicators on* prompt changes to *Indicators off*, as shown in Figure 105.

```
                    Condition Design Report Display

Number of indicators specified for
  new fields and keywords . . . . :   0

Type choices, press Enter.

  Condition display . . . . . .  .   N               Y=Yes, N=No
   For choice Y=Yes:
      Indicators off  . . . . . .    __ __ __ __ __  01-99
                                     __ __ __ __ __
                                     __ __ __ __ __
                                     __ __ __ __ __
                                     __ __ __ __ __
                                     __ __ __ __ __
  Indicators for new fields and
    keywords  . . . . . . . . . .   ___ ___ ___      01-99, N01-N99
    More indicators . . . . . . .     N             Y=Yes, N=No
  Generate reference field keyword  Y               Y=Yes, N=No


F3=Exit   F5=Refresh   F11=Default indicators to off   F12=Cancel
```

Figure 105. Condition Design Report Display with Indicators Defaulted to Off

3. Specify that you want to condition the Design Report display and specify the indicator that you want to turn off, as shown in Figure 106 on page 99.

```
                    Condition Design Report Display

Number of indicators specified for
  new fields and keywords . . . . :   0

Type choices, press Enter.

  Condition display . . . . . .  .   Y               Y=Yes, N=No
   For choice Y=Yes:
      Indicators off  . . . . . .   01 __ __ __ __   01-99
                                    __ __ __ __ __
                                    __ __ __ __ __
                                    __ __ __ __ __
                                    __ __ __ __ __
                                    __ __ __ __ __
  Indicators for new fields and
    keywords  . . . . . . . . . .   __ __ __        01-99, N01-N99
    More indicators . . . . . . .    N              Y=Yes, N=No
  Generate reference field keyword  Y               Y=Yes, N=No


F3=Exit   F5=Refresh   F11=Default indicators to off   F12=Cancel
```

Figure 106. Condition Design Report Display with Conditioning Specified

4. Press Enter. You return to the Design Report display and the fields you conditioned do not appear on the display. This is shown in Figure 107.

```
 Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
 RLU==> _____________________________________________________________ REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
 FLD1    <.............................>
   TITLE ABC COMPANY - Employee Directory
 00002 .
 00003 .
 FLD1    <..><..........>                                          <...>
 HEADING DeptEmployee name                                         Phone
 FLD1    <..><.......................................>            <...>
 DETAILS nnnnxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx        xnnnn
 00007 S XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX        XXXXX
 00008 S XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX        XXXXX
 00009 S XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX        XXXXX
 00010 S XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX        XXXXX
 00011 S XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX        XXXXX
        -------------------------- End of Report -------------------------


 F6=Condition display   F9=Retrieve
 F21=System command     F24=More keys
```

Figure 107. Design Report Display with Fields Conditioned

Exiting from RLU

For this example, you are now finished designing your report. To exit from RLU, save the changes you made in the current edit session, and create a printer file from the changed source member, perform the following steps:

1. Press F3=Exit to access the Exit RLU display.

2. Specify that you want to save your changes and create a printer file, as shown in Figure 108.

```
                                Exit RLU

Type choices, press Enter.

  Option . . . . . . . . . . . . . .  1             1=Save and exit
                                                    2=Exit without saving
                                                    3=Resume
    Member . . . . . . . . . . . . .    REPORT____  Name
    File . . . . . . . . . . . . . .    QDDSSRC___  Name
    Library . . . . . . . . . . . .     QGPL______  Name
    Text . . . . . . . . . . . . . .    ____________________________________
_____
  Create printer file . . . . . . .  Y              Y=Yes, N=No
    Change defaults . . . . . . . .    N           Y=Yes, N=No
  Prototype report . . . . . . . .   N             Y=Yes, N=No
    Change defaults . . . . . . . .    N           Y=Yes, N=No
  Submit to batch . . . . . . . . .  N             Y=Yes, N=No
    Job description . . . . . . . .    *USRPRF___  Name, *USRPRF, *RLU
    Library . . . . . . . . . . . .    __________  Name, *LIBL, *CURLIB


F5=Refresh   F12=Cancel
```

Figure 108. Exit RLU Display with Create Printer File Specified

You are not creating a prototype of your report at this point, but note that if you did, the conditioning that you specified for the Design Report display would also apply to the report prototype when printed.

3. Press Enter. You see a message informing you that the member is being saved. Then you see another message indicating that the printer file is being created.

   You exit from RLU and return to the AS/400 Main Menu, which is shown in Figure 109.

```
MAIN                          AS/400 Main Menu
                                                      System:   TORAS40Z
Select one of the following:

     1. User tasks
     2. Office tasks
     3. General system tasks
     4. Files, libraries, and folders
     5. Programming
     6. Communications
     7. Define or change the system
     8. Problem handling
     9. Display a menu
    10. Information Assistant options
    11. PC Support tasks

    90. Sign off

Selection or command
===> ____________________________________________________________________
F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel   F13=Information Assistant
F23=Set initial menu
Member REPORT in file QGPL/QDDSSRC changed with 84 records.
```

Figure 109. AS/400 Main Menu after Leaving RLU

Example Source

The member REPORT in QGPL/QDDSSRC now contains the source for the example report design. Figure 110 shows the source statements RLU generates for REPORT.

```
A*%%*****************************************************************************
A*%%TS  RD  19931105  151439  USERID      REL-V2R3M0  5738-PW1
A*%%FI+1066100111111111111111111111111111111111111111111111111111111111
A*%%FI       1111111111111111111111111111111111111111111111111111111111
A*%%*****************************************************************************
A          R TITLE
A*%%*****************************************************************************
A*%%RI 00000
A*%%*****************************************************************************
A                                     1
A                                      'ABC COMPANY - Employee Directory'
A                                      UNDERLINE
A*%%*****************************************************************************
A*%%SS
A*%%*****************************************************************************
A          R HEADING
A*%%*****************************************************************************
A*%%RI 00000
A*%%FS 002
A*%%*****************************************************************************
A                                      SPACEB(003)
A                                     1
A                                      'Dept'
A                                     5
A                                      'Employee name'
A                                    +39
A                                      'Phone'
A  01                                 +4
A                                      'Status'
A                                      HIGHLIGHT
A*%%*****************************************************************************
A*%%SS
A*%%*****************************************************************************
A          R DETAILS
A*%%*****************************************************************************
A*%%RI 00005
A*%%*****************************************************************************
A                                      SPACEB(001)
A            FLD006    R        0     1
A                                      REFFLD(INFOR/DEPT QGPL/DBPF)
A            FLD005        44A  0     5
A            FLD007    R        0    +8
A                                      REFFLD(INFOR/PHONE QGPL/DBPF)
A  01        FLD008         1A  0    +6
A*%%*****************************************************************************
A*%%SS
A*%%SN FLD006     nnnn
A*%%SN FLD005     xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
A*%%SN FLD007     xnnnn
A*%%SN FLD008     x
A*%%SS
A*%%SS
A*%%SS
A*%%SS
A*%%SS
A*%%CP+999CRTPRTF
A*%%CP+    FILE(QGPL/REPORT)
A*%%CP+    DEVTYPE(*SCS)
A*%%CP     PAGESIZE(66  071)
A*%%*****************************************************************************
```

Figure 110. Source Member REPORT

The source consists of both DDS statements and RLU comments. For more information about the source that RLU generates and RLU comments, see Appendix B, "Source Generated by RLU" on page 211.

Chapter 5. Working with Record Formats

To define and edit the record formats in your report design and supply the necessary information about them so that RLU can generate DDS source, you use line commands and function keys on the Design Report display.

This chapter describes how you use line commands and function keys to perform the following tasks:

- Define record formats
- Edit record formats
- Specify information about record formats
- Specify record-level keywords

Defining Record Formats

A record format can be one of the following:

- A single report line containing at least one field
- A group of report lines and filler lines containing at least one field
- One or more report lines and filler lines with associated sample lines containing at least one field

You can use a line command to define a single report line as a record format or to define a group of lines as a single record format.

Type one of the following commands in the sequence number area of the appropriate lines:

DR	To define this report line as a record format
DR*n*	(Where *n* is a number) to define this report line and the next *n* lines as a single record format
DRR	To define every line between and including this line and the next occurrence of DRR as a single record format

RLU does the following:

- Automatically generates a name for the record format.

  The naming convention RLU uses for record format names is RCD*nnn*, where *nnn* is a 3-digit number beginning with 001 (for the first record format you create in your edit session) and incremented as you create each subsequent new record format. If you are editing an existing source member, RLU identifies the highest number already used in a record format name and increments from that number.
- Adds a spacing keyword to the new record format based on the *Record format spacing* default in the user profile.
- Displays the generated name in the sequence number area of the first line of the record format.
- Displays + in the sequence number area of the remaining lines of the record format.

If you try to define a line previously defined as part of a record format, you see an error message and RLU does not make any changes. You can change the record format of this line by using the Change Line command as described in "Changing Line Types" on page 114.

After you have defined at least one field in the record format, you can define a record format further by positioning your cursor on any report line or sample line within the record format and pressing F18=Record keywords (B).

Note: Throughout this manual, (A) after the function key indicates that the key is part of the alternative set of keys, and (B) after the function key indicates that the key is part of the base set of keys, on the Design Report display.

The Work with Record Keywords display appears, which helps you do the following:

- Change the name of a record format
- Specify keywords for a record format

For a detailed description of how to define this record information, see "Changing Record Format Names" on page 108 and "Specifying Record-Level Keywords" on page 116.

For information about defining fields, see "Defining Fields Using Line Commands" on page 124 and "Defining Fields Using Function Keys" on page 119.

Example: Defining a Record Format

Figure 111 shows a simple report design on the Design Report display.

```
Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
RLU==> _____________________________________________________________ REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
00001 . ABC Company - Employee Directory
00002 .
00003 .
00004 . Dept Employee Name                                        Phone    Status
00005 . nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx       nnnnn      x
       -------------------------- End of Report -----------------------------
```

Figure 111. Design Report Display with Report Design

Assume that you want to define the title and the headings together as a single record format.

1. Type the line command as shown in Figure 112 on page 105.

```
 Columns . . . :     1  71        Design Report                  RPTLIB/RPTFILE
 RLU==> ____________________________________________________________    REPORT
 BASE     ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
DRR01 . ABC Company - Employee Directory
00002 .
00003 .
DRR04 . Dept Employee Name                                    Phone    Status
00005 . nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx      nnnnn      x
        -------------------------- End of Report ----------------------------
```

Figure 112. Design Report Display with Define Record (DR) Commands Typed

2. Press Enter.

   RLU assigns a name to the record format and indicates the type of each line within the record format. This is shown in Figure 113.

```
 Columns . . . :     1  71        Design Report                  RPTLIB/RPTFILE
 RLU==> ____________________________________________________________    REPORT
 BASE     ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
 RCD001 ABC Company - Employee Directory
00002 +
00003 +
00004 + Dept Employee Name                                    Phone    Status
00005 . nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx      nnnnn      x
        -------------------------- End of Report ----------------------------











 F3=Exit   F11=Define field   F16=Delete field
 F22=Alternative keys         F24=More keys
```

Figure 113. Design Report Display with Record Format Defined

See “Example: Defining Named Fields Using Line Commands” on page 126 for an example of defining a field within a new record format.

Specifying Record Format Spacing

You can select the default spacing keyword that RLU assigns when a new record format is defined using the *Record format spacing* prompt on the Change Session Defaults display. For more information on the Change Session Defaults display, refer to “Changing Your Edit Session Environment” on page 34. You can specify one of the following default record spacing values:

- SPACEB
- SPACEA
- No spacing

The record spacing default value that you specify is, however, overridden if it conflicts with the following RLU spacing rules:

- If a record spans more than one line, a SPACEA(*m*) keyword is assigned to the record format, where *m* is the number of continuation lines.
- If a record format is preceded by a filler line, a SPACEB(1+*n*) keyword is assigned to the record format, where *n* is the number of filler lines preceding the new record.

For more information on spacing keywords, refer to the *DDS Reference*.

The remainder of this section describes the way in which these rules affect each of the default spacing keyword values that you can specify.

Space Before

SPACEB is the default record format spacing keyword generated by RLU. If you accept the SPACEB default, the SPACEB(001) keyword is automatically added when a new record is defined if there are no filler lines preceding the record. Preceding filler (.) lines are represented by a SPACEB(1+*n*) spacing keyword at the record level, where *n* is the number of preceding filler lines. Therefore the default keyword SPACEB(001) is overridden if the number of preceding filler lines is greater than or equal to 1.

If the new record spans more than one line, RLU also generates a SPACEA keyword.

For an example of selecting SPACEB as the default spacing keyword when there are no preceding filler lines and when the record does not span more than one line, refer to page 91.

Space After

If you specify SPACEA as the default record spacing keyword, the SPACEA(001) keyword is automatically added when the record is defined if the record does not span multiple lines (that is, there are no continuation lines for the new record). Record continuation lines are represented by a SPACEA(*m*) spacing keyword at the record level, where *m* is the number of record continuation lines. Therefore the new default keyword value SPACEA(001) is overridden if the number of record continuation lines is greater than 1.

If there are preceding filler lines, RLU also assigns a SPACEB(1+*n*) keyword, where *n* is the number of filler lines preceding the new record.

For example, define record format RCD002 as shown in Figure 114 on page 107, where SPACEA is the default record spacing keyword.

```
Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
RLU==> _____________________________________________________________ REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------

 RCD001
00002 .
DR 03 .
00004 . This is line 4
```

Figure 114. Defining Record RCD002

Press Enter and the Design Report display appears as shown in Figure 115.

```
Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
RLU==> _____________________________________________________________ REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
 RCD001
00002 .
 RCD002
00004 +
00005 . This is line 4
       --------------------------- End of Report ----------------------------
```

Figure 115. Record RCD002 Defined with SPACEA as the Default Spacing Keyword

SPACEA(001) is generated in accordance with the record spacing default value specified. SPACEB(002) is also generated in accordance with the RLU spacing rules.

No Spacing

If you specify No spacing as the default record spacing value, RLU generates a new record without assigning a spacing keyword. The No spacing default value is overridden if there are preceding filler lines or if the record spans multiple lines. If there are preceding filler lines, RLU assigns a SPACEB keyword; if the record spans more than one line, RLU assigns a SPACEA keyword.

For example, define record format RCD003 as shown in Figure 116, where No spacing is the default record spacing value.

```
Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
RLU==> _____________________________________________________________ REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
 RCD001
00002 .
 RCD002
00004 +
00005 .
DR 06 .
00007 .
       --------------------------- End of Report ----------------------------
```

Figure 116. Defining Record RCD003

Press Enter and the Design Report display appears as shown in Figure 117 on page 108.

```
Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
RLU==> _____________________________________________________________ REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
 RCD001
00002 .
 RCD002
00004 +
00005 .
 RCD003
00007 .
        -------------------------- End of Report ----------------------------
```

Figure 117. Record RCD003 Defined with No Spacing as the Default Spacing Value

RLU overrides the No spacing default and generates a SPACEB(002) keyword in accordance with the RLU spacing rules.

Editing Record Formats

To edit defined record formats, you can use line commands and function keys on the Design Report display to perform the tasks described in this section.

Changing Record Format Names

You can change the name of a record format you define on the Design Report display by positioning your cursor on any report or sample line within the record format and pressing F18=Record keywords (B).

The Work with Record Keywords display appears. For more information about how you use this display, see "Specifying Record-Level Keywords" on page 116.

To change the name of the record format you are working with, press F10=Rename record on the Work with Record Keywords display. The Rename Record Format display appears as shown in Figure 118 on page 109.

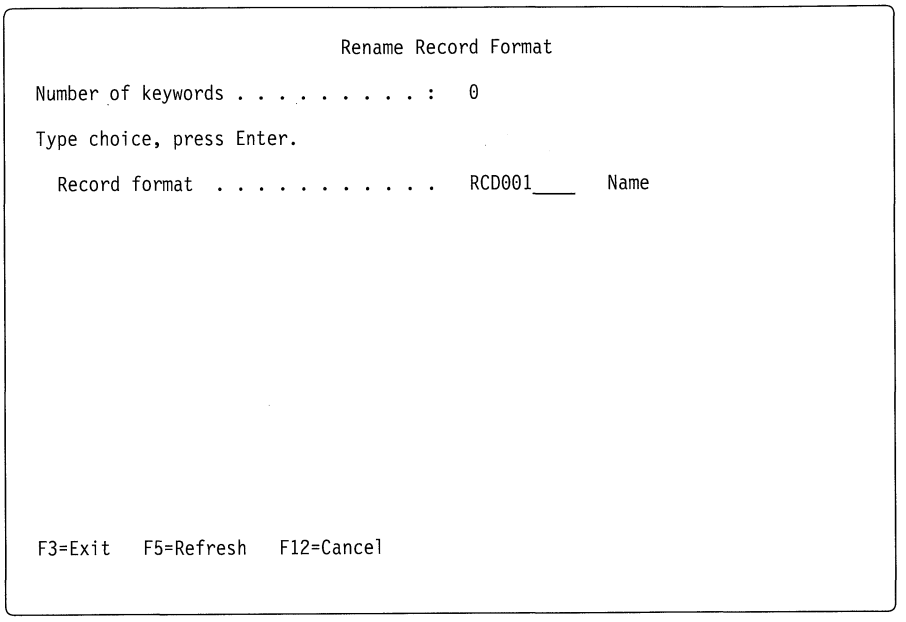

Figure 118. Rename Record Format Display

You specify a new name for the record format by typing the new name in the *Record format* prompt. Your new name must conform with the following naming conventions:

- One to ten characters in length
- First character must be alphabetic
- Other characters must be alphanumeric, @, #, or $
- No embedded blanks

You can define a maximum of 1 024 unique record formats within a file.

Copying, Moving, and Repeating Record Formats

"Copying Lines" on page 46, "Moving Lines" on page 47, and "Repeating Lines" on page 48 describe how to use the Copy, Move, and Repeat line commands on the Design Report display.

Line commands work on lines rather than record formats. Therefore, to copy, move, or repeat an entire record format to another location on the Design Report display, you must copy, move, or repeat the entire block of lines that make up the record format.

The same considerations also apply to inserting report lines using a skeleton line.

When you copy, move, or repeat lines to another existing record format, RLU creates a new record format for the original continuation lines in the target record format.

When you use the Copy, Move, or Repeat line command on a report line, RLU creates a new record format for the copied, moved, or repeated lines.

When you copy, move, or repeat lines from an existing record format but you do not include the first line of the record format, RLU creates a new record format for the copied, moved, or repeated lines and makes the first continuation line of the copied, moved, or repeated lines the first report line of the new record format.

Example: Copying Lines in a Record Format

Figure 119 shows a simple report design on the Design Report display with record formats already defined.

```
 Columns . . . :    1  71        Design Report                       RPTLIB/RPTFILE
 RLU==> ________________________________________________________________     REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
 RCD001 ABC Company - Employee Directory
00002 +
00003 +
 RCD002 Dept Employee Name                                         Phone    Status
00005 + nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx         nnnnn      x
        -------------------------- End of Report ----------------------------





 F3=Exit   F11=Define field   F16=Delete field
 F22=Alternative keys         F24=More keys
```

Figure 119. Design Report Display with Record Formats Defined

Assume that you want to copy the blank continuation lines to another location immediately following the headings.

1. Type the commands as shown in Figure 120.

```
 Columns . . . :    1  71        Design Report                       RPTLIB/RPTFILE
 RLU==> ________________________________________________________________     REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
 RCD001 ABC Company - Employee Directory
C2
00003 +
A       Dept Employee Name                                         Phone    Status
00005 + nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx         nnnnn      x
        -------------------------- End of Report ----------------------------
```

Figure 120. Design Report Display with Copy Commands Typed

2. Press Enter.

   Since the new location for the copied lines is within another record format, RLU splits the target record format into three record formats: two for the original report lines, and one for the copied report lines. This is shown in Figure 121.

```
Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
RLU==> _____________________________________________________________ REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 ---------------------------
 RCD001 ABC Company - Employee Directory
00002 +
00003 +
 RCD002 Dept Employee Name                                        Phone    Status
 RCD004
00006 +
 RCD003 nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx       nnnnn      x
       --------------------------- End of Report -----------------------------
```

Figure 121. Design Report Display with Report Lines Copied

Deleting Record Formats

"Deleting Lines" on page 48 describes how to use the Delete line command on the Design Report display.

Line commands work on lines rather than record formats. Therefore, to delete an entire record format on the Design Report display, you must delete the entire block of lines that make up the record format.

RLU deletes the following:

- The text of all fields within the record format on the display
- Any sample data associated with fields in the record format
- All information included in the definition of the record format and its fields

Deleting the First Report Line in a Record Format

When you delete a single report line that is the first line in a record format with more than one report line, RLU automatically defines the next remaining report line as the first line in the record format and displays the record format name on that line. This also applies when you delete a block of report lines that includes the first report line in the record format.

See "Example: Deleting Lines in a Record Format" on page 112 for an illustration of this result.

Example: Deleting Lines in a Record Format

Figure 122 shows a simple report design on the Design Report display with record formats already defined.

```
 Columns . . . :    1  71        Design Report                RPTLIB/RPTFILE
 RLU==> _____________________________________________________________ REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
 RCD001 ABC Company - Employee Directory
00002 +
00003 +
 RCD002 Dept Employee Name                                        Phone    Status
 RCD003 nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx       nnnnn      x
        --------------------------- End of Report -----------------------------
```

Figure 122. Design Report Display with Record Formats Defined

Assume that you want to delete the first line of the first record format.

1. Type the commands as shown in Figure 123.

```
 Columns . . . :    1  71        Design Report                RPTLIB/RPTFILE
 RLU==> _____________________________________________________________ REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
D       ABC Company - Employee Directory
00002 +
00003 +
 RCD002 Dept Employee Name                                        Phone    Status
 RCD003 nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx       nnnnn      x
        --------------------------- End of Report -----------------------------
```

Figure 123. Design Report Display with Delete Command Typed

2. Press Enter.

   Since you are deleting the first report line from an existing record format, RLU defines the next remaining report line as the new first line and you see the record format name in the sequence number area of that line. This is shown in Figure 124.

```
 Columns . . . :    1  71        Design Report                RPTLIB/RPTFILE
 RLU==> _____________________________________________________________ REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
 RCD001
00002 +
 RCD002 Dept Employee Name                                        Phone    Status
 RCD003 nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx       nnnnn      x
        --------------------------- End of Report -----------------------------
```

Figure 124. Design Report Display with Report Line Deleted

Merging Record Formats

You can use a version of the Change Line (CL) line command to merge two existing record formats into a single record format. You make the first line of the record format that you want to merge with the previous record format a continuation line. See "Changing Line Types" on page 114 for a description of how to change line types.

Specifying Page Breaks

You can use a line command to specify up to 999 page breaks in your report design on the Design Report display. These page breaks appear when you print a prototype of your report design. You can specify a page break on any report line, but not on a sample line or a continuation line within a record format.

Type the following command in the sequence number area of the appropriate line:

NP To start a new page after this line

RLU does the following:

- Adds a line that marks the page break
- Renumbers the lines on the new page

You see the page break when you print a prototype of your report design, but a page break you specify with the New Page (NP) command is not reflected in the DDS source statements. Page breaks are, however, indicated in RLU comments in the source member.

New Page (NP) line commands affect the printed report prototype only, so you must use page skipping keywords to include page breaks in your final DDS source and printer file.

You can delete a page break on the Design Report display by using the Delete line command on the page break line.

Example: Specifying a Page Break

Figure 125 shows a simple report design on the Design Report display with record formats already defined.

```
 Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
 RLU==> _____________________________________________________________      REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
 RCD001 ABC Company - Employee Directory
00002 +
00003 +
 RCD002 Dept Employee Name                                        Phone    Status
 RCD003 nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx      nnnnn      x
        --------------------------- End of Report -----------------------------
```

Figure 125. Design Report Display with Record Formats Defined

Assume that you want to specify a new page immediately before the headings.

1. Type the command as shown in Figure 126.

```
Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
RLU==> _____________________________________________________________ REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
 RCD001 ABC Company - Employee Directory
00002 +
00003 +
NP      Dept Employee Name                                        Phone    Status
 RCD003 nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx       nnnnn      x
       --------------------------- End of Report -----------------------------
```

Figure 126. Design Report Display with New Page (NP) Command Typed

2. Press Enter.

   RLU marks the page break and renumbers the lines on the new page, as shown in Figure 127.

```
Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
RLU==> _____________________________________________________________ REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
 RCD001 ABC Company - Employee Directory
00002 +
00003 +
       ------------------------ Start of Page 002 --------------------------
 RCD002 Dept Employee Name                                        Phone    Status
 RCD003 nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx       nnnnn      x
       --------------------------- End of Report -----------------------------
```

Figure 127. Design Report Display with Page Break Specified

Changing Line Types

Before you specify information about the lines that make up your report design, every line is a filler line. As you define record formats and create sample data, RLU sets each line within a record format as a report line or a sample line. Lines between record formats remain filler lines.

You can change line types to merge record formats together, split a single record format into two or more separate record formats, and remove parts of record formats.

You can specify any of the following as a new line type:

- R for the first report line in a record format
- C for a continuation report line in a record format
- S for a sample line
- F for a filler line

Type one of the following commands in the sequence number area of the appropriate lines:

`CL`*x* (Where *x* is a line type) to change the type of this line to *x*

`CL`*xn* (Where *x* is a line type and *n* is a number) to change the type of *n* lines to *x*

`CLL`*x* (Where *x* is a line type) to change the type of all the lines between (and including) this one and the next occurrence of `CLL` to *x*

Example: Merging Record Formats

Figure 128 shows a simple report design on the Design Report display with record formats already defined.

```
 Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
 RLU==> _____________________________________________________________ REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
 RCD001 ABC Company - Employee Directory
00002 +
00003 +
 RCD002 Dept Employee Name                                        Phone    Status
 RCD003 nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx      nnnnn      x
        -------------------------- End of Report ----------------------------
```

Figure 128. Design Report Display with Record Formats Defined

Assume that you want to merge the second and third record formats.

1. Use the CL*x* version of the line command, since you only want to change the type of a single line.

   Type the command as shown in Figure 129.

```
 Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
 RLU==> _____________________________________________________________ REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
 RCD001 ABC Company - Employee Directory
00002 +
00003 +
 RCD002 Dept Employee Name                                        Phone    Status
CLC     nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx      nnnnn      x
        -------------------------- End of Report ----------------------------
```

Figure 129. Design Report Display with Change Line (CL) Command Typed

2. Press Enter.

   RLU changes the report line to a continuation line within the second record format, as shown in Figure 130 on page 116.

```
Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
RLU==> _____________________________________________________________ REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
 RCD001 ABC Company - Employee Directory
00002 +
00003 +
 RCD002 Dept Employee Name                                        Phone    Status
00005 + nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx      nnnnn      x
       --------------------------- End of Report -----------------------------
```

Figure 130. Design Report Display with Record Formats Merged

Specifying Record-Level Keywords

To further define the record formats in your report design, you can specify printer file DDS keywords. These keywords are called record-level keywords.

The Work with Record Keywords display appears when you place your cursor on an existing record format on the Design Report display that you want to work with and press F18=Record keywords (B).

The Work with Record Keywords list display appears as shown in Figure 131.

```
                          Work with Record Keywords

Record format  . . . . :   RCD001

Type options, press Enter.
  2=Specify   4=Remove

Opt     Keyword           Opt     Keyword           Opt     Keyword
 _      CDEFNT             _      SKIPA
 _      CHRSIZ             _      SKIPB
 _      CPI                _      SPACEA
 _      DFNCHR             _      SPACEB
 _      DRAWER             _      TEXT
 _      FNTCHRSET
 _      FONT
 _      HIGHLIGHT
 _      INDTXT
 _      LPI
 _      PAGRTT
 _      PRTQLTY
                                                                    Bottom
F3=Exit      F5=Refresh   F9=Input keyword parameters   F10=Rename record
F12=Cancel   F16=Remove all keywords
```

Figure 131. Work with Record Keywords Display

You can do the following on this display:

- Select a keyword to specify
- Select a keyword to remove from the record format definition
- Remove all keywords from the record format definition
- Specify a new name for the record format

Note: On DBCS-capable systems, DBCS-only keywords are also shown on the Work with Record Keywords display.

See "Changing Record Format Names" on page 108 for a description of how to specify a new name for an existing record format.

Specifying Keywords

To specify a keyword, type 2 next to the keyword you want and press Enter.

If you select a keyword that has further parameters and option indicators to specify, you see a data entry display for that keyword. If you select a keyword that has no further information to specify, you see a message and RLU specifies the keyword for the record format.

Also, regardless of the type of keyword you select, you see > in front of the keyword in the list to indicate that you specified that keyword.

For detailed information about each keyword and its parameters and options, refer to one of the following:

- Appendix A, "DDS Printer File Keywords" on page 173.
- RLU online help information. Press Help or F1=Help when you are on the data entry display for the keyword.
- The *DDS Reference*.

Removing Keywords

To remove a keyword that you previously specified from a record format definition, type 4 next to the keyword you want to remove and press Enter. RLU removes the keyword from the record format definition.

To remove all the keywords that you previously specified for the record format, press F16=Remove all keywords. RLU removes all keywords from the record format definition.

Using the Fastpath

You can use a fastpath to add or remove keywords and parameters.

To work with record keywords this way, press F9=Input keyword parameters on the Work with Record Keywords display. The Input Record Keywords display appears as shown in Figure 132.

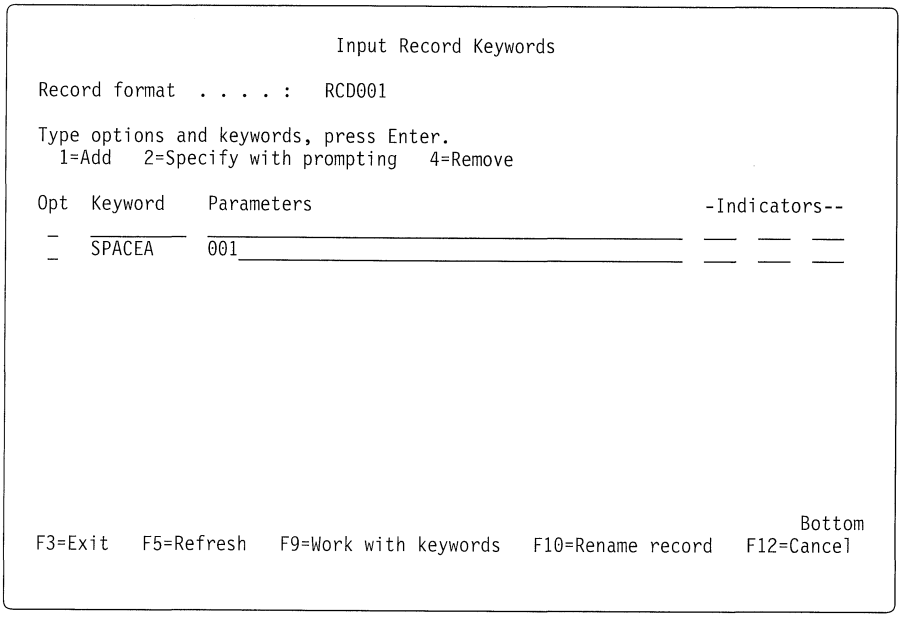

Figure 132. Input Record Keywords Display

This display also appears if you used it the last time you worked with file-level, record-level, or field-level keywords.

The Input Record Keywords display shows the keywords already specified for the record format, along with any parameters specified for them, as they would appear in the DDS source statements.

You can do the following on this display:

- Add a record-level keyword, along with parameters and indicators, on the first row of the list
- Change the parameters on any row in the list
- Change the indicators on any row in the list
- Rename the record format by pressing F10=Rename record

Press Enter to return to the Design Report display, press F12=Cancel to return without processing, or press F9=Work with keywords to return to the Work with Record Keywords display.

Chapter 6. Working with Fields

To define and edit the fields in your report design and supply the necessary information about them so that RLU can generate DDS source, you use function keys, line commands, and field lines on the Design Report display.

This chapter describes how to use function keys, command lines, and the field line to do the following tasks:

- Define fields
- Create sample data
- Edit fields
- Specify field-level keywords
- Condition fields and keywords
- Reference database fields

You can also define fields using special commands similar to SDA field definition formats. For more information, see Appendix E, "Defining Fields Using the SDA Format" on page 233.

Defining Fields Using Function Keys

Every time you define a new record format in your report design, you must also define at least one field within the record format.

You can define fields one at a time on the Design Report display by using a function key. When you define a field this way, the operation is valid on a report line, a sample line, or a filler line. The line must already contain text that represents the field.

To define a field, do the following:

1. Position the cursor at the point in a line where you want to define a new field.

   If the cursor is on a character, RLU defines the field as all data beginning at the cursor position and ending at the first occurrence of two or more blanks, the first position before the next defined field in the line, or the end of the line, whichever comes first.

   If the cursor is on a blank but there is numeric text to the right of the cursor position, RLU defines the field as all data beginning at the cursor position and ending at the last character of the numeric text.

   If the cursor is on a blank but there is nonnumeric text to the right of the cursor position, RLU defines the field as a single character.

2. Press F11=Define field (B).

   Note: Throughout this manual, (A) after the function key indicates that the key is part of the alternative set of keys, and (B) after the function key indicates that the key is part of the base set of keys, on the Design Report display.

RLU does the following:

- Defines the new field
- Shows the Define Field Information display, as shown in Figure 133
- Shows a field line when you return to the Design Report display, unless your session defaults specify not to automatically display field lines

```
                          Define Field Information

Edited length . . . . . . . . . . . . :   32
Record format . . . . . . . . . . . . :   RCD001
Number of keywords  . . . . . . . . . :   0
Number of indicators  . . . . . . . . :   0

Type choices, press Enter.

  Field . . . . . . . . . . . . . . . .   FLD001____     Name
  Option indicators . . . . . . . . . .   __ __ __      01-99, N01-N99
    More indicators . . . . . . . . . .     N           Y=Yes, N=No
  Starting line . . . . . . . . . . . .   ___           1-255
  Starting position . . . . . . . . . .   __1           1-255, +nn
  Length of data  . . . . . . . . . . .   _32           1-378, +nn, -nn
  Data type . . . . . . . . . . . . . .   1             1=Character
                                                        2=Zoned
                                                        3=Floating point
  Decimal positions . . . . . . . . . .   __            0-31, +n, -n

                                                                    More...
F3=Exit   F5=Refresh   F10=Work with keywords   F11=Convert to constant field
F12=Cancel
```

Figure 133. Define Field Information Display

RLU determines the necessary information for the field specifications from what you entered on the Design Report display so you do not necessarily need to change any values on the Define Field Information display. The Define Field Information display shows you the field information that RLU automatically defines.

Note: On DBCS-capable systems, the *Data type* prompt also shows 4=Open and 5=Graphic.

Field Information

This section describes the following about each field specification:

- How RLU determines the initial value
- How you specify a different value

For information about indicators and database references, see "Conditioning Fields and Keywords" on page 144 and "Referencing Database Fields" on page 146.

Field Name

RLU assumes that a new field is a named field (not a constant field) and automatically generates a name of FLD*nnn* for the field where *nnn* is a number. Starting with 001, RLU uses the lowest number available so that the field name is unique within the record format. The highest number already used for an existing field is incremented by one for each new field.

Note: The maximum number of fields you can define in a single record format is 32767.

The generated field name appears in the *Field* prompt on the Define Field Information display.

You specify a different name for the field by typing the new name in the *Field* prompt. The new name must conform to the following naming conventions:

- One to ten characters in length
- First character must be alphabetic
- Other characters must be alphanumeric
- No embedded blanks

If you want the field to contain a constant value, the field must be unnamed. For a description of how to convert a new field to a constant field, see "Converting a Named Field to a Constant Field" on page 123.

Field Length

RLU defines the length of a new field from the actual value you enter for the field on the Design Report display.

This field length appears in the *Length of data* prompt on the Define Field Information display. The length is in number of bytes if the field data is alphanumeric and in number of digits if the field data is numeric. If the field is DBCS-graphic, the length of the field is the number of double-byte characters.

The edited field length appears in the *Edited length* prompt at the top of the Define Field Information display. The edited field length is the actual length of the data plus any characters added because of a keyword such as Edit Code (EDTCDE) that RLU automatically specified for the field or Convert Data (CVTDTA) that you specified for the field yourself. See "Keywords Automatically Specified" on page 123 for information about how RLU automatically specifies keywords. See "Specifying Field-Level Keywords" on page 141 for information about specifying keywords for fields.

You specify a different length for the field by typing a new number in the *Length of data* prompt. The new length you specify must be one of the following:

- 1 to 378 for an alphanumeric field
- 1 to 31 for a numeric field
- 1 to 189 for a DBCS-graphic field
- 4 to 378 for a DBCS-open field
- *+nn* or *-nn*, where *nn* is a number, for a referenced database field length

You see the field length changed when you press Enter and return to the Design Report display unless you specify a new length that places the field beyond the report width. In this case, RLU displays a message asking you to confirm deletion of the field.

You can overlap fields, and you see a message that indicates field overlapping.

Field Position

RLU defines the position of a new field from the row and column location of the field data on the Design Report display.

Field positioning in RLU is relative. For the first field on a line, the column containing the first character of the field data appears in the *Starting position* prompt on the Define Field Information display. For each subsequent field on the same line, the number of positions relative to the previous field (+15, for example) appears in the *Starting position* prompt. The *Starting line* prompt on the display is initially blank because RLU defines the horizontal position of the field relative to other fields using keywords. You can define a specific starting line for the field in the *Starting line* prompt, but then you cannot use positioning keywords.

You can specify a different position for the field by typing new values in the *Starting line* and *Starting position* prompts.

The new starting line you specify can be a number from 1 to 255 or a blank. Blank indicates that the horizontal position of the field is determined by the number of lines to skip or space between fields using keywords. See "Specifying Field-Level Keywords" on page 141, and Appendix A, "DDS Printer File Keywords" on page 173 for descriptions of the Skip After (SKIPA), Skip Before (SKIPB), Space After (SPACEA), and Space Before (SPACEB) keywords.

The new starting position you specify must be a number from 1 to 255 or an increment (*+nn*, where *nn* is a number) which specifies the space between the previous field in the line and the field you are defining.

You see the field in the new position when you press Enter and return to the Design Report display unless you specify a new position that places the field beyond the report width. In this case, RLU displays a message asking you to confirm deletion of the field.

You can overlap fields, and you see a message that indicates field overlapping.

Field Data Type

RLU defines the data type of a new field based on the character string you use to represent the field on the Design Report display. If you use a mixture of alphabetic and numeric characters in the string, RLU defines the data type based on the first character in the string.

The data type RLU determines appears in the *Data type* prompt on the Define Field Information display.

You specify a different data type for the field by typing one of the following in the *Data type* prompt:

- 1 for character data
- 2 for zoned decimal data
- 3 for floating point data
- 4 for DBCS-open data
- 5 for DBCS-graphic data

  Note: 4 and 5 appear only on DBCS-capable systems.

- Blank if you are referencing a database field definition.

RLU changes the data type in the field definition when you press Enter and return to the Design Report display.

Field Decimal Positions

RLU defines number of decimal positions for a numeric field from the number of digits after the decimal point in the data you use to represent the field on the Design Report display.

The number of decimal positions in your field data appears in the *Decimal positions* prompt on the Define Field Information display. The *Decimal positions* prompt is blank if the field data you entered is alphanumeric.

You specify a different number of decimal positions for the field by typing one of the following in the *Decimal positions* prompt:

- A number from 0 to 31 that is less than or equal to the field length for numeric field data
- An increment of *+nn* or *-nn*, where *nn* is a number, for a referenced database field
- Blank for an alphanumeric field

You see the number of decimal positions increased or decreased when you press Enter and return to the Design Report display.

Keywords Automatically Specified

RLU automatically specifies Edit Code (EDTCDE) and Edit Word (EDTWRD) keywords for new fields if the data you use to represent fields on the Design Report display corresponds to an edit code or edit word format. For example, if you enter *dd/mm/yy* as the data for a new field, RLU will automatically specify the edit code that represents the date format (*nn/nn/nn*) when you define the field. You can remove an EDTCDE or EDTWRD keyword that RLU automatically specified, or specify other keywords for the field, by pressing F10=Work with keywords on the Define Field Information display.

RLU may also generate the Skip Before (SKIPB) keyword automatically to prevent a record format from printing on the same line as a previous record format. If you want records to print over each other, you must specify a value of 0 for SPACEB, remove the keyword on either the Work with Record Keywords display or the Input Record Keywords display, or specify No spacing as the record format default value on the Change Session Defaults display.

The number of keywords specified for a field appears in the *Number of keywords* prompt at the top of the Define Field Information display. See "Specifying Field-Level Keywords" on page 141 for information about working with field-level keywords.

See Appendix A, "DDS Printer File Keywords" on page 173 for more information about the EDTCDE, EDTWRD, SKIPB, and SPACEB keywords.

Converting a Named Field to a Constant Field

You can convert the named field you are defining on the Define Field Information display to a constant field, and then define information about the constant field, by pressing F11=Convert to constant field.

RLU converts the field, and you see a different Define Field Information display, as shown in Figure 134 on page 124.

The Specify Default (DFT) keyword is automatically specified for the constant field, using the text that you entered on the Design Report display as the constant value. In the generated source, RLU uses the implicit form of the keyword. For example, the source will contain 'Dept' instead of DFT('Dept').

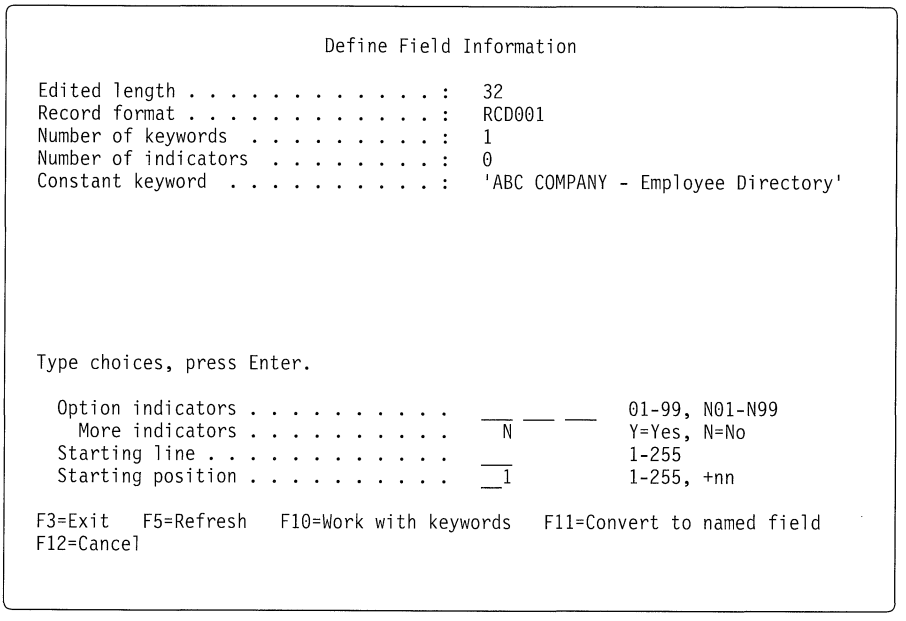

Figure 134. Define Field Information Display for Constant Fields

You can use this display to do the following:

- Change the position of the field in the same way you change the field position on the Define Field Information display for a named field. For more information, see "Field Position" on page 121.
- Convert the constant field to a named field by pressing F11=Convert to named field. You see the Define Field Information display for a named field. For more information, see "Defining Fields Using Function Keys" on page 119.

Defining Fields Using Line Commands

You can define one or more fields on report lines automatically by using line commands. To define fields this way, the report line on which you want to define fields must already contain text. You can use the Define Fields (DF) line command to define a named field or the Define Constants (DC) line command to define a constant field. To define fields, you can also use F11=Define field (B).

To use the Define Fields (DF) line command to define a named field, type one of the following commands in the sequence number area of the appropriate lines:

DF	To define any text followed by two blanks as a field on this line
DF*n*	(Where *n* is a number) to define any text followed by two blanks as a field on *n* lines, beginning with this line
DFF	To define any text followed by two blanks as a field on all lines between (and including) this line and the next occurrence of DFF

For more information on using the DF line command, see "Example: Defining Named Fields Using Line Commands" on page 126.

To use the Define Constants (DC) line command to define a constant field, type one of the following commands in the sequence number area of the appropriate lines:

`DC`	To define text followed by two blanks as a constant field on this line
`DC`*n*	(Where *n* is a number) to define text followed by two blanks as a constant field on *n* lines, beginning with this line
`DCC`	To define text followed by two blanks as a constant field on all lines between (and including) this line and the next occurrence of `DCC`

For more information on using the DC line command, see "Example: Defining Constant Fields Using Line Commands" on page 127.

RLU does the following:

- Defines all text separated by at least two blanks as either a named field (for the DF command), or a constant field (for the DC command)
- Defines the length of the text as the field length
- Defines the characters that make up either the named or constant field as the field value

If you try to define either named or constant fields on a sample line or a filler line, or on a report line that does not contain text separated by at least two blanks, you see an error message and RLU does not define the fields.

You can define fields further by positioning your cursor on the field and pressing F23=Field keywords (B). The Work with Field Keywords display appears, which helps you do the following:

- Specify keywords for a field
- Change field information

For a detailed description of how to define this field information, see "Specifying Field-Level Keywords" on page 141 and "Field Information" on page 120.

Example: Defining Named Fields Using Line Commands

Figure 135 shows a simple report design on the Design Report display after you have defined a record format.

```
 Columns . . . :    1  71        Design Report                 RPTLIB/RPTFILE
 RLU==> _____________________________________________________________ REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 ------------------------
FLD1    <.............................>
 RCD001 ABC Company - Employee Directory
00002 +
00003 +
FLD1    <..>     <...........>                                <...>    <....>
 RCD002 Dept     Employee Name                                Phone    Status
 RCD003 nnnn     xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx    nnnnn      x
        --------------------------- End of Report ----------------------------
```

Figure 135. Design Report Display with Record Formats Defined

Assume that you want to define all the text in the third record format as individual fields.

1. Type the command shown in Figure 136.

```
 Columns . . . :    1  71        Design Report                 RPTLIB/RPTFILE
 RLU==> _____________________________________________________________ REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 ------------------------
FLD1    <.............................>
 RCD001 ABC Company - Employee Directory
00002 +
00003 +
FLD1    <..>     <...........>                                <...>    <....>
 RCD002 Dept     Employee Name                                Phone    Status
DF      nnnn     xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx    nnnnn      x
        --------------------------- End of Report ----------------------------
```

Figure 136. Design Report Display with Define Fields (DF) Command Typed

2. Press Enter.

   Four new named fields are defined in the report line as follows:

   - A 4-character field called FLD001
   - A 40-character field called FLD002
   - A 5-character field called FLD003
   - A 1-character field called FLD004

   Unless you specify otherwise for your session defaults, a field line appears automatically above the new fields and indicates the field boundaries, as shown in Figure 137 on page 127.

```
 Columns . . . :    1  71        Design Report                   RPTLIB/RPTFILE
 RLU==> ____________________________________________________________     REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------- Start of Page 001 ---------------------------
FLD1    <............................>
 RCD001 ABC Company - Employee Directory
00002 +
00003 +
FLD1    <..>     <..........>                                <...>    <....>
 RCD002 Dept     Employee Name                               Phone    Status
FLD1    <..>     <...................................>       <...>      *
 RCD003 nnnn     xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx     nnnnn      x
        -------------------------- End of Report -----------------------------







 F3=Exit   F11=Define field   F16=Delete field
 F22=Alternative keys         F24=More keys
DF created 4 fields in record format RCD003.
```

Figure 137. Design Report Display with New Fields Created

For another example of defining fields, see "Defining Record Formats and Fields" on page 75.

Example: Defining Constant Fields Using Line Commands

Figure 138 shows a simple report design on the Design Report display, immediately after you defined a record format.

```
 Columns . . . :    1  71        Design Report                   RPTLIB/RPTFILE
 RLU==> ____________________________________________________________     REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------- Start of Page 001 ---------------------------
 RCD001 ABC Company - Employee Directory
00002 +
00003 +
```

Figure 138. Design Report Display with Record Format Defined

Assume that you want to define all the text in the first record format as a constant field.

1. Type the command as shown in Figure 139.

```
 Columns . . . :    1  71        Design Report                   RPTLIB/RPTFILE
 RLU==> ____________________________________________________________     REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------- Start of Page 001 ---------------------------
DC D001 ABC Company - Employee Directory
00002 +
00003 +
```

Figure 139. Design Report Display with Define Constant (DC) Command Typed

2. Press Enter.

   The new constant field is defined in the report line as a 32-character field.

   Unless you specify otherwise for your session defaults, a field line appears automatically above the new field and indicates the field boundaries, as shown in Figure 140.

```
 Columns . . . :    1  71        Design Report                 RPTLIB/RPTFILE
 RLU==> _____________________________________________________________ REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
 FLD1   <.............................>
  RCD001 ABC Company - Employee Directory
 00002 +
 00003 +
```

Figure 140. Design Report Display with New Field Created

For another example of defining constant fields, see "Defining Constant Fields Using Keyword Constants."

Defining Constant Fields Using Keyword Constants

All new fields are assumed to be named fields, rather than constant fields. In most situations, a new field must be converted to a constant field before a constant keyword can be applied to that field.

You can specify some constant fields by typing a keyword constant on a field line to define the constant. By using this method, you do not have to use menus, function keys, or line commands to define the constant field. You can use this method with the *DATE, *TIME, *PAGNBR, and *DATESYS keywords only. To specify any of these keywords, do the following:

1. Type the Define Record (DR) command to convert a filler line to a record format, as shown in Figure 141.

```
 Columns . . . :    1  71        Design Report                 RPTLIB/RPTFILE
 RLU==> _____________________________________________________________ REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
 DR 01  .
 00002  .
```

Figure 141. Design Report Display with Define Record (DR) Command Typed

2. Press Enter.
3. If the session defaults are set so that the field line is not displayed, use the View Field (VF) command to create a field line for the record, as shown in Figure 142 on page 129.

```
Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
RLU==> _____________________________________________________________ REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
VF D001
00002  .
```

Figure 142. Design Report Display with View Field (VF) Command Typed

4. Press Enter.
5. Move the cursor to the position on the field line where you want the constant to appear.
6. Type the keyword or keywords that you want. In the example in Figure 143, all the constant keywords that you can type directly on the field line are specified.

```
Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
RLU==> _____________________________________________________________ REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
FLD1    *DATE               *TIME                  *PAGNBR       *DATESYS
 RCD001
```

Figure 143. Design Report Display with Constant Keywords Specified

7. Press Enter. A constant field is created, beginning in the location where you typed the keyword, and that keyword is defined for the field. The Design Report display from the example in Figure 143 now looks like Figure 144.

```
Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
RLU==> _____________________________________________________________ REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
FLD1    <......>           <......>               <..>          <......>
 RCD001 09/01/93           17:14:36               9999          09/01/93
```

Figure 144. Design Report Display with Constant Fields

You can specify the following constant keywords on the field line:

- *DATE

  Use *DATE to define a constant that displays the date when the member was either created or updated. This keyword is the equivalent of specifying either DATE(*JOB) or DATE. The keyword EDTCDE Y is automatically specified for the constant so that the date separator is displayed.

- *TIME

  Use *TIME to define a constant that displays the current system time with the job time separator.

- *PAGNBR

  Use *PAGNBR to define a constant that displays the page number.

- *DATESYS

  Use *DATESYS to define a constant that displays the current system date. This keyword is the equivalent of specifying DATE(*SYS) in the DDS source. The keyword EDTCDE Y is automatically specified for the constant so that the date separator is displayed.

Creating Sample Data

Sample lines contain sample data that correspond to all the fields you define in a record format. Sample lines appear on the Design Report display below a record format to give your report design a more realistic appearance.

You can use a line command to create a single sample line for a record format or to create multiple sample lines.

If you have not defined any fields in the record format for which you are creating sample data, the sample lines will be blank. For a description of how to define fields, see "Defining Fields Using Line Commands" on page 124 and "Defining Fields Using Function Keys" on page 119.

Type one of the following commands in the sequence number area of the appropriate lines:

SD	To create a single sample line under this report line
SD*n*	(Where *n* is a number) to create *n* sample lines under this report line

RLU creates the number of sample lines you specify.

RLU also attempts to maintain consistent spacing in the report design so if a filler line exists below the record format for which you create sample data, RLU generates a filler line between each line of sample data. You cannot delete these filler lines.

In each sample line, the data spans the length of each field in the report line and consists of the following:

- 9 for each character position in a numeric field
- X for each character position in an alphanumeric field
- A single-byte G for each character position in a DBCS-graphic field when the file is created with IGCDTA(*NO) specified
- A double-byte G for each character position in a DBCS-graphic field when the file is created with IGCDTA(*YES) specified
- Any constant values associated with the report line

RLU also displays S or + (for a continuation line) in the sequence number area of each sample line.

When you are defining and editing sample data, remember the following:

- You can also use a line command to change a filler line to a sample line. See "Changing Line Types" on page 114 for more information about changing line types.
- If you specified any edit codes or edit words for fields in the report line, they are reflected in associated sample data.
- When you edit fields on a report line, RLU automatically edits any associated sample lines to reflect the changes.
- When you condition fields with indicators, associated sample data is also conditioned. Sample data only appears on the display or in a printed report prototype if the field also appears.
- To process line commands on sample lines, the sample lines must be below the associated report line. If a line command changes this situation, the sample lines are deleted.
- If you move or copy sample lines without the associated report lines, the sample lines are deleted. You cannot move or copy sample data alone.
- To change the line type of a sample line with continuation lines, you must use a block command that includes the whole group of lines.

Example: Creating Sample Data

Figure 145 shows a simple report design on the Design Report display with record formats and fields already defined.

```
 Columns . . . :    1  71        Design Report                 RPTLIB/RPTFILE
 RLU==> _____________________________________________________________ REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
FLD1    <.............................>
 RCD001 ABC Company - Employee Directory
00002 +
00003 +
FLD1    <..> <...........>                                      <...>    <....>
 RCD002 Dept Employee Name                                     Phone    Status
FLD1    <..> <.......................................>         <...>      *
 RCD003 nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx    nnnnn      x
        --------------------------- End of Report -----------------------------
```

Figure 145. Design Report Display with Record Formats and Fields Defined

Assume that you want to define three lines of sample data for the third record format.

1. Use the SD*n* version of the line command, since you want more than a single line of sample data.

   Type the command shown in Figure 146 on page 132.

```
 Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
 RLU==> _____________________________________________________________ REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
FLD1    <.............................>
 RCD001 ABC Company - Employee Directory
00002 +
00003 +
FLD1    <..> <...........>                                        <...>    <....>
 RCD002 Dept Employee Name                                        Phone    Status
FLD1    <..> <.......................................>           <...>      *
SD3     nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx    nnnnn      x
        --------------------------- End of Report ----------------------------
```

Figure 146. Design Report Display with Sample Data (SD) Command Typed

2. Press Enter.

   RLU creates three sample lines following the record format with data that matches the fields defined in the report line, shown in Figure 147.

```
 Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
 RLU==> _____________________________________________________________ REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
FLD1    <.............................>
 RCD001 ABC Company - Employee Directory
00002 +
00003 +
FLD1    <..> <...........>                                        <...>    <....>
 RCD002 Dept Employee Name                                        Phone    Status
FLD1    <..> <.......................................>           <...>      *
 RCD003 nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx    nnnnn      x
00006 S 9999 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX    99999      X
00007 S 9999 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX    99999      X
00008 S 9999 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX    99999      X
        --------------------------- End of Report ----------------------------
```

Figure 147. Design Report Display with Sample Data Created

For another example of creating sample data, see "Changing Record Formats and Fields" on page 86.

Editing Fields Using Function Keys

This section describes how you can use function keys to edit existing fields in your report design.

Changing Field Information

You can change the current information for an existing field on the Design Report display by positioning your cursor on the field and pressing F23=Field keywords (B).

The Work with Field Keywords display appears. For more information about how you use this display, see "Specifying Field-Level Keywords" on page 141.

To change field information, press F10=Specify information. The Specify Field Information display appears. The only difference between the Specify Field Information display for an existing field and the Define Field Information display for a new field is that F10=Work with keywords is not available on the Specify Field Information display.

You can change the following field information on the Specify Field Information display:

- Name
- Position
- Length
- Data type
- Decimal positions

See "Field Information" on page 120 for descriptions of specifying this field information.

You can also change the current name of a field on the Design Report display by working with a list of all the existing fields in the record format. Press F4=Fields (B) when the cursor is positioned anywhere in the record format and you see the Work with Fields display. See "Working with a List of Fields" on page 135 for information about this display and how you rename fields in the list.

Marking and Copying or Moving Areas of Data

You can copy or move a field or an entire area of data on the Design Report display by using a series of function keys.

Marking Data

The area of data on the display that you mark for copying or moving can be any of the following:

- A single character
- A single field
- An area containing multiple fields and text

To specify a single character for copying or moving, position your cursor on the character and press F13=Mark/Unmark data (B). RLU highlights the marked character by showing it in reverse image.

To specify a single field for copying or moving, position your cursor anywhere in the field and press F13=Mark/Unmark data (B). RLU highlights the marked field by showing it in reverse image.

To specify an area of data for copying or moving, place your cursor at a position that represents one corner of the block you want to define and press F13=Mark/Unmark data (B). Then move your cursor to another position that represents the other corner of the block and press F13=Mark/Unmark data (B) again. The block will include all the characters and fields either on the marks you make with the cursor or between the two marks, and RLU highlights the block by showing the data in reverse image. Note that when you copy or move the block, only fields that are fully contained within the block are copied or moved, and that you can only define one marked area at a time.

To specify how you want RLU to handle marked data copy and move operations, you specify the following options:

- Insert marked data (to specify how you want RLU to handle existing data in the target area)
- Replace marked data (to specify how you want RLU to handle the source area after a move operation)

To look at or to change the default for these options, press F13=Change session defaults (A) on the Design Report Display. The default value for these fields is N in the initial session. The value you choose becomes the default for subsequent sessions until changed.

For information about specifying these options, see "Changing Your Edit Session Environment" on page 34.

To cancel a marking operation before you copy or move it, do one of the following:

- Position your cursor within the marked area and press F13=Mark/Unmark data (B)
- Press F5=Refresh to refresh the display

Note: F5=Refresh clears your current display of all the changes you made since you last initiated processing by pressing Enter or a function key.

Copying or Moving Data

You can use another function key to copy or move an area that you marked.

Place your cursor at the top left corner of the area to which you want to copy or move your marked block and press F14=Copy marked data (B) or F15=Move marked data (B).

For a copy or move marked data operation, RLU does the following:

- Copies or moves all fields and individual characters completely contained within the marked area to the new area you specified.
- Displays an error message for each field (which already has a field definition) that you copy or move.
- If you copy or move a field on to a report line, RLU also:
  - Creates a new field definition for each field (for a copy operation only), adjusting positional attributes and keywords as necessary.
  - Copies or moves any sample data associated with a field, adding new sample lines if you are copying or moving less lines than already exist under the target report line or leaving sample lines uncopied or unmoved if there are more lines than already exist under the target report line.
- If you copy or move a field on to a sample line or filler line, RLU moves the text only for each field that is copied or moved. The field definitions are not copied or moved. RLU displays a message indicating that at least one field definition is not copied or moved.

If you want to copy or move data without affecting existing field definitions in the target area, specify N=No for the insert option on the Change Session Defaults display. The copied or moved fields overlay the existing fields and the contents of the source area replaces the contents of the target area.

If you want to shift data in the target area, specify Y=Yes for the insert option on the Change Session Defaults display. RLU shifts the data in the target area, along with all data to the right of the target area, to the right by the width of the target area. If this operation would place any data outside the boundary of the report width or if the target area is specified in the middle of an existing field, RLU does not perform the operation and you see an error message.

Working with a List of Fields

To specify field information and keywords for fields that already exist in your report definition, you can display a list of fields and select the field you want to change from the list.

To use a field list, press F4=Fields (B) when your cursor is positioned anywhere in a record format on the Design Report display.

There are three versions of the Work with Fields list display. Each version shows you different information about the fields in the record format. The initial Work with Fields display shows you the values currently specified for each field in the list, as shown in Figure 148.

```
                              Work with Fields

Record format  . . . . :   RCD001

Type options, press Enter.
  2=Change   4=Delete   5=Work with keywords

Opt  Field                  Line   Position   Length   -Indicators--
 _   'Employee Name'_____             1
 _   'Status'____________            +52                 01
 _   FLD001_____________              1         44
 _   FLD002_____________             +54          1

                                                                Bottom
F3=Exit   F5=Refresh   F11=Display interpreted values   F12=Cancel
```

Figure 148. Work with Fields Display (Showing Specified Values)

To see the field list on the Work with Fields display that shows you the interpreted values for each current field definition in the list, press F11=Display interpreted values on your initial Work with Fields display. The Work with Fields display appears as shown in Figure 149 on page 136.

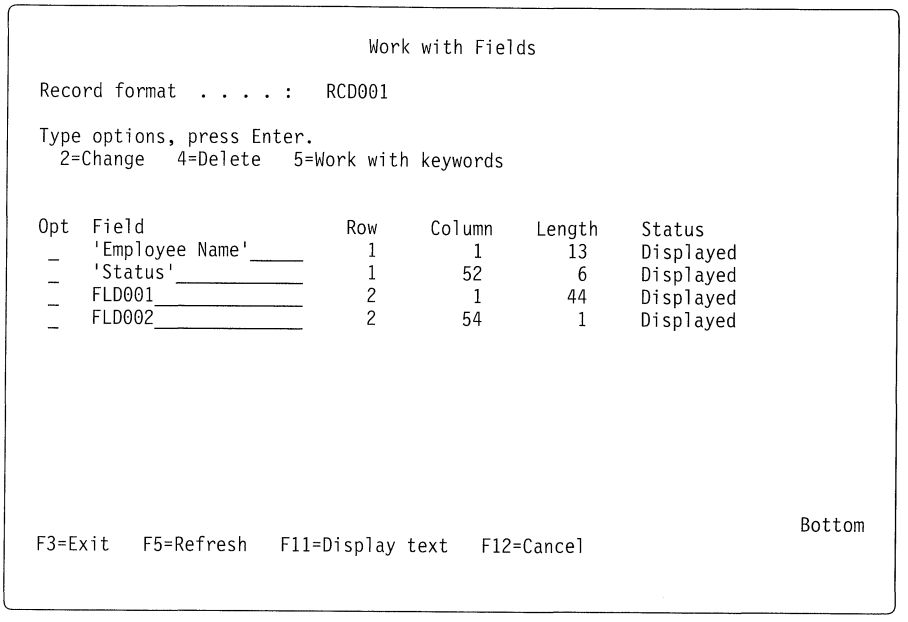

Figure 149. Work with Fields Display (Showing Interpreted Values)

To see the field list on the Work with Fields display that shows you the text description of each field, press F11=Display text on the interpreted value version of the Work with Fields display. The display with descriptions appears as shown in Figure 150.

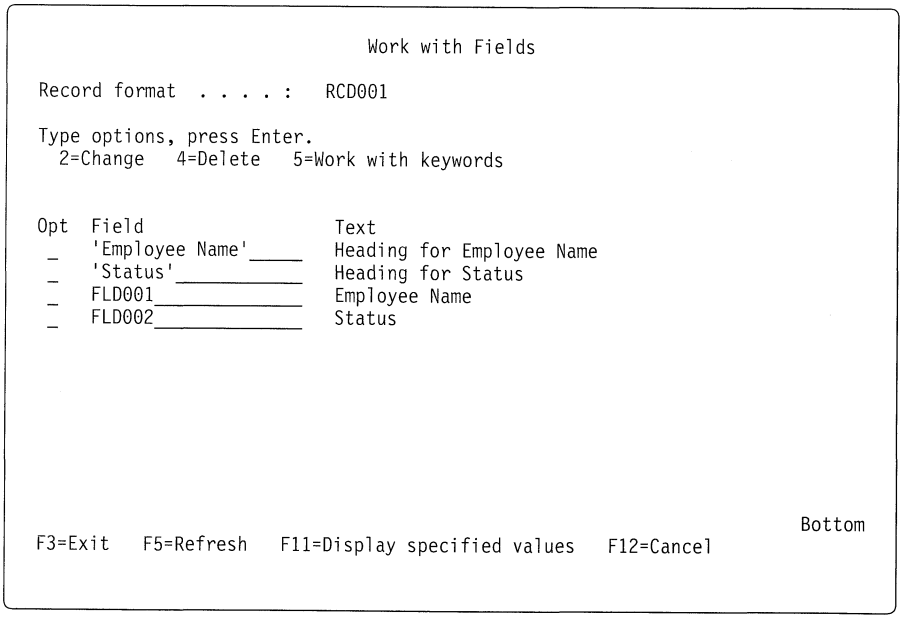

Figure 150. Work with Fields Display (Showing Text Descriptions)

You can do the following on these displays:

- Rename fields.

  Type a new name in the *Field* prompt for the named field you want to rename (you cannot rename a constant field). RLU changes the field name when you press Enter.

- Change field information.

  Type 2 next to the field you want to change. The Specify Field Information display appears for you to change the field definition. See "Field Information" on page 120 for more information.

- Delete fields.

  Type 4 next to the field that you want to delete. All selected fields are deleted when you press Enter and the list is refreshed and redisplayed. If all fields are deleted from the record, the Design Report display is returned.

- Specify keywords for the field.

  Type 5 next to the field for which you want to define keywords. The Work with Field Keywords display appears for you to specify field-level keywords.

Editing Fields Using Field Lines

You can edit the field line on the Design Report display to do the following:

- Shorten fields.
- Lengthen fields.
- Change field positions.
- Define special constant fields. For more information, see "Defining Constant Fields Using Keyword Constants" on page 128.
- Add database field references. See "Referencing Database Fields" on page 146 for information about referencing database fields.

Unless you changed the default value on the Change Session Defaults display, RLU automatically displays a field line immediately above a report line, as soon as you define at least one field on it. If field lines are not automatically appearing and you want to use them in your report image, do one of the following:

- Use the View Field (VF) line command. Type VF in the sequence number area of the line containing the fields you want to edit and press Enter.
- Specify that you want RLU to automatically display the appropriate field lines above every line with at least one field defined in it. See "Changing Your Edit Session Environment" on page 34 for a description of how to use the Change Session Defaults display.

The field line is made up of the following characters:

* * (asterisk) to indicate a single character field
* < (less than) to indicate the start of a field
* > (greater than) to indicate the end of a field
* . (period) to fill the character positions of the field

Figure 151 shows you what field lines look like on the Design Report display.

```
 Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
 RLU==> _____________________________________________________________ REPORT
 BASE     ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
         ------------------------ Start of Page 001 --------------------------
FLD1     <.............................>
 RCD001 ABC Company - Employee Directory
00002 .
00003 .
FLD1     <..> <...........>                                      <...>    <....>
 RCD002 Dept Employee Name                                      Phone    Status
FLD1     <..> <.......................................>         <...>      *
00005 + nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx    nnnnn      x
         -------------------------- End of Report -----------------------------




 F3=Exit   F11=Define field   F16=Delete field
 F22=Alternative keys         F24=More keys
```

Figure 151. Field Lines

To shorten the length of a field, delete as many periods as appropriate from the field line by using the Delete key.

To lengthen a field, add as many periods or blanks as appropriate to the field line by using the Insert key.

To move fields to the right, insert the appropriate number of blanks in the field line before the representation of the field that you want to move. This field, and all fields to the right, will shift to the right by the number of blanks you insert.

To move fields to the left, delete the appropriate number of blanks from the field line before the representation of the field that you want to move. This field, and all fields to the right, will shift to the left by the number of blanks you delete.

To move a field to the right or the left without affecting any other fields to the right, insert or delete the appropriate number of blanks in the field line before the field representation and delete or insert the same number of blanks after the field representation.

When you press Enter, RLU changes the field definition to reflect the new length or position. You see the change in the field line but you may not see the change in the field image itself unless the field is completely filled with characters on the display and you shorten the field.

To refresh the field line to its original state before you last pressed Enter, press F5=Refresh. To delete specific empty field lines, use the Delete line command. To specify that you want all field lines not displayed, use press F13=Change session defaults (A) and use the Change Session Defaults display.

You cannot delete or create a field when you edit the field line. If you change the syntax of the field line, RLU will not make any changes to your field definitions and you see an error message.

Example: Editing a Field Line

Assume that you defined the fields on a report line shown in Figure 152, and that a field line is displayed above the report line.

```
00003 +
 RCD003 Employee Name                          Dept   Phone    Status
FLD1    <.......................>             <..>   <...>      *
 RCD004 xxxxxxxxxxxxxxxxxxxxxxxxx             nnnn   nnnnn      x
```

Figure 152. Field Line Displayed

Assume you want to do the following:

- Lengthen the Employee Name field
- Move the Status field to the right

To edit the field line, do the following:

1. Insert periods to lengthen the Employee Name field as shown in Figure 153.

```
00003 +
 RCD003 Employee Name                          Dept   Phone    Status
FLD1    <.............................>            <..>   <...>      *
 RCD004 xxxxxxxxxxxxxxxxxxxxxxxxxxx           nnnn   nnnnn      x
```

Figure 153. Periods Inserted

2. Press Enter and the length of the Employee Name field increases by the number of periods you added, as shown in Figure 154.

```
00003 +
 RCD003 Employee Name                          Dept   Phone    Status
FLD1    <.............................>            <..>   <...>      *
 RCD004 xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx          nnnn   nnnnn      x
```

Figure 154. Field Lengthened

3. The other fields in the line also moved to the right by the number of periods added, so move them back to their original positions by deleting blanks in the field line, as shown in Figure 155 on page 140.

```
00003 +
 RCD003 Employee Name                          Dept   Phone    Status
FLD1    <.............................>        <..>   <...>      *
 RCD004 xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx             nnnn   nnnnn      x
```

Figure 155. Blanks Deleted

4. Press Enter and the fields move back to their original positions, as shown in Figure 156.

```
00003 +
 RCD003 Employee Name                          Dept   Phone    Status
FLD1    <.............................>        <..>   <...>      *
 RCD004 xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx        nnnn   nnnnn      x
```

Figure 156. Fields Moved Back

5. Insert blanks to move the Status field to the right, as shown in Figure 157.

```
00003 +
 RCD003 Employee Name                          Dept   Phone    Status
FLD1    <.............................>        <..>   <...>           *
 RCD004 xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx        nnnn   nnnnn      x
```

Figure 157. Blanks Inserted

6. Press Enter and the Status field moves to the right by the number of blanks you inserted, as shown in Figure 158.

```
00003 +
 RCD003 Employee Name                          Dept   Phone    Status
FLD1    <.............................>        <..>   <...>           *
 RCD004 xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx        nnnn   nnnnn           x
```

Figure 158. Field Moved

Editing Fields Using Line Commands

This section describes how you can use line commands to edit existing fields in your report design.

Centering Fields

You can use a line command to center a field on a report line, based on the report width you specify when you start RLU and the length of the field. If the report line contains more than one field, RLU uses the length between the starting position of the first field on the line and the last position of the last field on the line for centering.

Type one of the following commands in the sequence number area of the appropriate lines:

`CF` To center the field or fields on this line

`CF`*n* (Where *n* is a number) to center the field or fields on *n* lines, beginning with this line

`CFF` To center the field or fields on all lines between (and including) this line and the next occurrence of `CFF`

RLU also shifts any sample data associated with the fields you are centering.

Evenly Spacing Fields

You can use a line command to evenly space the fields on a report line. RLU pads extra spaces to the right.

Type the following command in the sequence number area of the appropriate lines:

`SP` To evenly space the fields on this line

RLU also shifts any sample data associated with the fields you are evenly spacing.

Deleting Fields

You can use a function key to delete an existing field on the Design Report display.

To delete a field on a report line or a sample line, position your cursor anywhere in the field you want to delete or on the sample data associated with the field and press F16=Delete field (B).

RLU deletes the following:

- The field text on the display
- Any sample data associated with the field
- All information included in the definition of the field

If the field-level keyword REFFLD is specified for the deleted field, the referenced database field is added to the field list at the bottom of the display. You can add this field to the report again. For more information, see "Adding Database References to the Field Line" on page 161.

Specifying Field-Level Keywords

To further define the fields in your report design, you specify field-level DDS keywords.

Depending on the display you used last time you worked with file-level, record-level, or field-level keywords, either the Work with Field Keywords display or the Input Field Keywords display appears when you do any of following:

- Place your cursor on an existing field on the Design Report display that you want to change and press F23=Field keywords (B)
- Press F10=Work with keywords when you are on the Define Field Information display
- Type 5 on the Work with Fields list display next to the existing field you want to work with and press Enter

If the Input Field Keywords display appears, press F9=Work with keywords to access the Work with Field Keywords display.

The Work with Field Keywords display is shown in Figure 159.

```
                          Work with Field Keywords

Field . . . . . :   FLD001        Record format . . . . :   RCD001

Type options, press Enter.
  2=Specify   4=Remove

Opt     Keyword            Opt     Keyword            Opt     Keyword
 _      ALIAS               _      EDTCDE              _      SKIPA
 _      BARCODE             _      EDTWRD              _      SKIPB
 _      BLKFOLD             _      FLTFIXDEC           _      SPACEA
 _      CDEFNT              _      FLTPCN              _      SPACEB
 _      CHRID               _      FNTCHRSET           _      TEXT
 _      CHRSIZ              _      FONT                _      TIME
 _      COLOR               _      HIGHLIGHT           _      TRNSPY
 _      CPI                 _      INDTXT              _      UNDERLINE
 _      CVTDTA              _      MSGCON
 _      DATE                _      PAGNBR
 _      DFT                 _      PRTQLTY
 _      DLTEDT              _      REFFLD
                                                              Bottom
F3=Exit   F5=Refresh   F9=Input keyword parameters   F10=Specify information
F12=Cancel   F16=Remove all keywords
```

Figure 159. Work with Field Keywords Display

You can do the following on this display:

- Select a keyword to specify
- Select a keyword to remove from the field definition
- Remove all the keywords specified for the field

Note: On DBCS-capable systems, DBCS-only keywords are also shown on the Work with Field Keywords display.

Specifying Keywords

To specify a keyword, type 2 next to the keyword you want and press Enter.

If you select a keyword that has further parameters and option indicators to specify, you see a data entry display for that keyword. If you select a keyword that has no further information to specify, you see a message and RLU specifies the keyword for the field.

Also, regardless of the type of keyword you select, you see > in front of the keyword in the list to indicate that you specified that keyword.

For detailed information about each keyword and its parameters and options, refer to one of the following:

- Appendix A, "DDS Printer File Keywords" on page 173.
- RLU online help information. Press Help or F1=Help when you are on the data entry display for the keyword.
- The *DDS Reference*.

Removing Keywords

To remove a keyword that you previously specified from a field definition, type 4 on the Work with Field Keywords display next to the keyword you want to remove, and press Enter. RLU removes the keyword from the field definition.

To remove all the keywords that you previously specified for the field, press F16=Remove all keywords. RLU removes all keywords from the field definition.

Using the Fastpath

You can use a fastpath to add or remove keywords or parameters.

To work with field keywords this way, press F9=Input keyword parameters on the Work with Field Keywords display. The Input Field Keywords display appears as shown in Figure 160.

```
                          Input Field Keywords

Field . . . . . :   FLD001       Record format . . . . :   RCD001

Type options and keywords, press Enter.
  1=Add   2=Specify with prompting   4=Remove

Opt  Keyword    Parameters                                  -Indicators--
 _   ________   ________________________________________    __  __  __

  (No keywords specified)

                                                                    Bottom
F3=Exit   F5=Refresh   F9=Work with keywords   F10=Specify information
```

Figure 160. Input Field Keywords Display

The Input Field Keywords display shows the keywords already specified for the field, along with any parameters currently specified for them, as they would appear in the DDS source statements.

You can do the following on this display:

- Add a field-level keyword, along with parameters and indicators, on the first row of the list
- Change the parameters on any row in the list
- Change the indicators on any row in the list

Press Enter to return to the Design Report display, press F12=Cancel to return without processing, or press F9=Work with keywords to return to the Work with Field Keywords display.

Conditioning Fields and Keywords

To help you create realistic report prototypes, RLU lets you define indicators for fields and keywords, and then set the indicators on or off to condition your Design Report display. You can also print a report prototype with indicators set on or off. RLU saves the indicator settings you specify and they apply in your next RLU session until you change them.

For more information on indicators, refer to the *DDS Reference*.

Defining Indicators

You can specify indicators for any field you define and for some keywords you specify for a field, a record format, or a printer file.

You specify indicators for a field when you define the field using the Define Field Information display or when you change the field using the Specify Field Information display. The Define Field Information display is shown in Figure 161 on page 145.

```
                        Define Field Information

Edited length . . . . . . . . . . . . :  32
Record format . . . . . . . . . . . . :  RCD001
Number of keywords  . . . . . . . . . :  0
Number of indicators  . . . . . . . . :  0

Type choices, press Enter.

  Field . . . . . . . . . . . . . . .  FLD001____    Name
  Option indicators . . . . . . . . .  ___ ___ ___   01-99, N01-N99
    More indicators . . . . . . . . .    N          Y=Yes, N=No
  Starting line . . . . . . . . . . .  ___          1-255
  Starting position . . . . . . . . .  __1          1-255, +nn
  Length of data  . . . . . . . . . .  _32         1-378, +nn, -nn
  Data type . . . . . . . . . . . . .  1            1=Character
                                                    2=Zoned
                                                    3=Floating point
  Decimal positions . . . . . . . . .   __          0-31, +n, -n

                                                                   More...
F3=Exit   F5=Refresh   F10=Work with keywords   F11=Convert to constant field
F12=Cancel
```

Figure 161. Define Field Information Display

You can specify up to three option indicators for a new or existing field in the *Option indicators* prompt. You can specify up to 81 indicators by specifying Y=Yes for the *More indicators* prompt. You see another display that allows you to specify more indicators for the field. After you specify indicators for the field, the number of indicators currently specified appears in the *Number of indicators prompt* at the top of the display.

Some keywords allow option indicators while others do not. Refer to the information about each keyword in Appendix A, "DDS Printer File Keywords" on page 173. To specify an indicator for a keyword, you use prompts on the data entry display for the keyword. See Appendix A, "DDS Printer File Keywords" on page 173 for descriptions of each keyword data entry display.

Setting Indicators

To set indicators on or off, press F6=Condition display (B) on the Design Report display.

The Condition Design Report Display appears, as shown in Figure 162 on page 146.

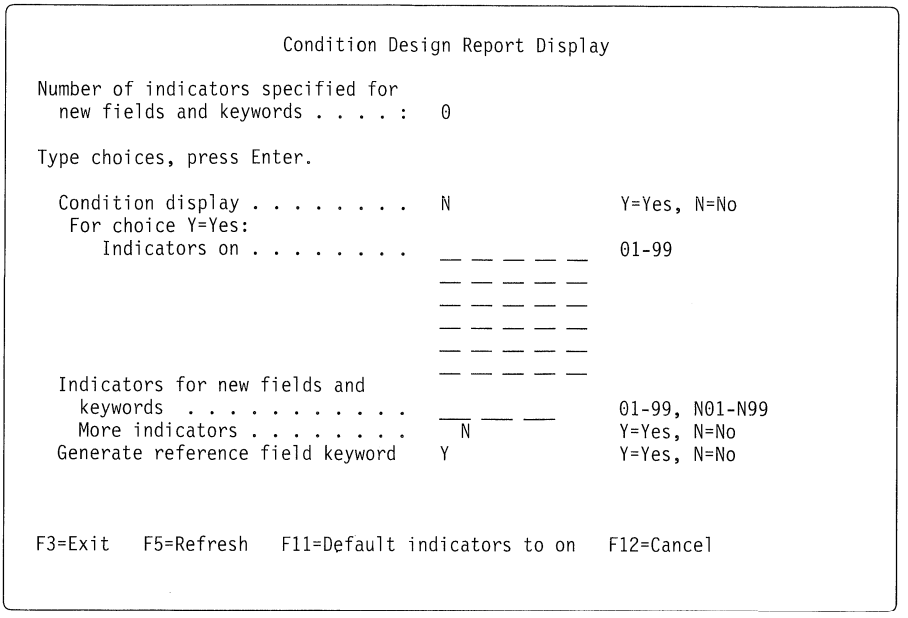

Figure 162. Condition Design Report Display

You set indicators on by specifying them for the *Indicators on* prompt and typing `Y` for the *Condition display* prompt.

The specified indicators are on, while all others are off, throughout your edit session or until you set them off. The indicator settings you specify here also apply when you print your report prototype.

To use this display for setting the specified indicators off rather than on, press F11=Default indicators to on. The *Indicators on* prompt becomes *Indicators off*, and F11=Default indicators to on becomes F11=Default indicators to off.

For more information about the other prompts, place your cursor on the appropriate line of this display as you use RLU and press the Help key or F1=Help. You will see online help information that explains how to use the prompt.

Referencing Database Fields

There are two ways to reference field definitions from a database file in your report:

- Using a prompt on the Define Field Information display or the Specify Field Information display and a field keyword. For more information, see "Using the Define (or Specify) Field Information Display and a Keyword" on page 147.

  Note: This method is used in the second example exercise in the RLU example chapter. To practice this method of referencing database fields, see "Designing a Complex Report" on page 71.

- Using a field line on the Design Report display and a list of database fields. For more information, see "Using a List of Database Fields and Field Lines" on page 153.

  Note: This method is used in the first example exercise in the RLU example chapter. To practice this method of referencing database fields, see "Designing a Simple Report" on page 59.

Using the Define (or Specify) Field Information Display and a Keyword

This section describes one method of referencing database fields. The order in which you perform the steps when using the Define (or Specify) Field Information display and a keyword depends on whether you are defining the field to:

- Change information about a field already defined on the Design Report display
- Create a new field on the Design Report display

When you reference a database field definition using a keyword, you do not see the associated column heading defined in the database field definition. To add column headings, you create them and define them as constant fields on the Design Report display.

To reference a database field and include the column heading defined in the database definition, use the method of building a list of database fields and editing the field line. This method is explained in "Using a List of Database Fields and Field Lines" on page 153.

Changing an Existing Field

The following steps explain how to change an existing field on the Design Report display by referencing a database field:

1. To refer to a database file for the field definition for an existing field on the Design Report display, move the cursor to the first position in the field and press F23=Field keywords (B). The Work with Field Keywords display appears, as shown in Figure 163.

```
                          Work with Field Keywords

Field . . . . . :   FLD006        Record format . . . . :   RCD003

Type options, press Enter.
  2=Specify   4=Remove

Opt     Keyword            Opt     Keyword            Opt     Keyword
 _      ALIAS               _      EDTCDE              _      SKIPA
 _      BARCODE             _      EDTWRD              _      SKIPB
 _      BLKFOLD             _      FLTFIXDEC           _      SPACEA
 _      CDEFNT              _      FLTPCN              _      SPACEB
 _      CHRID               _      FNTCHRSET           _      TEXT
 _      CHRSIZ              _      FONT                _      TIME
 _      COLOR               _      HIGHLIGHT           _      TRNSPY
 _      CPI                 _      INDTXT              _      UNDERLINE
 _      CVTDTA              _      MSGCON
 _      DATE                _      PAGNBR
 _      DFT                 _      PRTQLTY
 _      DLTEDT              _      REFFLD
                                                              Bottom
F3=Exit   F5=Refresh   F9=Input keyword parameters   F10=Specify information
F12=Cancel   F16=Remove all keywords
```

Figure 163. Work with Field Keywords Display

2. Select the REFFLD keyword by typing 2 next to REFFLD in the keyword list and press Enter. The Specify Reference Field display appears, as shown in Figure 164 on page 148.

```
                        Specify Referenced Field

Keyword . . . . . :   REFFLD
Field . . . . . :   FLD006
Record format . . . . . :   RCD003

Type choices, press Enter.

  Field . . . . . _____     Name
                            F4 for list
    Record format . . . . . _____     Name
                            F4 for list

  File  . . . . . _____     Name
                            *SRC
                            F4 for list
    Library . . . . . _____     Name
                            *CURLIB
                            *LIBL


F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 164. Specify Referenced Field Display

3. Specify the database field, record format, file, and library to reference, and press Enter. A message is displayed indicating that errors exist because you have not yet specified in the field definition that this is a referenced field.

   Note: For more information about the Specify Reference Field display, see "Using the Specify Referenced Field Display" on page 152.

4. Press Enter again to continue. The Work with Fields Keywords display is returned.
   The > symbol next to the REFFLD keyword indicates that REFFLD is now specified for the field, as shown in Figure 165.

```
                        Work with Field Keywords

Field  . . . . . :   FLD006        Record format  . . . . :   RCD003

Type options, press Enter.
  2=Specify   4=Remove

Opt     Keyword           Opt     Keyword           Opt     Keyword
 _      ALIAS              _      EDTCDE             _      SKIPA
 _      BARCODE            _      EDTWRD             _      SKIPB
 _      BLKFOLD            _      FLTFIXDEC          _      SPACEA
 _      CDEFNT             _      FLTPCN             _      SPACEB
 _      CHRID              _      FNTCHRSET          _      TEXT
 _      CHRSIZ             _      FONT               _      TIME
 _      COLOR              _      HIGHLIGHT          _      TRNSPY
 _      CPI                _      INDTXT             _      UNDERLINE
 _      CVTDTA             _      MSGCON
 _      DATE               _      PAGNBR
 _      DFT                _      PRTQLTY
 _      DLTEDT             _   >  REFFLD
                                                             Bottom
 F3=Exit   F5=Refresh   F9=Input keyword parameters   F10=Specify information
 F12=Cancel   F16=Remove all keywords
Specify reference in FLD006 for REFFLD.
```

Figure 165. Work with Field Keywords Display with REFFLD Specified

5. To add the database reference to the field definition, press F10=Specify information. The Specify Field Information display appears. Use the roll keys to see the bottom of the display, as shown in Figure 166.

```
                        Specify Field Information

Edited length . . . . . . . . . . . . :   4
Record format . . . . . . . . . . . . :   RCD003
Number of keywords  . . . . . . . . . :   1
Number of indicators  . . . . . . . . :   0

Type choices, press Enter.

  Reference a field . . . . . . . . . .   Y             Y=Yes, N=No
    Use referenced values . . . . . . .     Y         Y=Yes, N=No

                                                                  Bottom
F3=Exit   F5=Refresh   F11=Convert to constant field   F12=Cancel
```

Figure 166. Specify Field Information Display (Bottom Half)

6. To specify that you want to reference an existing database field definition for the field you are defining, type `Y` for the *Reference a field* prompt. You can also specify that you want to use the values from the database field definition. Press Enter to return to the Work with Field Keywords display.
7. Press Enter again and the Design Report display appears with your defined field.

Creating a New Field

1. To create a new field on the Design Report display by referencing a database field, place your cursor where you want the field to begin. Press F11=Define field (B) to see the Define Field Information display, as shown in Figure 167 on page 150.

```
                        Define Field Information

Edited length . . . . . . . . . . . . :  13
Record format . . . . . . . . . . . . :  RCD002
Number of keywords  . . . . . . . . . :  0
Number of indicators  . . . . . . . . :  0

Type choices, press Enter.

  Field . . . . . . . . . . . . . . .  FLD001____   Name
  Option indicators . . . . . . . . .  ___ ___ ___  01-99, N01-N99
    More indicators . . . . . . . . .    N         Y=Yes, N=No
  Starting line . . . . . . . . . . .  ___         1-255
  Starting position . . . . . . . . .  __1         1-255, +nn
  Length of data  . . . . . . . . . .  _13        1-378, +nn, -nn
  Data type . . . . . . . . . . . . .  1           1=Character
                                                   2=Zoned
                                                   3=Floating point
  Decimal positions . . . . . . . . .  __          0-31, +n, -n

                                                                   More...
F3=Exit   F5=Refresh   F10=Work with keywords   F11=Convert to constant field
F12=Cancel
```

Figure 167. Define Field Information Display

2. From the Define Field Information display, press F10=Work with keywords to see the Work with Field Keywords display.
3. Type 2 next to REFFLD in the keyword list, as shown in Figure 168.

```
                          Work with Field Keywords

Field  . . . . . . . . :  FLD001       Record format  . . . . :  RCD002

Type options, press Enter.
  2=Specify   4=Remove

Opt     Keyword          Opt     Keyword          Opt     Keyword
 _      ALIAS             _      EDTCDE            _      SKIPA
 _      BARCODE           _      EDTWRD            _      SKIPB
 _      BLKFOLD           _      FLTFIXDEC         _      SPACEA
 _      CDEFNT            _      FLTPCN            _      SPACEB
 _      CHRID             _      FNTCHRSET         _      TEXT
 _      CHRSIZ            _      FONT              _      TIME
 _      COLOR             _      HIGHLIGHT         _      TRNSPY
 _      CPI               _      INDTXT            _      UNDERLINE
 _      CVTDTA            _      MSGCON
 _      DATE              _      PAGNBR
 _      DFT               _      PRTQLTY
 _      DLTEDT            2      REFFLD
                                                          Bottom
F3=Exit   F5=Refresh   F9=Input keyword parameters   F10=Specify information
F12=Cancel   F16=Remove all keywords
```

Figure 168. Work with Field Keywords Display

4. Press Enter. The Specify Referenced Field display appears, as shown in Figure 169 on page 151.

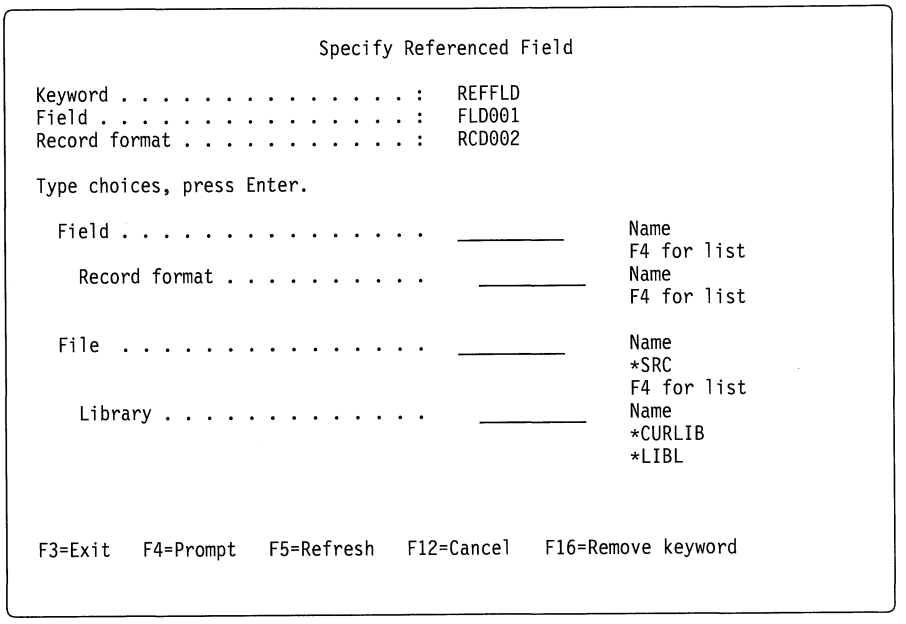

Figure 169. Specify Referenced Field Display

5. Specify the database field, record format, file, and library you want to reference and press Enter.

   A message is displayed indicating that errors exist because you have not yet specified in the field definition that this is a referenced field.

   Note: For more information about the Specify Reference Field display, see "Using the Specify Referenced Field Display" on page 152.

6. Press Enter again. The Work with Fields Keywords display is returned. The > symbol next to the REFFLD keyword indicates that REFFLD is now specified for the field.

7. Press Enter again. The Specify Field Information display appears. Use the roll keys to see the bottom of the display, as shown in Figure 170 on page 152.

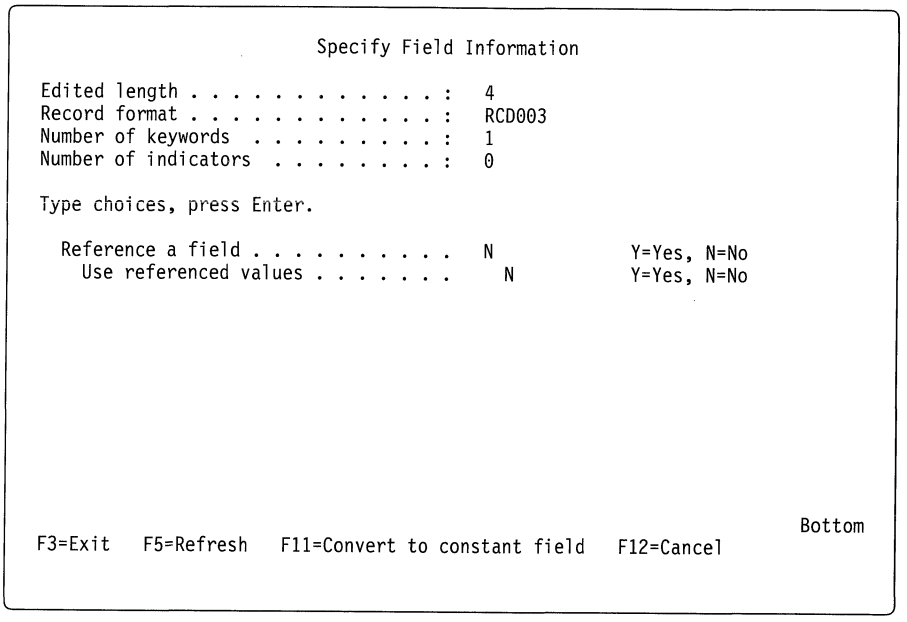

Figure 170. Specify Field Information Display (Bottom Half)

8. To specify that you want to reference an existing database field definition for the field you are defining, type Y for the *Reference a field* prompt. You can also specify that you want to use the values from the database field definition.
9. Press Enter again and the Design Report display appears with your defined field.

Using the Specify Referenced Field Display

RLU sets values for the prompts on the Specify Referenced Field display as follows:

1. If you are working with a field for which the REFFLD keyword is already defined, the values for the *Field*, *Record format*, *File*, and *Library* prompts are the values specified for REFFLD.
2. If you specified the file-level keyword REF, the values for the *Record format*, *File*, and *Library* prompts are the values specified for REF.
3. If neither item 1 nor item 2 applies, the default values for the *Record format*, *File*, and *Library* prompts are those that you specified on the Specify Referenced Field display, the Add Database Fields display, or the Input Field Keywords display, if you used any of these displays in the current RLU session.
4. If none of items 1, 2, or 3 apply, *CURLIB is displayed for the *Library* prompt, and the other prompts are blank.

You define the following on the Specify Referenced Field display:

- The field that you are referencing
- The record format containing the field you are referencing
- The file containing the record format and field you are referencing
- The library containing the file

For more detailed information about how you use the prompts on this display, place your cursor on the prompt when you are using RLU and press Help or F1=Help. You see information that describes the prompt and how to use it.

For more information about specifying keywords for fields, see "Specifying Field-Level Keywords" on page 141.

Using Lists

To select a database file from a list of all the files in a library, specify the name of the library and press F4 for list when your cursor is on the *File* prompt. See "Using a Database File List" on page 156 for information about using the Select Database File display.

To select a record format from a list of all the record formats in a database file, specify the name of the library and the file and press F4 for list when your cursor is on the *Record format* prompt. See "Using a Record Format List" on page 157 for information about using the Select Record Format display.

To select a field from a list of all the fields in a record format, specify the name of the library, the database file, and the record format and press F4 for list when your cursor is on the *Field* prompt. See "Using a Database Field List" on page 158 for information about using the Select Database Field display.

Using a List of Database Fields and Field Lines

This section describes another method of referencing database fields. You can reference database fields by building a list of fields to reference and then including them from the list in your report design by editing a field line on the Design Report display.

Building a List of Database Fields

To build a list of the database fields that you want to reference in your report, begin by pressing F10=Database fields (B) when you are editing your report design on the Design Report display. The Work with Database Fields display appears as shown in Figure 171 on page 154.

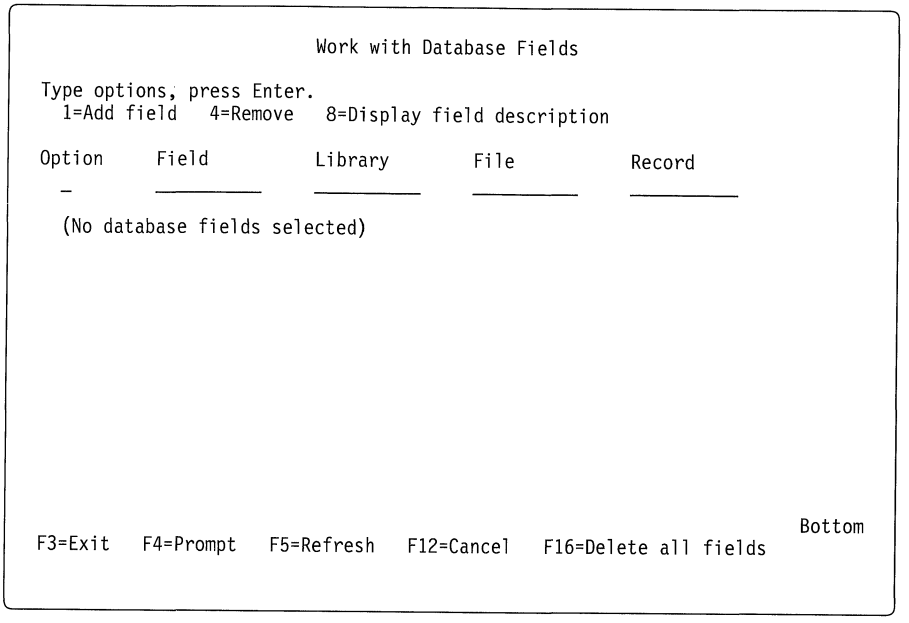

Figure 171. Work with Database Fields Display

Use this display to add a field to the list. Once you have added fields to the list, then you can also do the following:

- Remove a field from the list
- Remove all the fields in the list
- Display the description of a field
- Display the list at the bottom of the Design Report display as you edit your report design

Adding Fields to the List

The way you add a field to the list on the Work with Database Fields display depends on what information you specify, whether or not you want to use prompting to specify your information, and whether or not you want to select fields and record formats from lists.

In any case, however, type 1 in the *Option* column.

- If you specify the name of the field and the library, the file, and the record format for the field, and press Enter, RLU adds the field to the list.
- If you specify a library, a file, and a record format but not a field name, and press Enter, the Select Database Fields display appears for you to select a field from a list of all the fields in the record format. For more information, see "Using a Database Field List" on page 158.
- If you specify a library and a file but not a record format or a field name, and press Enter, the Select Record Format display appears for you to select a record format from a list of all the record formats in the file. For more information, see "Using a Record Format List" on page 157.

- If you specify a library only and press Enter, the Select Database File display appears for you to select a database file from a list of all the files in the library. For more information, see "Using a Database File List" on page 156.
- If you press F4=Prompt or press Enter with only option 1 (Add field) specified, the Add Database Fields display appears to prompt you for any information that you have not already supplied about the field. The display appears as shown in Figure 172, and you see the information you specified on the Work with Database Fields display.

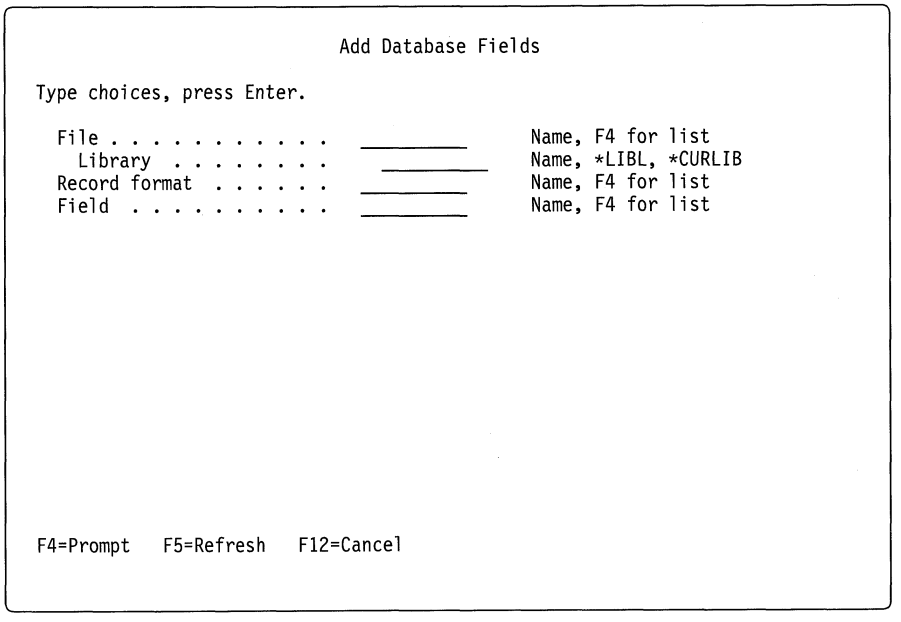

Figure 172. Add Database Fields Display

RLU sets values for the prompts on the Add Database Fields display as follows:

1. If you specified the file-level keyword REF, the values for the *Record format*, *File*, and *Library* prompts are the values specified for REF.
2. If item 1 does not apply, the default values for the *Record format*, *File*, and *Library* prompts are those that you specified on the Specify Referenced Field display, the Add Database Fields display, or on the Input Field keywords display, if you used any of these displays in the current RLU session.
3. If neither item 1 nor item 2 applies, *CURLIB is displayed for the *Library* prompt, and the other prompts are blank.

Specify the following on the Add Database Fields display:

1. The name of the file containing the field definition you want to reference. To see a list of all the files in a library, type the library name in the *Library* prompt and press F4 for list. See "Using a Database File List" on page 156 for a description of how to use the Select Database File display.
2. The name of the library containing the database file you want to use. You can also use *CURLIB or *LIBL.

3. The name of the record format containing the field you want to reference. To see a list of all the record formats in a file, type the library name in the Library prompt, the file name in the File prompt, and press F4 for list. See "Using a Record Format List" on page 157 for a description of how to use the Select Record Format display.
4. The name of the field you want to reference. To see a list of all the fields in a record format, specify the library, file, and record format, and press F4 for list. See "Using a Database Field List" on page 158 for a description of how to use the Select Database Fields display.

After you specify a field on the Add Database Fields display, the field is added to the list and you return to the Work with Database Fields display.

When you have added a field to the list, the Work with Database Fields display appears as shown in Figure 173.

```
                        Work with Database Fields

Type options, press Enter.
  1=Add field   4=Remove   8=Display field description

Option     Field          Library        File           Record
  _        _____          _____          _____          _____
  _        DEPT           INFOLIB        INFOFILE       INFO
  _        NAME           INFOLIB        INFOFILE       INFO

                                                                    Bottom
F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F16=Delete all fields
```

Figure 173. Work with Database Fields Display with Fields Added

For a description of how to display the list of fields as you are editing your report on the Design Report display, see "Displaying a Database Field List on the Design Report Display" on page 160.

Using a Database File List

The Select Database File display appears when you do one of the following:

- Specify a library only on the Work with Database Fields display and press Enter
- Specify a library only on the Add Database Fields display and press F4 for list
- Specify a library only on the Specify Reference Field data entry display for the REFFLD keyword and press F4 for list

The Select Database File display appears as shown in Figure 174 on page 157.

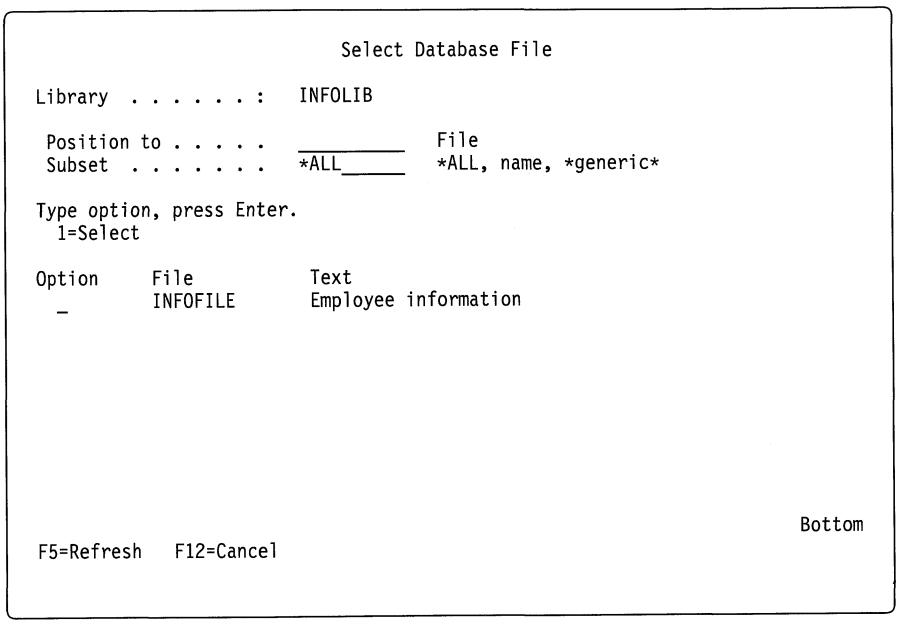

Figure 174. Select Database File Display

The list on this display includes all the database files that exist in the library you specified.

You can move the list on the display to a specific position, and you can also see a subset of the list by specifying the criteria for the subset you want. For an explanation of how to do either of these operations, position your cursor on the *Position to* or *Subset* prompt and press Help or F1=Help. You see information about how to use these prompts.

To select the file that contains the field definitions you want to reference, type 1 in the *Option* column next to the file name in the list and press Enter.

Using a Record Format List

The Select Record Format display appears when you do one of the following:

- Specify a library and a database file, but not a record format or a field, on the Work with Database Fields display and press Enter
- Specify a library and a database file, but not a record format or a field, on the Add Database Fields display and press F4 for list
- Specify a library and a database file, but not a record format or a field, on the Specify Referenced Field data entry display for the REFFLD keyword and press F4 for list

The Select Record Format display appears as shown in Figure 175 on page 158.

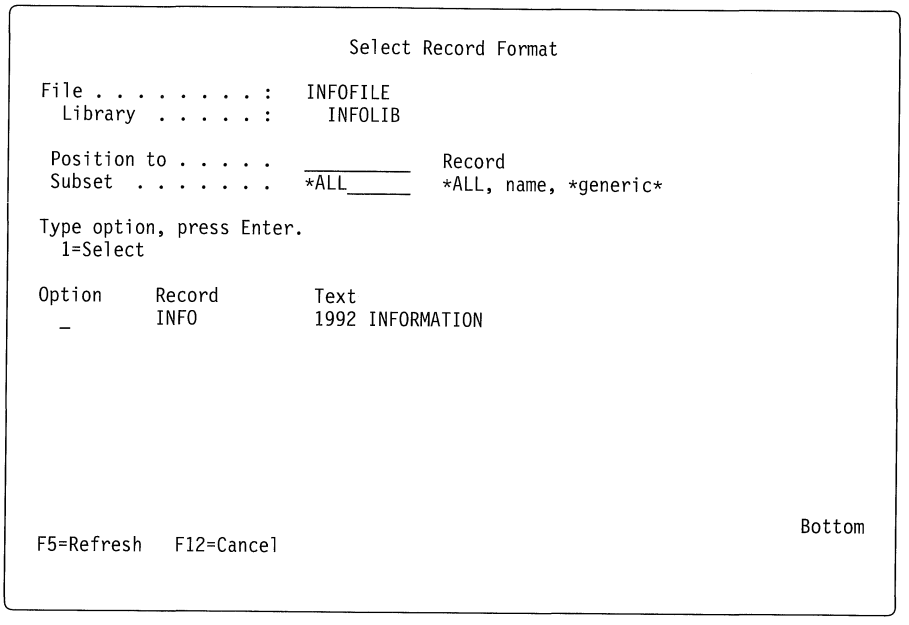

Figure 175. Select Record Format Display

The list on this display includes all the record formats from the database file you specified.

You can move the list on the display to a specific position, and you can also see a subset of the list by specifying the criteria for the subset you want. For an explanation of how to do either of these operations, position your cursor on the *Position to* or *Subset* prompt and press Help or F1=Help. You see information about how to use these prompts.

To select the record format that contains the fields you want to reference, type 1 in the *Option* column next to the record format name in the list and press Enter.

Using a Database Field List

The Select Database Fields display appears when you do one of the following:

- Specify a valid library, database file, and record format, but not a field, on the Work with Database Fields display and press Enter
- Specify a valid library, database file, and record format, but not a field, on the Add Database Fields display and press F4 for list

The Select Database Fields display appears as shown in Figure 176 on page 159.

```
                          Select Database Fields

File . . . . . :   INFOFILE        Record . . . . . :   INFO
  Library  . . . . . :     INFOLIB

 Position to . . . . .  _________   Field
 Subset  . . . . . .    *ALL_____   *ALL, name, *generic*

Type options, press Enter.
  1=Select   8=Display field description

                                                          Column
Opt     Field       Length  Type                        Heading
 _      DEPT             4  Character                   DEPARTMENT
 _      NAME            25  Character                   EMPLOYEE NAME
 _      PHONE            4  Character                   PHONE NO.
 _      TYPE             3  Character                   TYPE


                                                                  Bottom
F5=Refresh   F11=Display unsorted      F12=Cancel
```

Figure 176. Select Database Fields Display

Note: A similar display called the Select Database Field display appears when you specify a valid library, database file, and record format, but not a field, on the Specify Referenced Field data entry display for the REFFLD keyword. The only differences from the Select Database Fields display are that you can only specify one field and the option to display the field description is not available.

The list on this display includes all the fields in the record format you specified. The fields are displayed in alphabetical sort order unless you choose to display them unsorted. Press F11=Display unsorted to have the fields displayed in the order the fields were defined in the record. The last sort order selected remains the value in subsequent displays until you change it.

You can move the list on the display to a specific position, and you can also see a subset of the list by specifying the criteria for the subset you want. For an explanation of how to do either of these operations, position your cursor on the *Position to* or *Subset* prompt and press Help or F1=Help. You see information about how to use these prompts.

You can do the following on this display:

- Select fields that you want to reference.

  To select a field, type 1 next to the field name in the list, and press Enter. RLU marks a selected field with > (a greater than symbol). Note that you can select as many fields as you want in the list.

- Display a description of a field in the list.

  To see the detailed description of any field in the list, type 8 next to the field name, and press Enter. You see the Display Database Field Description display, as shown in Figure 177 on page 160.

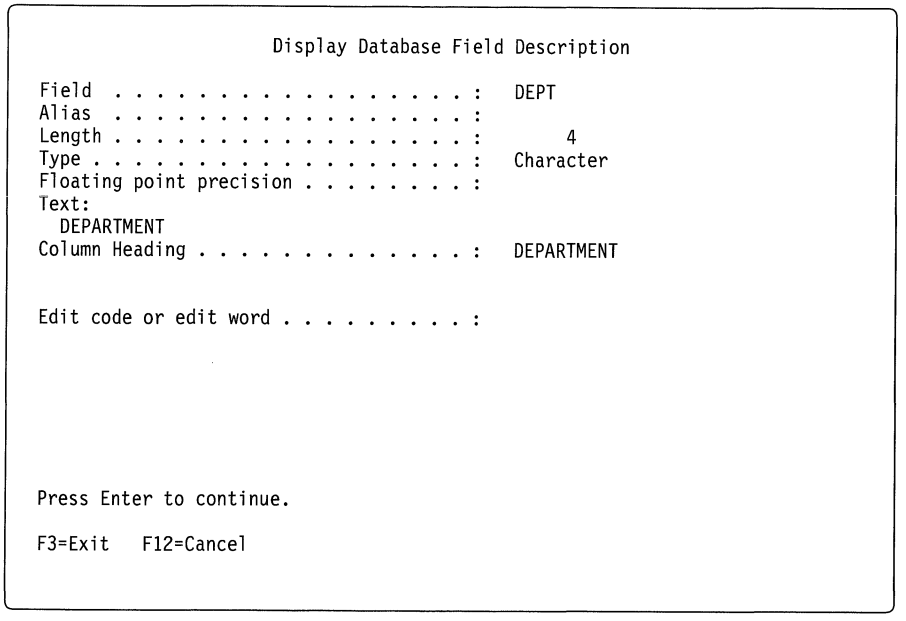

Figure 177. Display Database Field Description Display

For explanations of the information on this display, position your cursor on the prompt for which you want more information when you are using RLU and press Help or F1=Help.

Displaying a Database Field List on the Design Report Display

When you return to the Design Report display after editing your list of database fields, you see the list on the display as shown in Figure 178.

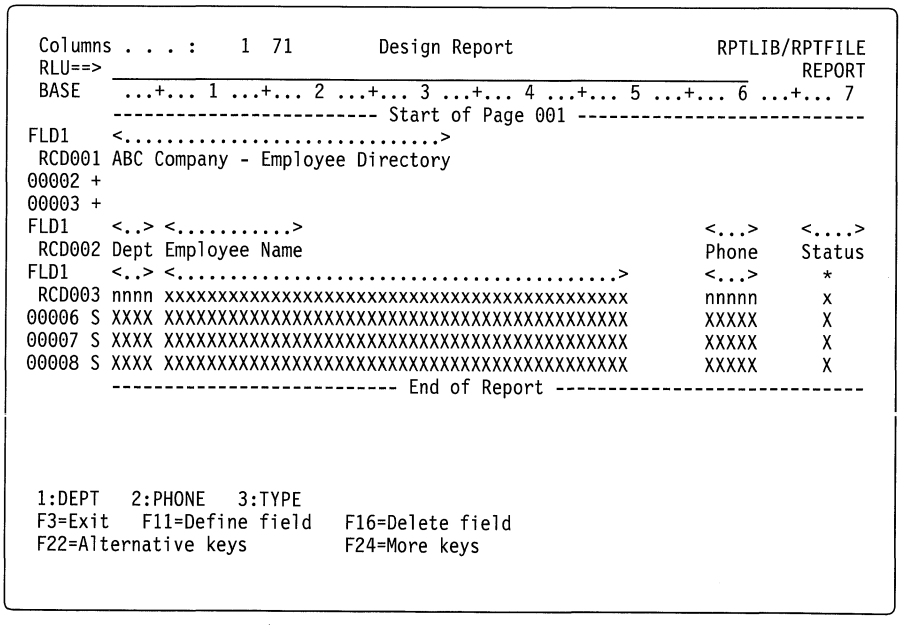

Figure 178. Design Report Display with Database Fields List

RLU numbers the fields from your list from 1 to 9. The maximum number of fields you can see on the Design Report display is nine. A plus sign (+) at the end of the line indicates that there are more fields to display. To see more fields, position your cursor on the line and use the Page Up and Page Down keys.

Adding Database References to the Field Line

You use a list of database fields on your Design Report display as a reference to include them in your report design.

After you build the list, you add the references to specific fields on the Design Report display by editing the field line.

To add a database reference for a field in a report line, you type the reference number of the field in the appropriate field line and at the position in the field line where you want the field to start. Use one of the following character strings:

n or &*n* (Where *n* is the reference number of a database field) to add field *n* to the report design at the position of either *n* or & with no column headings

*n*C or &*n*C (Where *n* is the reference number of a database field) to add field *n* to the report design at the position of either *n* or & and to add the defined column heading of field n as constant fields above field n

*n*L or &*n*L (Where *n* is the reference number of a database field) to add field *n* to the report design at the position of either *n* or & and to add the defined column heading of field *n* as a constant field to the left of field *n*, separated by one blank

*n*R or &*n*R (Where *n* is the reference number of a database field) to add field *n* to the report design at the position of either *n* or & and to add the defined column heading of field *n* as a constant field to the right of field *n*, separated by one blank

You can add more than one database reference to the field line at a time and you can use a particular database reference field more than once, but you can only use the database fields that you selected in the list and that currently appear at the bottom of the display. An example of adding database references for fields and adding the defined column headings is shown in Figure 179 on page 162.

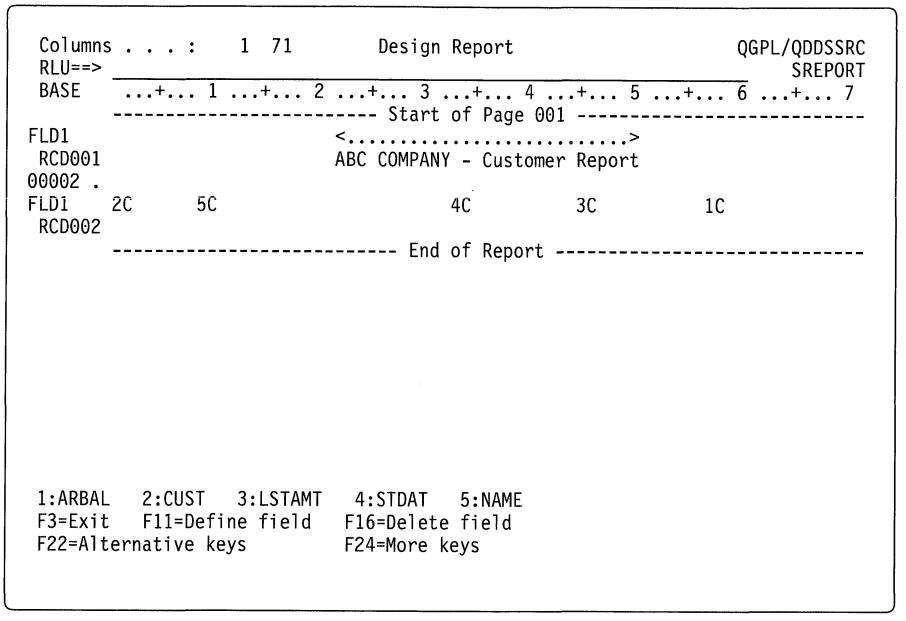

Figure 179. Design Report Display with Database References

When you press Enter, RLU does the following:

- Adds the database references you specified in the field line to the associated report line using the actual name of the database field.
- Creates up to three new report lines for referenced column headings, defined as one new record format, if you specified `nC` as a database reference.
- Deletes leading and trailing blanks from column headings and combines the resulting character strings, separated by single blanks, if you specify `nR` or `nL` as a database reference.
- Removes the field from the database field list at the bottom of the display. Because this creates blank space in the line, you see the next undisplayed field from your database field list added to the line.

When you are adding database field references to the field line, also be aware of the following:

- You cannot add database field references by editing hidden field lines.
- When you position the editing character string, ensure that there is enough space to add the database field or move adjacent fields to create sufficient space.
- If you reference a database field on the field line and then delete the new field from the report image, the referenced field is added to the field list. You can add the referenced field to the report again.

Chapter 7. Working with File Information

This chapter describes how to specify DDS printer file keywords at the file level for your RLU source member. File-level keywords let you use printer attributes that will be applied to all the record formats in the source member.

Specifying File-Level Keywords

The Work with File Keywords display appears when you press F17=File keywords (B) on the Design Report display.

Note: Throughout this manual, (A) after the function key indicates that the key is part of the alternative set of keys, and (B) after the function key indicates that the key is part of the base set of keys, on the Design Report display.

The Work with File Keywords display is shown in Figure 180.

```
                          Work with File Keywords

Type options, press Enter.
  2=Specify   4=Remove

Opt     Keyword           Opt     Keyword           Opt     Keyword
 _      DFNCHR
 _      INDARA
 _      INDTXT
 _      REF
 _      SKIPA
 _      SKIPB
 _

                                                                  Bottom
F3=Exit   F5=Refresh   F9=Input keyword parameters   F12=Cancel
F16=Remove all keywords
```

Figure 180. Work with File Keywords Display

This display shows you a list of all the keywords you can specify at the file level.

You also see any indicators that you previously specified for the keywords in the list. See "Conditioning Fields and Keywords" on page 144 for more information about keyword indicators.

You can do the following on this display:

- Specify a keyword
- Remove a keyword from your file specification
- Remove all the keywords specified for your file

Specifying Keywords

To specify a keyword, type 2 next to the keyword you want and press Enter.

If you select a keyword that has further parameters and option indicators to specify, you see a data entry display for that keyword. If you select a keyword that has no further information to specify, you see a message and RLU specifies the keyword for the file.

Also, regardless of the type of keyword you select, you see > in front of the keyword in the list to indicate that you specified that keyword.

For detailed information about each keyword and its parameters and options, refer to one of the following:

- Appendix A, "DDS Printer File Keywords" on page 173.
- RLU online help information. Press Help or F1=Help when you are on the data entry display for the keyword.
- The *DDS Reference*.

Removing Keywords

To remove a keyword that you previously specified for the file, type 4 on the Work with File Keywords display next to the keyword you want to remove, and press Enter. RLU removes the keyword from the file specification.

To remove all the keywords that you previously specified for the file, press F16=Remove all keywords. RLU removes all keywords from the file description.

Using the Fastpath

You can use a fastpath to add or remove keywords or parameters.

To work with file keywords this way, press F9=Input keyword parameters on the Work with File Keywords display. The Input File Keywords display appears as shown in Figure 181 on page 165.

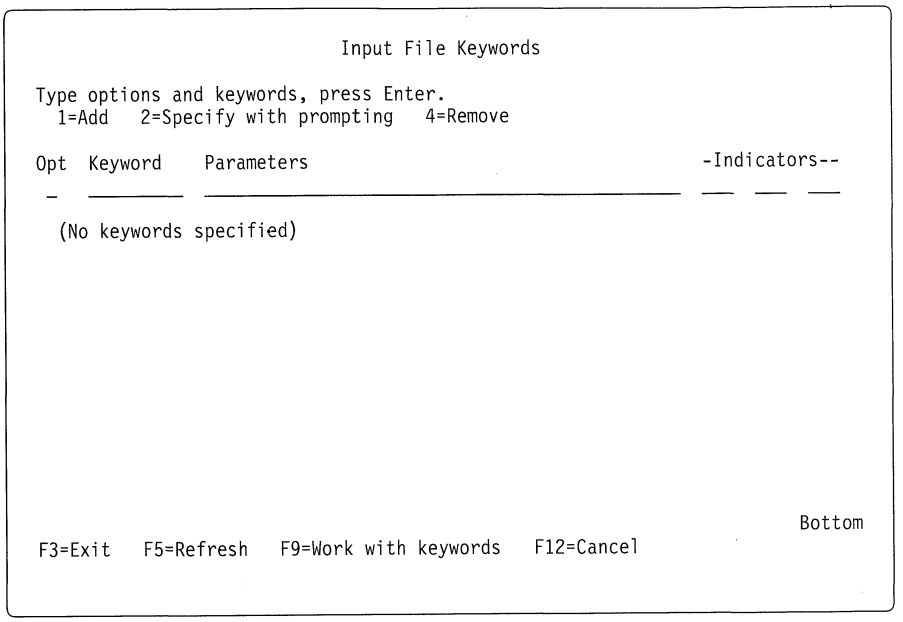

Figure 181. Input File Keywords Display

This display also appears if you used it the last time you worked with file-level, record-level, or field-level keywords.

The Input File Keywords display shows the keywords already specified for the file, along with any parameters currently specified for them, as they would appear in the DDS source statements.

You can do the following on this display:

- Add a file-level keyword, along with parameters and indicators, on the first row of the list
- Change the parameters on any row in the list
- Change the indicators on any row in the list

Press Enter to return to the Design Report display, press F12=Cancel to return without processing, or press F9=Work with keywords to return to the Work with File Keywords display.

Chapter 8. Ending an RLU Session

This chapter describes how to do the following:

- Leave an RLU session
- Save a report design as a new or changed RLU source member
- Create a printer file for the new or changed source member
- Print a prototype of the report

Using the Exit RLU Display

To get to the Exit RLU display from your edit session, press F3=Exit to return to the Design Report display (if necessary) and then press F3=Exit on the Design Report display.

The Exit RLU display appears as shown in Figure 182.

```
                                Exit RLU

Type choices, press Enter.

  Option . . . . . . . . . . . . . .  1             1=Save and exit
                                                    2=Exit without saving
                                                    3=Resume
    Member . . . . . . . . . . . . .    __________  Name
    File . . . . . . . . . . . . . .    __________  Name
    Library . . . . . . . . . . . .     __________  Name
    Text . . . . . . . . . . . . . .    ____________________________________
__________
  Create printer file . . . . . . .  N              Y=Yes, N=No
    Change defaults . . . . . . . .    N            Y=Yes, N=No
  Prototype report . . . . . . . .  N              Y=Yes, N=No
    Change defaults . . . . . . . .    N            Y=Yes, N=No
  Submit to batch . . . . . . . . .  N              Y=Yes, N=No
    Job description . . . . . . . .    *USRPRF___   Name, *USRPRF, *RLU
    Library . . . . . . . . . . . .    __________   Name, *LIBL, *CURLIB


F5=Refresh   F12=Cancel
```

Figure 182. Exit RLU Display

The Exit RLU display allows you to perform the following operations with the report design you are editing:

- Exit without saving the changes or creating the source member
- Exit and save the source member with the changes you made
- Exit and create a new source member
- Return to editing the report design
- Create a printer file for the source member
- Print a report prototype

Exiting without Saving

To leave RLU without saving changes you made, type 2 for the *Option* prompt and press Enter. You return to where you started RLU, and your changes are not saved.

During your RLU edit session but before you get to the Exit RLU display, you can also use the CANCEL command to exit without saving changes. See "Using Commands to Exit from RLU" on page 171 for more information about the CANCEL command.

Resuming Report Design

To return to your edit session where you were last, type 3 for the *Option* prompt and press Enter.

Saving Source Members

When you save the changes you made during your edit session, both of the following are saved in an RLU source member:

- DDS source statements that RLU generates for all the defined entries you made during the edit session.
- Comments within the DDS source statements that RLU generates for all the undefined entries, such as undefined filler lines, you made during the edit session. RLU comments also contain information such as date and time.

Note: If you are changing a source member that was created in a previous session, the member can also contain user comments that were entered after the member was created using RLU. RLU attempts to save as many of these comments unaltered as possible through each edit session.

For a detailed description of the DDS source and comments RLU generates, see Appendix B, "Source Generated by RLU" on page 211.

To save a new or changed RLU source member, do the following on the Exit RLU display:

- Use the *Option* prompt to specify that you want to save the source member and leave RLU.
- Use the *Member* prompt to specify the name of the source member. Any changes you made during the edit session are saved into the source member with this name.
- Use the *File* prompt to specify the name of the source physical file that contains the source member you are editing.
- Use the *Library* prompt to specify the name of the library that contains the file you are editing.
- Use the *Text* prompt to specify text that describes the source member.

For more information about how to use each of these prompts, position your cursor appropriately on the Exit RLU display when you are using RLU and press Help or F1=Help. You see information describing how to use the prompt.

You can use the SAVE command on the Design Report display to save your changes and then continue editing. For more information on the SAVE command, see "Using the SAVE Command" on page 172.

Creating Printer Files

To create a printer device file for the report you designed, do the following on the Exit RLU display:

- Use the *Create printer file* prompt to run the Create Printer File (CRTPRTF) command and create a printer file. The source member RLU uses is the source member you specified when you started your current edit session or the source member you specify on the Exit RLU display, if different.
- Use the *Change defaults* prompt to change any of the default values RLU uses for the CRTPRTF command parameters. RLU defaults to the page width specified on the STRRLU command.
- Use the *Submit to batch* prompt to submit the CRTPRTF operation to batch.
- Use the *Job description* prompt to specify the job description for the batch job. You can specify *RLU to have RLU supply the job description for the batch job.
- Use the *Library* prompt to specify the library for the job description.

For more information about how to use each of these prompts, position your cursor appropriately on the Exit RLU display when you are using RLU and press Help or F1=Help. You see information describing how to use the prompt.

Note: To create a printer file without saving the source member, you must have *USE authority to the Create Source Physical File (CRTSRCPF), Add Physical File Member (ADDPFM), and Create Printer File (CRTPRTF) commands.

Creating Prototypes of the Report

When you create a prototype of the report, you generate a printed version of the report that appears as close to the appearance of the final report as possible.

The printed prototype includes the following:

- A page header that indicates whether or not the report design is completed
- A trailer line
- A character (>) in the last position of each report line that contains undefined entries

Figure 183 on page 170 shows the format of the report prototype page header.

```
                          RLU REPORT PROTOTYPE
5738PW1 V2R3M0 930901                          sysname sysdate/time


Source file.............................:   XXXXXXXXXX
  Library  .............................:     XXXXXXXXXX
Source member...........................:   XXXXXXXXXX
Spooled output queue....................:   XXXXXXXXXX
  Library...............................:     XXXXXXXXXX
Print device............................:   XXXXXXXXXX
Number of copies........................:   XXXX
Forms type..............................:   XXXXXXXXXX
Lines per inch..........................:   X
Characters per inch.....................:   XXXX
User profile............................:   XXXXXXXXXX
Indicators conditioned on...............:   xx xx xx xx xx xx xx xx xx
                                             xx xx xx xx xx xx xx xx xx
                                             xx xx xx xx xx xx xx xx xx
                                             xx xx xx xx xx xx xx xx xx
                                             xx xx xx xx xx xx xx xx xx
                                             xx xx xx xx xx xx xx xx xx
                                             xx xx xx xx xx xx xx xx xx
                                             xx xx xx xx xx xx xx xx xx
                                             xx xx xx xx xx xx xx xx xx
 ** Warning message for incomplete report **
```

Figure 183. Report Prototype Page Header

To create a prototype of the report you are designing, do the following on the Exit RLU display:

1. Enter Y on the *Prototype report* prompt.
2. Press enter.

To print a prototype of the report, RLU creates the following:

- A temporary source file in QTEMP
- A special DDS source member in the source file using both defined and undefined entries you made in the work space during your edit session
- A separate printer file in QTEMP that is deleted after the report prototype is printed

You can also use the following options on the Exit RLU display when creating a prototype of your report:

1. Use the *Change defaults* prompt to change any of the default values RLU uses for creating a prototype of the report. RLU defaults to the page width specified on the STRRLU command, with a minimum of 132.
2. Use the *Submit to batch* prompt to submit the report prototype operation to batch.

3. Use the *Job description* prompt to specify the job description for the batch job. You can specify *RLU to have RLU supply the job description for the batch job.
4. Use the *Library* prompt to specify the library for the job description.

For more information about how to use each of these prompts, position your cursor appropriately on the Exit RLU display when you are using RLU and press Help or F1=Help. You see information describing how to use the prompt.

You can also create a prototype of the report with an existing source member by specifying the value 6 for the OPTION parameter of the STRRLU command. For information about the STRRLU command parameters, see "Using the Start Report Layout Utility (STRRLU) Command" on page 19.

To print a prototype of the report, RLU must create an additional printer file that is deleted after the report prototype is printed. This printer file is different from the printer file you create by specifying Y=Yes for the *Create printer file* prompt in the following ways:

- All undefined fields are printed in the report prototype, so additional DDS statements are added to the report prototype source member
- New Page (NP) line commands affect the printed report prototype only, so you must use page skipping keywords to include page breaks in your final DDS source and printer file
- A separate indicator buffer is required for the report prototype so RLU always specifies the INDARA keyword in the printer file for report prototyping

To create a prototype of a report, you must have *USE authority to the Create Source Physical File (CRTSRCPF), Add Physical File Member (ADDPFM), and Create Printer File (CRTPRTF) commands.

Using Commands to Exit from RLU

You can perform some of the same functions as on the Exit RLU display during your edit session by using the CANCEL, SAVE, and FILE commands.

Using the CANCEL Command

You can use the CANCEL command on the Design Report display to cancel your changes and exit from RLU. Figure 184 shows the CANCEL command.

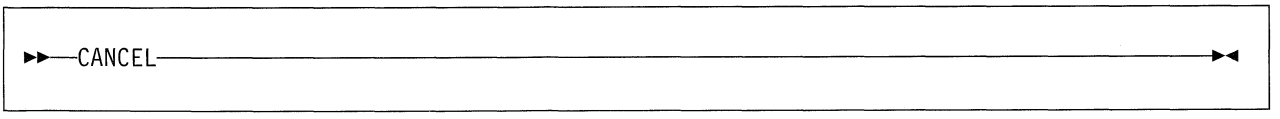

Figure 184. Syntax of the RLU CANCEL Command

Type `CANCEL` or `CAN` in the command line and press Enter.

Using the SAVE Command

You can use the SAVE command on the Design Report display to save your changes and then continue editing. Figure 185 shows the SAVE command.

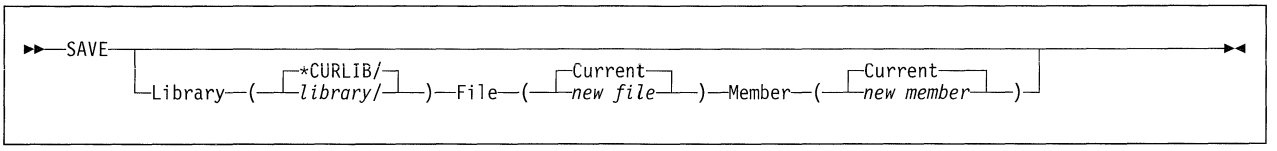

Figure 185. Syntax of the RLU SAVE Command

Type SAVE in the command line followed by one or more of the following:

- The library and source file in which you want your source member to be saved. This parameter is optional. The default is the current library and source file of your source member.
- The source member where you want to save the changes. This parameter is optional, unless you specify the library and the source file. The default is the current source member name.

For the SAVE commands, the values you enter also appear in the corresponding prompts on the Exit RLU display.

Using the FILE Command

You can use the FILE command on the Design Report display to save your changes and exit RLU. Figure 186 shows the FILE command.

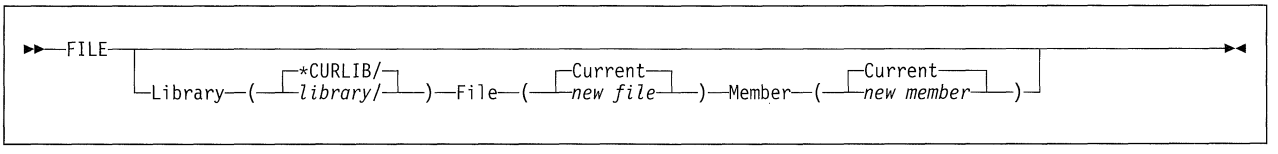

Figure 186. Syntax of the RLU FILE Command

Type FILE in the command line followed by one or more of the following:

- The library and source file where you want your source member to be saved. This parameter is optional. The default is the current library and source file of your source member.
- The source member where you want to save the changes. This parameter is optional, unless you specify the library and the source file. The default is the current source member name.

For the FILE command, the values you enter also appear in the corresponding prompts on the Exit RLU display.

Appendix A. DDS Printer File Keywords

This appendix contains an alphabetical list of DDS keywords that you can use in RLU, and a description of their use. For information on the printer file DDS keywords that you cannot specify in RLU, see "RLU-Tolerated Advanced Function Printing Data Stream Keywords" on page 209.

For more detailed information about each keyword, refer to the *DDS Reference*.

Data Entry Displays for Keywords

Data entry displays are used in RLU to specify keywords and their associated parameters. You see the data entry display for a keyword by selecting that keyword on the appropriate keyword selection list. There are three levels of keywords:

- File-level keywords
- Record-level keywords
- Field-level keywords

For information about how to select keywords, see "Specifying Record-Level Keywords" on page 116, "Specifying Field-Level Keywords" on page 141, and "Specifying File-Level Keywords" on page 163.

Note: If you previously specified a keyword for the file, record format, or field you are currently working with, the data entry display for the keyword contains the values you specified last.

If a keyword parameter requires a string enclosed by apostrophes, RLU automatically adds them, so you do not need to type them.

For keywords that allow option indicators, you can specify up to three option indicators on the keyword data entry displays. If you require more than three indicators, you can specify up to 81 indicators on the Specify Indicators display. Depending on the keyword data entry display you are in, you can access the Specify Indicators display when you do one of the following:

- Type `Y` for the *More indicators* prompt
- Select option 8=Specify more indicators

There is a Specify Indicators display for file-level keywords, record-level keywords, and field-level keywords. The Specify Indicators display for file-level keywords is shown in Figure 187 on page 174.

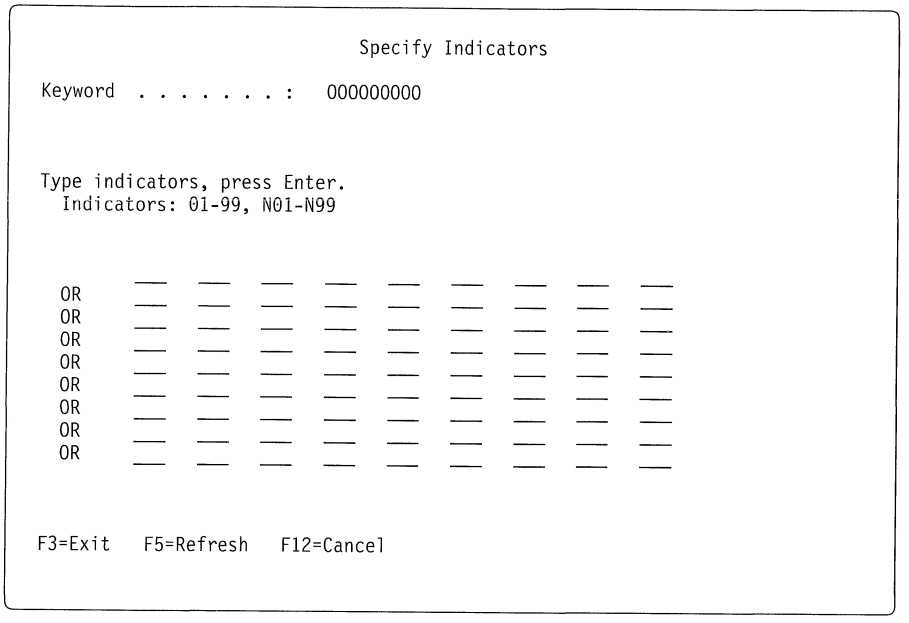

Figure 187. Specify Indicators Display for File-Level Keywords

When you have specified your option indicators, press Enter to return to the keyword data entry display.

Keywords You Can Specify in RLU

The following keywords can be used in RLU.

Alternative Name (ALIAS)

Use this field-level keyword to specify an alternative name for a field. When the program that generates your report is compiled, the alternative name is brought into the program instead of the DDS field name. The high-level-language (HLL) compiler in use determines if the alternative name is used. Refer to the appropriate HLL reference manual for information about ALIAS support for that language.

Option indicators are not valid for this keyword.

The Specify Alternative Name display appears as shown in Figure 188 on page 175.

```
                      Specify Alternative Name

Keyword . . . . . . . . :   ALIAS
Field . . . . . . . . . :   0000000000
Record format . . . . . :   0000000000

Type choice, press Enter.

  Alternative name for
    field . . . . . . . .   ______________________________   Name










F3=Exit   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 188. Specify Alternative Name Display

Bar Code (BARCODE)

Use this field-level keyword to print a field as a user-specified bar code. BARCODE is valid for IPDS printers.

Option indicators are not valid for this keyword.

The Specify Bar Code display appears as shown in Figure 189.

```
                          Specify Bar Code

Keyword . . . . . . . . . . . . . . . :   BARCODE
Field . . . . . . . . . . . . . . . . :   0000000000
Record format . . . . . . . . . . . . :   0000000000

Type choices, press Enter.

  Barcode-ID  . . . . . . . . . . . .   __________    Name
  Height in lines . . . . . . . . . .   _             1-9
  Bar format  . . . . . . . . . . . .   _             1=Horizontal
                                                      2=Vertical
  Human readable interpretation . . .   _             1=Below
                                                      2=Above
                                                      3=None
  Asterisk on CODE3OF9 bar codes  . .   _             Y=Yes
                                                      N=No
  Check digit type  . . . . . . . . .   __            00-FE (Hex)
  Narrow bar width  . . . . . . . . .   _____         0.007-0.208
  Ratio of wide bar to narrow bar . .   ____          2.00-3.00
                                                                 Bottom
F3=Exit   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 189. Specify Bar Code Display

Blank Fold (BLKFOLD)

Use this field-level keyword for named fields that overflow onto subsequent print lines to cause folding to occur at a blank rather than at the end of the line. If the blank fold keyword is not specified, the line folds at the end of the physical print line.

This keyword has no parameters, so you do not see a data entry display.

Coded Font (CDEFNT)

Use this record-level or field-level keyword to specify the coded font to be used for a named or a constant field or fields. Use the record-level display to have all fields in the record use the coded font. Use the field-level display to have a specific field use the coded font.

Option indicators are valid for this keyword.

The Specify Coded Font display at the record level is shown in Figure 190.

```
                          Specify Coded Font

Keyword . . . . . . . . . . . . . :   CDEFNT
Record format . . . . . . . . . . :   0000000000


Type choices, press Enter.

  Coded font  . . . . . . . . . .   _______       Name
                                                  F4 for list
    Library . . . . . . . . . . .     *CURLIB__   Name
                                                  *CURLIB
                                                  *LIBL

  Option indicators . . . . . . .   __ __ __      01-99, N01-N99

    More indicators . . . . . . .    N            Y=Yes, N=No



F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F16=Remove Keyword
```

Figure 190. Specify Coded Font Display (Record-Level)

The Specify Coded Font display at the field level is shown in Figure 191 on page 177.

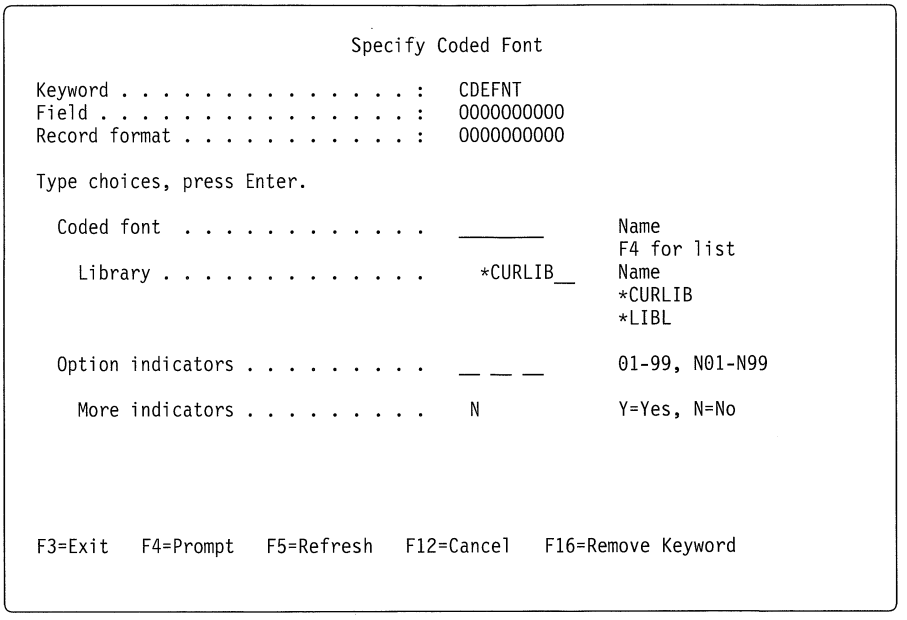

Figure 191. Specify Coded Font (Field-Level)

Character Identifier (CHRID)

Use this field-level keyword to specify that a graphic character set and code page other than the device default can be used for this field. This can be important when extended alphabetics (characters such as u with an umlaut or c with a cedilla) are to be printed.

This keyword has no parameters, so you do not see a data entry display.

Character Size (CHRSIZ)

Use this record-level or field-level keyword to expand the width and height of a record or field.

Option indicators are not valid for this keyword.

The Specify Character Size display at the record level is shown in Figure 192 on page 178.

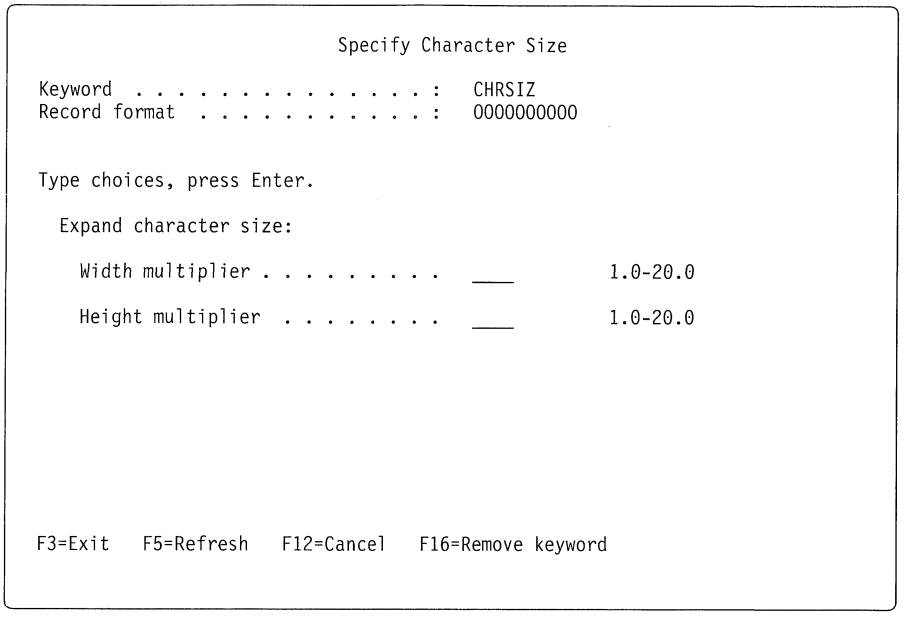

Figure 192. Specify Character Size Display (Record-Level)

The Specify Character Size display at the field level is shown in Figure 193.

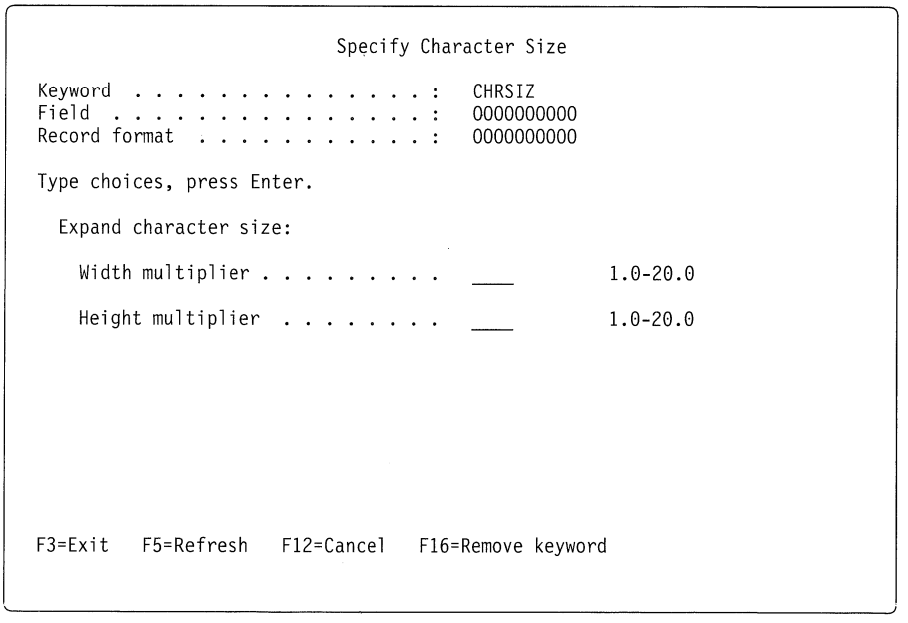

Figure 193. Specify Character Size Display (Field-Level)

Color (COLOR)

Use this field-level keyword to specify the color for a field, if it is supported by the printer device. The COLOR keyword is used only by the 4224 printer. If you do not specify COLOR, or if the keyword is not valid for a printer device, black (the default value) is used.

Option indicators are valid for this keyword.

The Work With Colors display is shown in Figure 194.

```
                              Work With Colors

 Keyword . . . . . . . . :   COLOR
 Field . . . . . . . . . :   0000000000
 Record format . . . . . :   0000000000

 Type options, press Enter.
   2=Specify   4=Remove   8=Specify more indicators

                                                                  Nbr
                                                                   of
 Opt          Color                  ----Indicators-----          ind
  _           Black                  ___    ___    ___              0
  _           Blue                   ___    ___    ___              0
  _           Brown                  ___    ___    ___              0
  _           Green                  ___    ___    ___              0
  _           Pink                   ___    ___    ___              0
  _           Red                    ___    ___    ___              0
  _           Turquoise              ___    ___    ___              0
  _           Yellow                 ___    ___    ___              0
                                                                         Bottom
 F3=Exit   F5=Refresh   F12=Cancel   F16=Remove all colors
```

Figure 194. Work With Colors Display

Characters Per Inch (CPI)

This record-level or field-level keyword specifies the horizontal printing density for the record format or field you are defining. Use this keyword to:

- Darken logos and other printed graphics that you create using the DFNCHR keyword
- Place more data in less space on printed forms
- Fit the appearance of a form to your needs

Option indicators are valid for this keyword.

The Specify Characters Per Inch display at the record level is shown in Figure 195 on page 180.

```
                        Specify Characters Per Inch

Keyword . . . . . . . . . . . . . . :  CPI
Record format . . . . . . . . . . . :  0000000000
Number of indicators . . . . . . . . :  0


Type choices, press Enter.

  Characters per inch . . . . . . . .  10           10, 15

  Option indicators . . . . . . . . .  __ __ __    01-99, N01-N99

    More indicators . . . . . . . . .    N          Y=Yes, N=No




F3=Exit   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 195. Specify Characters Per Inch Display (Record-Level)

The Specify Characters Per Inch display at the field level is shown in Figure 196.

```
                        Specify Characters Per Inch

Keyword . . . . . . . . . . . . . . :  CPI
Field . . . . . . . . . . . . . . . :  0000000000
Record format . . . . . . . . . . . :  0000000000
Number of indicators . . . . . . . . :  0


Type choices, press Enter.

  Characters per inch . . . . . . . .  10           10, 15

  Option indicators . . . . . . . . .  __ __ __    01-99, N01-N99

    More indicators . . . . . . . . .    N          Y=Yes, N=No




F3=Exit   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 196. Specify Characters Per Inch Display (Field-Level)

Convert Data (CVTDTA)

This field-level keyword converts character data to hexadecimal data when the field is passed to the printer. Use this keyword to define:

- Logos or emblems for a letterhead on your forms
- Alternative character sets or symbols (such as a copyright symbol)

- The appearance of a physical form (by adding vertical and horizontal lines that act as boundaries on the form or between positions on an invoice)
- IPDS bar code commands

This keyword has no parameters, so you do not see a data entry display.

Date (DATE)

Use this field-level keyword to display a date as a constant field that is 6 bytes long. The DATE keyword has two parameters: *JOB and *SYS. Use the *JOB parameter to display the job date. Use the *SYS parameter to display the system date. The job date is the date on which the current job or session was started. When this date is set, it does not change. The system date is the current date, and it changes each day.

You can specify the location of the field, the DATE keyword, its parameters and optionally, the CHRSIZ, COLOR, EDTCDE, EDTWRD, FONT, HIGHLIGHT, UNDERLINE, or TEXT keyword.

The sample data used to display the date on the Design Report display is the same for DATE(*JOB) and DATE(*SYS).

Notes:

1. In DDS, DATE and DATE(*JOB) perform the same function. RLU generates DATE in the source for both DATE and DATE(*JOB). If source created outside of RLU contains DATE(*JOB), RLU saves DATE only when you save the source.
2. If you specify DATE(*SYS) and modify the member with a previous release of RLU, the previous release changes the record that contains the DATE(*SYS) keyword into a comment. If other valid keywords are associated with the DATE(*SYS), the results cannot be predicted.

The Specify Date display is shown in Figure 197 on page 182.

```
                              Specify Date

Keyword . . . . . . . . . . . . . . :   DATE
Field . . . . . . . . . . . . . . . :   0000000000
Record format . . . . . . . . . . . :   0000000000

Type choices, press Enter.

  Date  . . . . . . . . . . . . . . .   _           1=Job
                                                    2=System

F3=Exit    F5=Refresh    F12=Cancel    F16=Remove keyword
```

Figure 197. Specify Date Display

Define Character (DFNCHR)

With the DFNCHR keyword, you can define characters of your own design at the file or record level for the 5224 printer and 5225 printer. With this keyword, you can specify DFNCHR more than once at the file or record level, or as many as 50 characters each time you specify DFNCHR.

Option indicators are valid for this keyword.

The Work with Define Characters display at the file level is shown in Figure 198.

```
                        Work with Define Characters

Keyword  . . . . . . . :   DFNCHR


Type options, press Enter.
  1=Add   4=Remove   8=Specify more indicators

                Dot                                                  Nbr
        Code    Matrix                                                of
Opt     Point   Pattern              ----Indicators-----             ind
 _       __     ________________      __    __    __

  (No keywords specified)

                                                                   Bottom
F3=Exit    F5=Refresh    F12=Cancel    F16=Remove all code points
```

Figure 198. Work with Define Characters Display (File-Level)

The Work with Define Characters display at the record level is shown in Figure 199 on page 183.

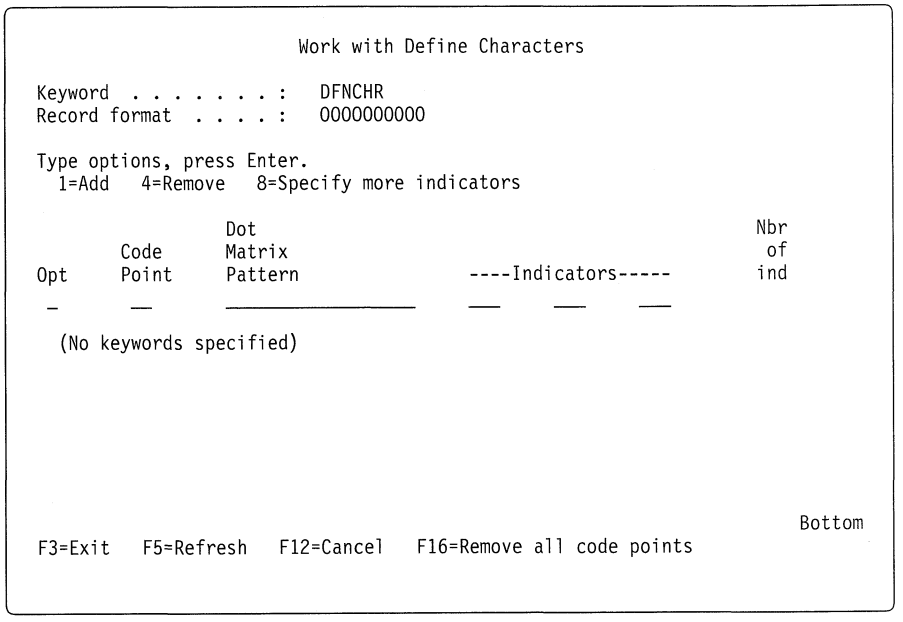

Figure 199. Work with Define Characters Display (Record-Level)

Define Line (DFNLIN)

This keyword is valid for DBCS only.

Use this record-level keyword to draw a horizontal or vertical line. A horizontal line is drawn at the bottom of the character spaces from left to right. A vertical line is drawn on the left edge of the character spaces from top to bottom.

Option indicators are allowed for this keyword.

Note: On a non-DBCS system, you can only enter this keyword by using the fastpath.

Figure 200 on page 184 shows the Work with Define Line display.

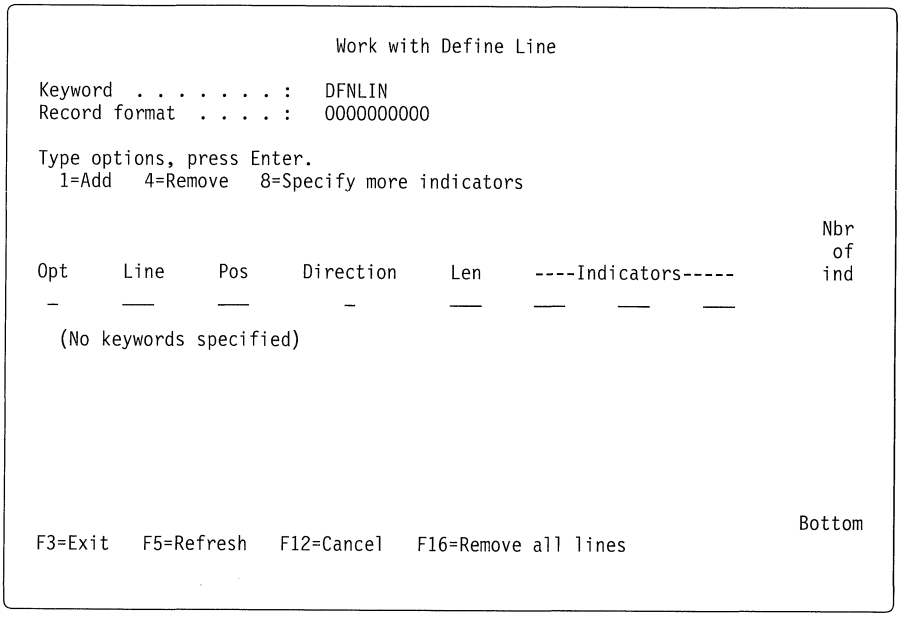

Figure 200. Work with Define Line Display for Record-Level Keywords

See Appendix D, "Double-Byte Character Set Considerations" on page 231 for more information about using DBCS in RLU.

Specify Default (DFT)

Use this field-level keyword to specify a constant value for constant (unnamed) fields. RLU does not generate the explicit DFT keyword. Constants are stored in the source with the text of the constant delineated by single quotation marks.

Option indicators are not valid for this keyword.

The Specify Default display is shown in Figure 201 on page 185.

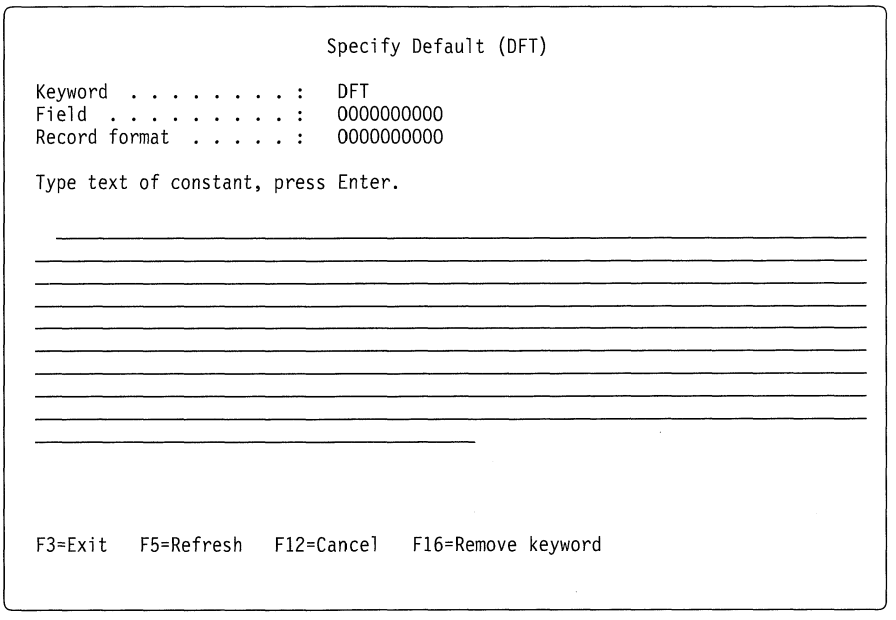

Figure 201. Specify Default Display

Delete Edit (DLTEDT)

Use this field-level keyword to specify that the Operating System/400* (OS/400*) system not use any edit code or edit word keywords specified for the referenced field. If a field description is referred to from a database file, DLTEDT prevents certain information from being referenced.

This keyword has no parameters, so you do not see a data entry display.

Drawer (DRAWER)

Use this record-level keyword to specify the drawer from which noncontinuous forms will be selected.

Option indicators are valid for this keyword.

The Specify Drawer display is shown in Figure 202 on page 186.

```
                              Specify Drawer

Keyword . . . . . . . . . . . . . :  DRAWER
Record format . . . . . . . . . . :  0000000000
Number of keywords . . . . . . . . :  0

Type choices, press Enter.

  Forms drawer . . . . . . . . . . .  1            1=Drawer 1
                                                   2=Drawer 2
                                                   3=Drawer 3
                                                   4=Drawer 4

  Option indicators . . . . . . . .  ___ ___ ___   01-99, N01-N99

    More indicators . . . . . . . .    N          Y=Yes, N=No




F3=Exit   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 202. Specify Drawer Display

Edit Code (EDTCDE)

Use this field-level keyword to edit output-capable numeric fields.

Option indicators are not valid for this keyword.

The Specify Edit Code display is shown in Figure 203.

```
                            Specify Edit Code

Keyword . . . . . . . . . . . . . :  EDTCDE
Field . . . . . . . . . . . . . . :  0000000000
Record format . . . . . . . . . . :  0000000000

Type choices, press Enter.

  Edit code . . . . . . . . . . .  _          1-9, A-D, J-Q, X-Z

  Fill character . . . . . . . . .  _          *
                                               Currency symbol




F3=Exit   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 203. Specify Edit Code Display

Edit Word (EDTWRD)

If you cannot accomplish the desired editing by using the EDTCDE keyword, specify an edit word instead. An edit word specifies the form in which the field values are to print and clarifies the data by inserting characters, such as decimal points, commas, floating-currency and fixed-currency symbols, and credit balance indicators. Also use it to suppress leading zeros and to provide asterisk fill protection.

Option indicators are not valid for this keyword.

The Specify Edit Word display is shown in Figure 204.

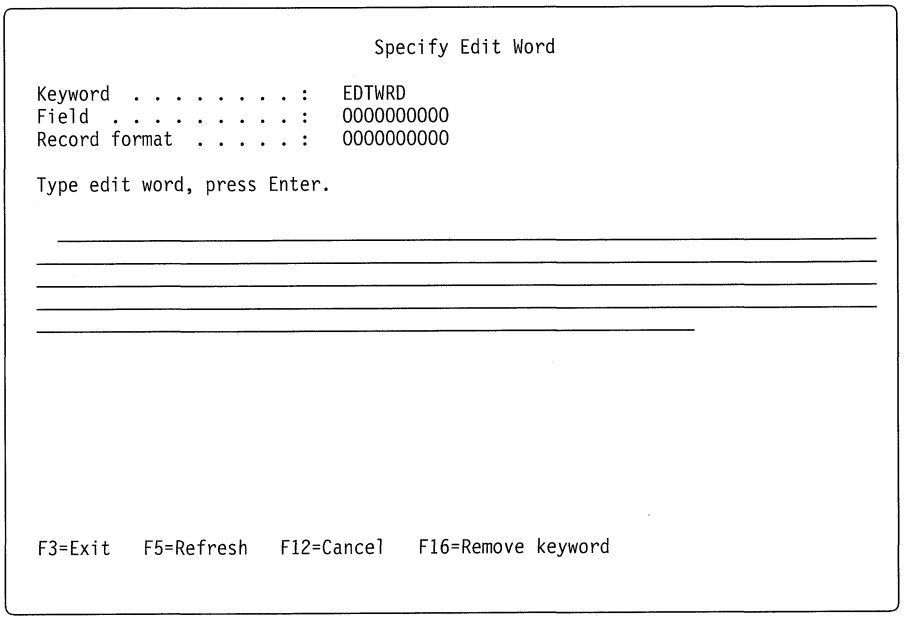

Figure 204. Specify Edit Word Display

Floating-Point to Fixed Decimal (FLTFIXDEC)

Use this field-level keyword to print a number in a floating-point field in fixed decimal notation.

This keyword has no parameters, so you do not see a data entry display.

Floating-Point Precision (FLTPCN)

Use this field-level keyword to specify the precision of a floating-point field.

Option indicators are not valid for this keyword.

The Specify Floating-Point Precision display is shown in Figure 205 on page 188.

```
                    Specify Floating-Point Precision

Keyword . . . . . :   FLTPCN
Field . . . . . :   0000000000
Record format . . . . . :   0000000000

Type choice, press Enter.

  Floating point precision . . . . . .   -           1=Single
                                                     2=Double









F3=Exit   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 205. Specify Floating-Point Precision Display

Font Character Set (FNTCHRSET)

Use this record-level or field-level keyword to specify the font character set and code page to be used for a named or constant field or fields. Use the record-level display to have all fields in the record use the font character set. Use the field-level display to have a specific field use the font character set.

Option indicators are valid for this keyword.

The Specify Font Character Set display at the record level is shown in Figure 206.

```
                       Specify Font Character Set

Keyword . . . . . :   FNTCHRSET
Record format . . . . . :   0000000000


Type choices, press Enter.

  Font character set . . . . . .   _______      Name
                                                F4 for list
    Library . . . . . .   *CURLIB__   Name
                                                *CURLIB, *LIBL

  Code page . . . . . .   _______      Name
                                                F4 for list
    Library . . . . . .   *CURLIB__   Name
                                                *CURLIB, *LIBL

  Option indicators . . . . . .   __ __ __     01-99, N01-N99

    More indicators . . . . . .   N            Y=Yes, N=No

F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F16=Remove Keyword
```

Figure 206. Specify Font Character Set Display (Record-Level)

The Specify Font Character Set display at the field level is shown in Figure 207 on page 189.

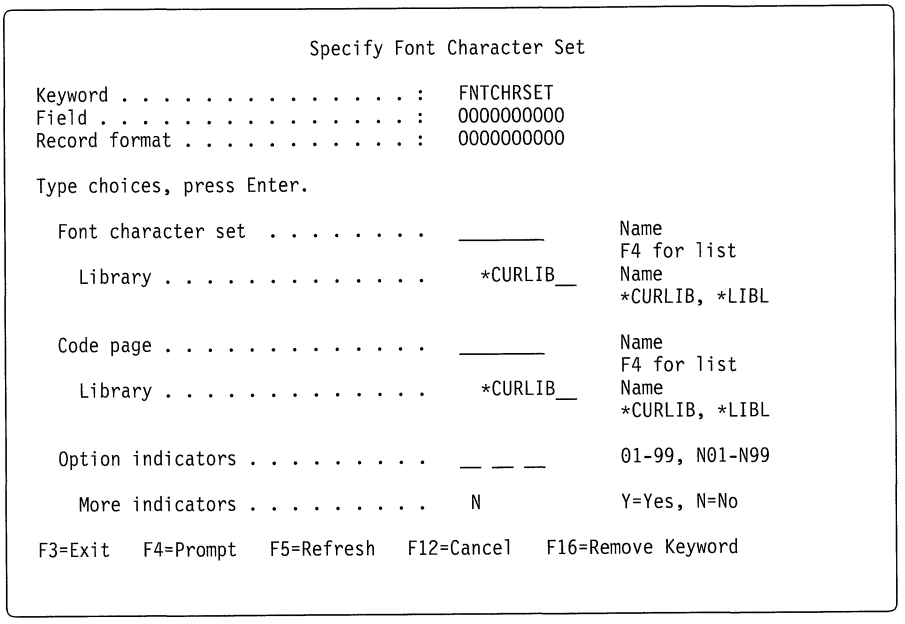

Figure 207. Specify Font Character Set Display (Field-Level)

Font (FONT)

Use this record-level or field-level keyword to specify the font ID for printing a named or constant field or fields within a record.

Option indicators are valid for this keyword.

The Specify Fonts display at the record level is shown in Figure 208 on page 190.

```
                              Specify Fonts

Keyword . . . . . . . . . . . . . :  FONT
Record format . . . . . . . . . . :  0000000000
Number of indicators . . . . . . . :  0

Type choices, press Enter.

  Font . . . . . . . . . . . . . .  _________   Name, number

  Point size . . . . . . . . . . .  _____       0.1-999.9

  Option indicators . . . . . . .  __ __ __     01-99, N01-N99

    More indicators . . . . . . .    N          Y=Yes, N=No




F3=Exit   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 208. Specify Fonts Display (Record-Level)

The Specify Fonts display at the field level is shown in Figure 209.

```
                              Specify Fonts

Keyword . . . . . . . . . . . . . :  FONT
Field . . . . . . . . . . . . . . :  0000000000
Record format . . . . . . . . . . :  0000000000
Number of indicators . . . . . . . :  0

Type choices, press Enter.

  Font . . . . . . . . . . . . . .  _________   Name, number

  Point size . . . . . . . . . . .  _____       0.1-999.9

  Option indicators . . . . . . .  __ __ __     01-99, N01-N99

    More indicators . . . . . . .    N          Y=Yes, N=No




F3=Exit   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 209. Specify Fonts Display (Field-Level)

Highlight (HIGHLIGHT)

Use this record-level and field-level keyword to indicate that a field should be printed in bold letters.

Option indicators are valid for this keyword.

The Specify Highlight display at the record level is shown in Figure 210.

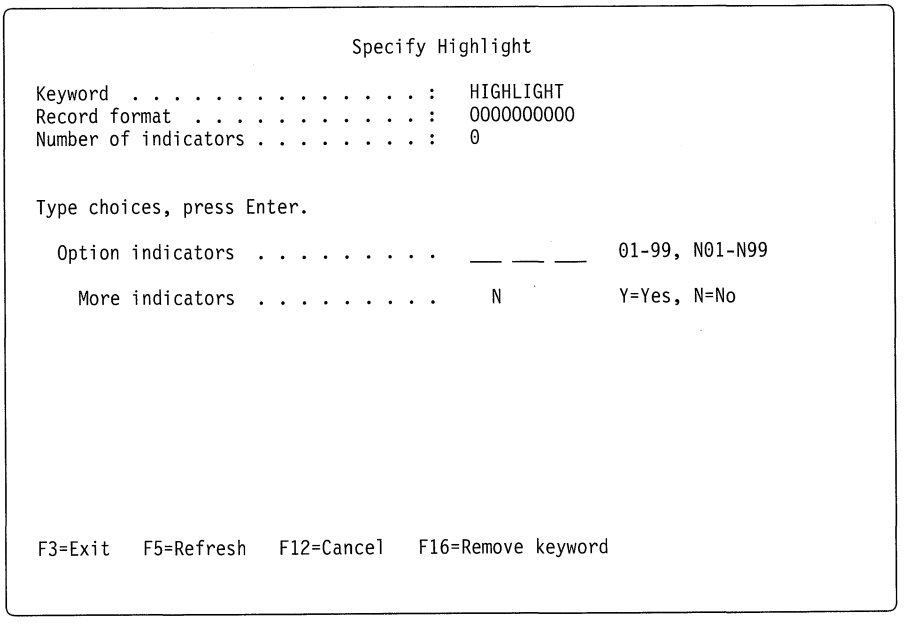

Figure 210. Specify Highlight Display (Record-Level)

The Specify Highlight display at the field level is shown in Figure 211.

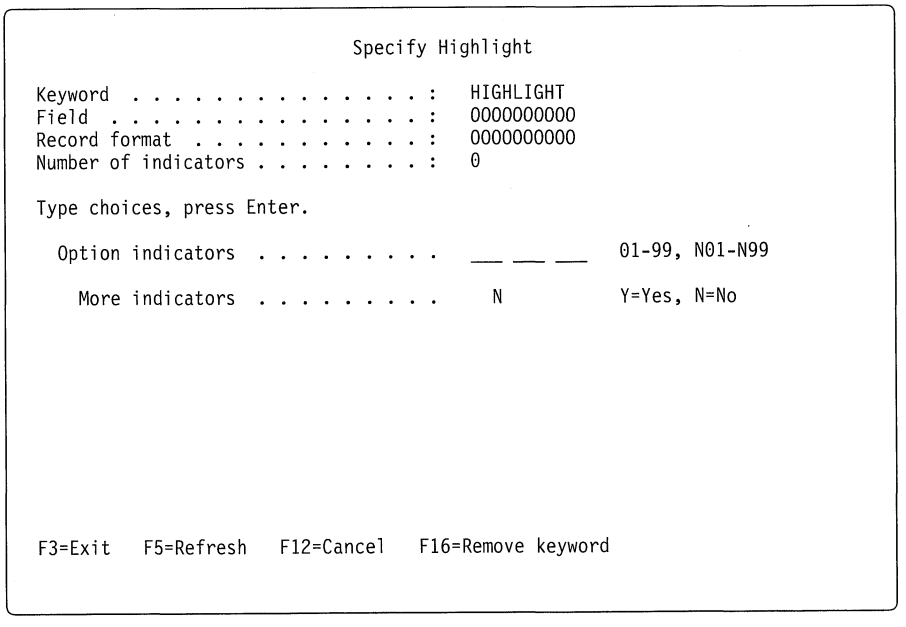

Figure 211. Specify Highlight Display (Field-Level)

Alternative Data Type (IGCALTTYP)

This keyword is valid for DBCS only.

Use this field-level keyword to change alphanumeric character fields to the DBCS fields of data type O.

Option indicators are not allowed for this keyword.

Note: On a non-DBCS system, you can only enter this keyword by using the fastpath. This keyword has no parameters, so you do not see a data entry display.

See Appendix D, "Double-Byte Character Set Considerations" on page 231 for more information about using DBCS in RLU.

Alphanumeric-to-DBCS Conversion (IGCANKCNV)

This keyword is valid for DBCS only.

This field-level keyword converts alphanumeric characters to equivalent DBCS characters (Japanese only). Each DBCS character prints twice as wide as a printed alphanumeric character.

Note: On a non-DBCS system, you can only enter this keyword by using the fastpath. This keyword has no parameters, so you do not see a data entry display.

Option indicators are not allowed for this keyword.

See Appendix D, "Double-Byte Character Set Considerations" on page 231 for more information about using DBCS in RLU.

DBCS Coded Font (IGCCDEFNT)

Use this record-level or field-level keyword to specify the DBCS coded font to be used for a named or a constant field or fields. Use the record-level display to have all fields in the record use the DBCS coded font. Use the field-level display to have a specific field use the DBCS coded font. For more information on using DBCS in RLU, see Appendix D, "Double-Byte Character Set Considerations" on page 231.

Option indicators are valid for this keyword.

Note: On a non-DBCS system, you can only enter this keyword by using the fastpath.

The Specify DBCS Coded Font display at the record level is shown in Figure 212 on page 193.

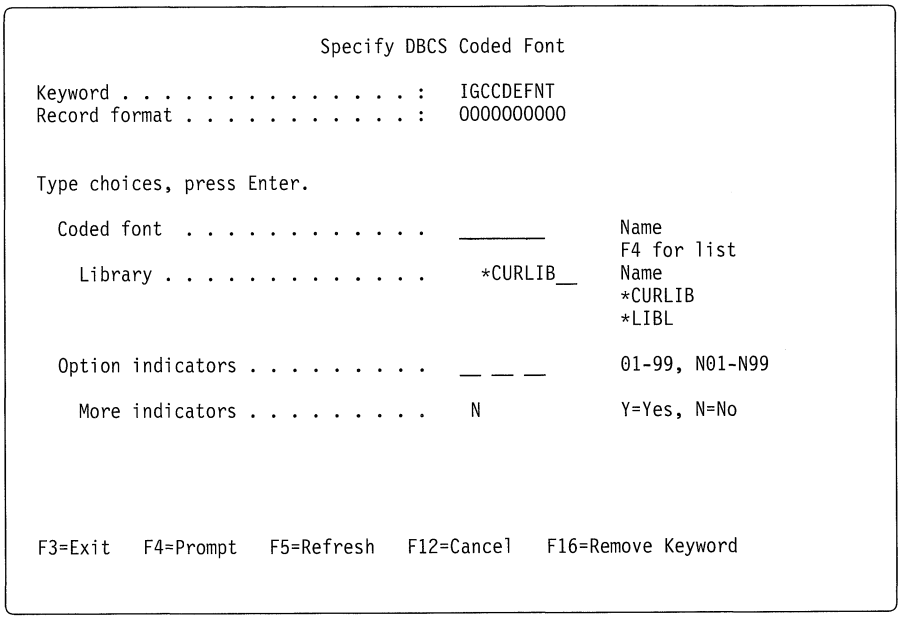

Figure 212. Specify DBCS Coded Font Display (Record-Level)

The Specify DBCS Coded Font display at the field level is shown in Figure 213.

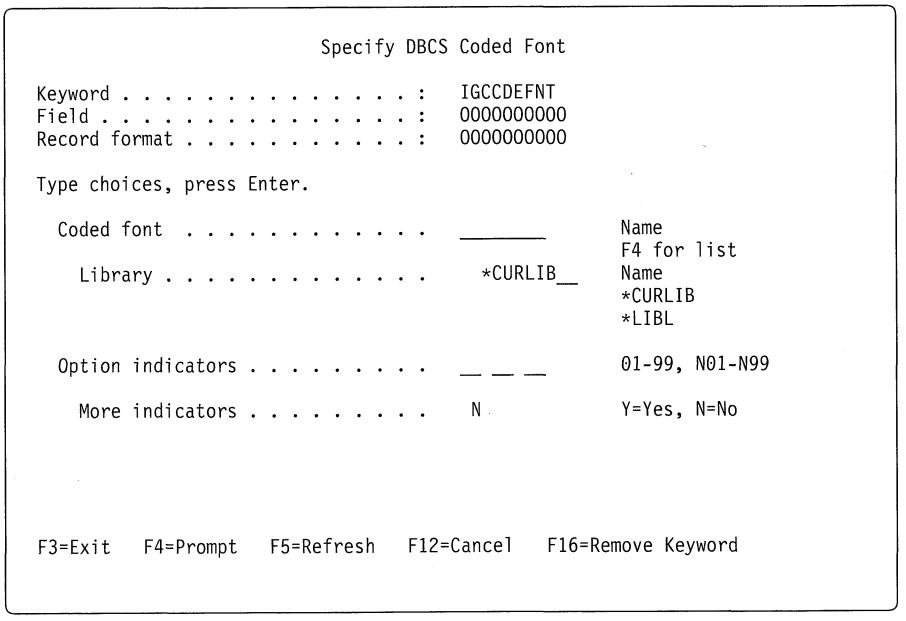

Figure 213. Specify DBCS Coded Font (Field-Level)

DBCS Character Rotation (IGCCHRRTT)

This keyword is valid for DBCS only.

This field-level or record-level keyword rotates each DBCS character 90 degrees counter-clockwise before printing. Rotation allows the system to print the characters vertically, in reading sequence. Use this keyword only for printer files to be printed with the 5553 printers.

Option indicators are not allowed for this keyword.

Note: On a non-DBCS system, you can only enter this keyword by using the fastpath. This keyword has no parameters, so you do not see a data entry display.

See Appendix D, "Double-Byte Character Set Considerations" on page 231 for more information about using DBCS in RLU.

Indicator Area (INDARA)

Use this file-level keyword to remove option indicators from the buffer (also called the record area) and place them in a 99-byte separate indicator area.

This keyword has no parameters. When you specify INDARA, you see a message telling you that there is no further information to specify.

Indicator Text (INDTXT)

Use this file-level, record-level, or field-level keyword to associate descriptive text (indicating intent or use) with a specific indicator. You can specify INDTXT once for each indicator.

Option indicators are not valid for this keyword.

The Specify Indicator Text display at the file level is shown in Figure 214.

```
                          Specify Indicator Text

Keyword  . . . . . :   INDTXT


Type options, press Enter.
  1=Add   4=Remove

Option     Indicator     Text
  _          __          ____________________________________________________

  (No keywords specified)

                                                                        Bottom
F3=Exit   F5=Refresh   F12=Cancel   F16=Remove all indicator text
```

Figure 214. Specify Indicator Text Display (File-Level)

The Specify Indicator Text display at the record level is shown in Figure 215 on page 195.

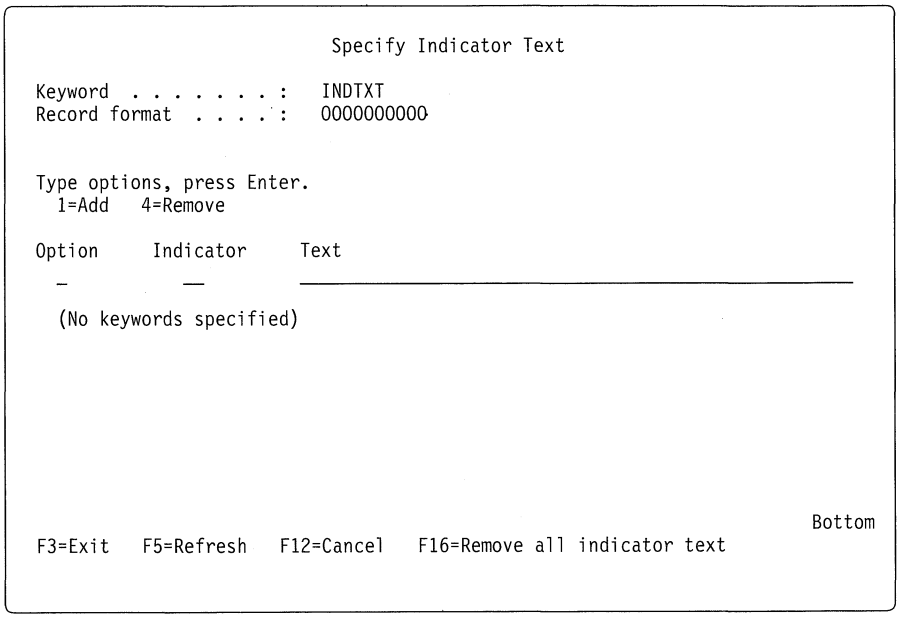

Figure 215. Specify Indicator Text Display (Record-Level)

The Specify Indicator Text display at the field level is shown in Figure 216.

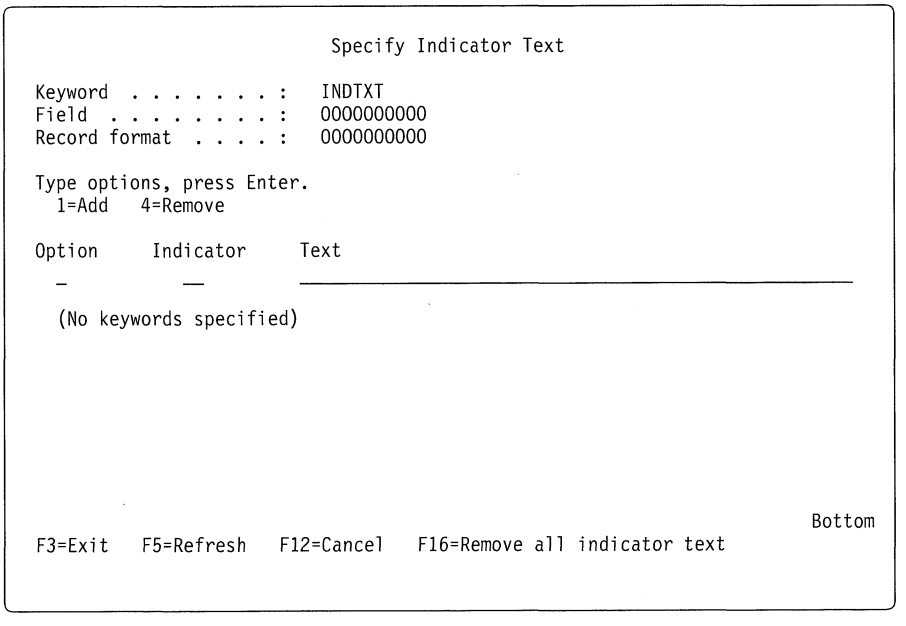

Figure 216. Specify Indicator Text Display (Field-Level)

Lines Per Inch (LPI)

Use this record-level keyword to change lines per inch within a file. If you do not specify LPI for a record, the LPI value is set from the LPI value on the CRTPRTF command.

Option indicators are not valid for this keyword.

The Specify Lines Per Inch display is shown in Figure 217.

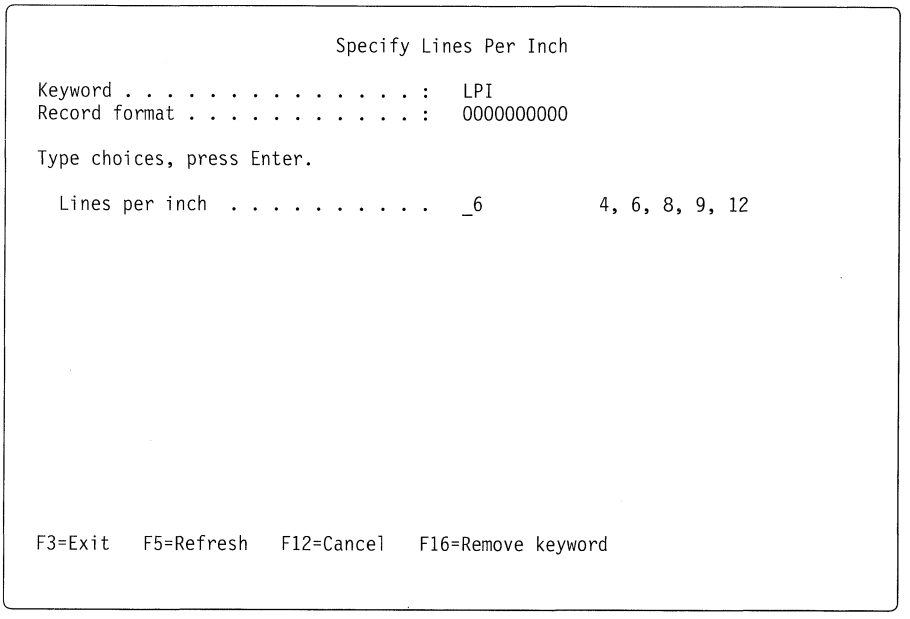

Figure 217. Specify Lines Per Inch Display

Message Constant (MSGCON)

Use this field-level keyword to indicate that the text for a constant field is contained in a message description. If the message description does not exist at DDS compile time, the file is not created. If you change the message description, you must create the file again.

Option indicators are not valid for this keyword.

The Specify Message Constant display is shown in Figure 218 on page 197.

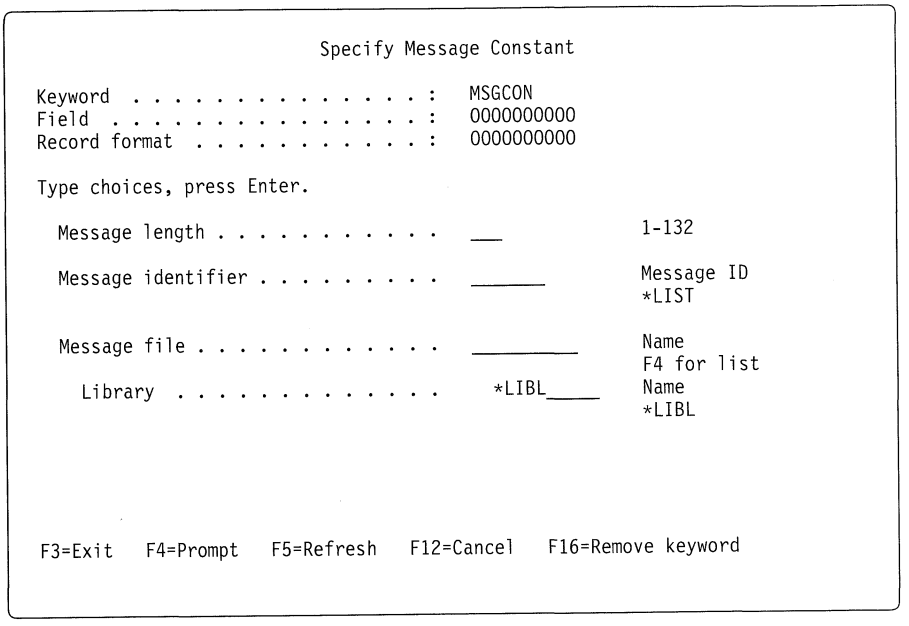

Figure 218. Specify Message Constant Display

Page Number (PAGNBR)

Use this field-level keyword to specify the location of a constant, 4-digit, zoned decimal field to contain the page number. Specify only the PAGNBR keyword, the location of the field (the location of the field can be either position only, or line number and position), and, optionally, the CHRSIZ, COLOR, FONT, HIGHLIGHT, UNDERLINE, or TEXT keyword.

Option indicators are valid for this keyword.

The Specify Page Number display is shown in Figure 219 on page 198.

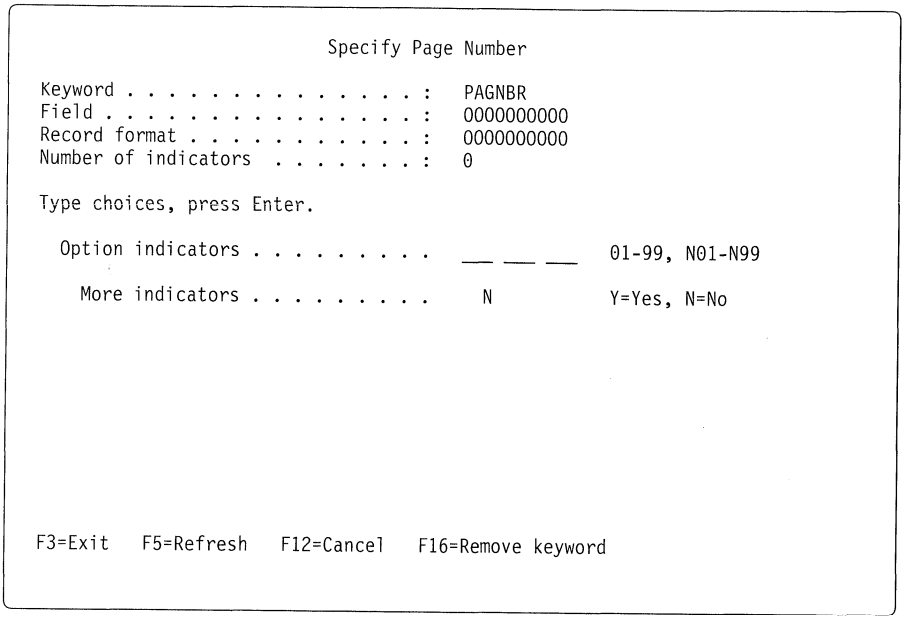

Figure 219. Specify Page Number Display

Page Rotation (PAGRTT)

Use this record-level keyword to specify the degree of rotation of the text for loading the page into the printer. The PAGRTT keyword is valid only for the 3812 and 3816 printers. If you do not specify a PAGRTT keyword for a record, the page rotation is set from the value specified on the Create Printer File (CRTPRTF) command.

Option indicators are valid for this keyword.

The Specify Page Rotation display is shown in Figure 220 on page 199.

```
                        Specify Page Rotation

Keyword . . . . . :   PAGRTT
Record format . . . . . :   0000000000
Number of indicators . . . . . :   0

Type choices, press Enter.

  Degree of rotation . . . . . .   __          0, 90, 180, 270

  Option indicators  . . . . . .   __ __ __    01-99, N01-N99

    More indicators  . . . . . .     N         Y=Yes, N=No




F3=Exit   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 220. Specify Page Rotation Display

Print Quality (PRTQLTY)

Use this record-level and field-level keyword to vary the print quality within the file.

Option indicators are allowed for this keyword.

The Specify Print Quality display at the record level is shown in Figure 221.

```
                        Specify Print Quality

Keyword . . . . . :   PRTQLTY
Record format . . . . . :   0000000000
Number of indicators . . . . . :   0


Type choices, press Enter.

  Print quality . . . . . .   2           1=Near letter
                                          2=Letter
                                          3=Draft
                                          4=Fast draft

  Option indicators . . . . . .   __ __ __   01-99, N01-N99

    More indicators . . . . . .     N       Y=Yes, N=No




F3=Exit   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 221. Specify Print Quality Display (Record-Level)

The Specify Print Quality display at the field level is shown in Figure 222 on page 200.

```
                          Specify Print Quality

Keyword . . . . . :   PRTQLTY
Field . . . . . :   0000000000
Record format . . . . . :   0000000000
Number of indicators . . . . . :   0

Type choices, press Enter.

  Print quality . . . . . .  2            1=Near letter
                                          2=Letter
                                          3=Draft
                                          4=Fast draft

  Option indicators . . . . . .  __ __ __  01-99, N01-N99

    More indicators . . . . . .   N         Y=Yes, N=No



F3=Exit   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 222. Specify Print Quality Display (Field-Level)

Reference (REF)

Use this file-level keyword to specify the name of a file from which field descriptions are to be retrieved.

Option indicators are not valid for this keyword.

The Specify Reference File display is shown in Figure 223.

```
                          Specify Reference File

Keyword . . . . . :   REF

Type choices, press Enter.

  Database file . . . . . .  _________     Name
                                           F4 for list

    Library . . . . . .      *CURLIB___    Name
                                           *CURLIB
                                           *LIBL

  Record format . . . . . .  _________     Name
                                           F4 for list



F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 223. Specify Reference File Display

Referenced Field (REFFLD)

Use this field-level keyword when referring to a field under one of these three conditions:

- The name of the referenced field is different from the name in the DDS
- The name of the referenced field is the same as the name in the DDS, but the record format, file, or library of the referenced field is different from that specified with the REF keyword
- The referenced field occurs in the same DDS source file as the referencing field

Option indicators are not valid for this keyword.

The Specify Referenced Field display is shown in Figure 224.

```
                        Specify Referenced Field

Keyword . . . . . . . . . . . . . :   REFFLD
Field . . . . . . . . . . . . . . :   0000000000
Record format . . . . . . . . . . :   0000000000

Type choices, press Enter.

  Field . . . . . . . . . . . . . .   _________     Name
                                                    F4 for list
    Record format . . . . . . . . .   _________     Name
                                                    F4 for list

  File  . . . . . . . . . . . . . .   _________     Name
                                                    *SRC
                                                    F4 for list
    Library . . . . . . . . . . . .   *CURLIB___    Name
                                                    *CURLIB
                                                    *LIBL



F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 224. Specify Referenced Field Display

Skip After (SKIPA)

Use this file-level, record-level, or field-level keyword to specify that the printer device is to skip to a specific line number after it prints one or more lines.

Option indicators are valid for this keyword.

The Specify Skip After display at the file level is shown in Figure 225 on page 202.

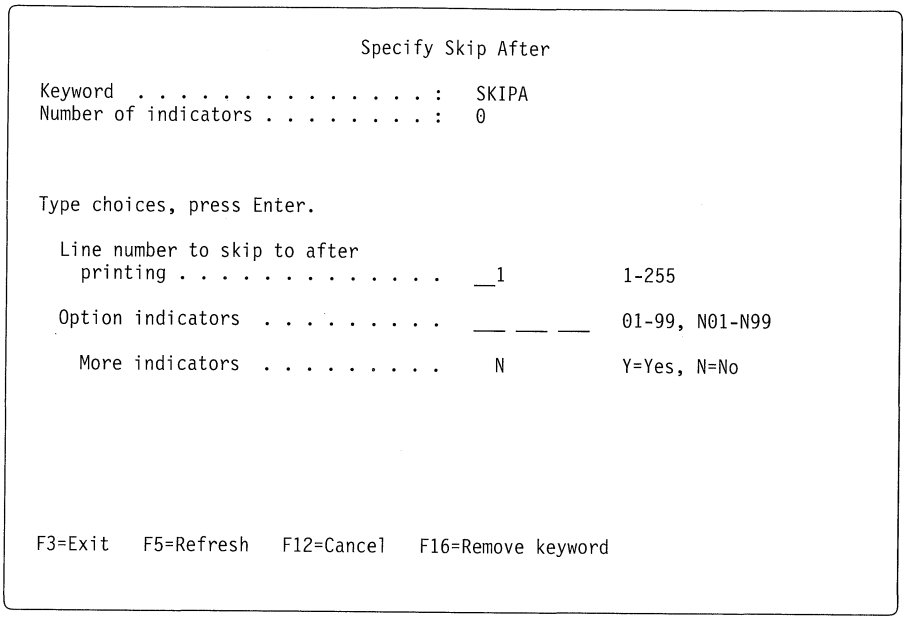

Figure 225. Specify Skip After Display (File-Level)

The Specify Skip After display at the record level is shown in Figure 226.

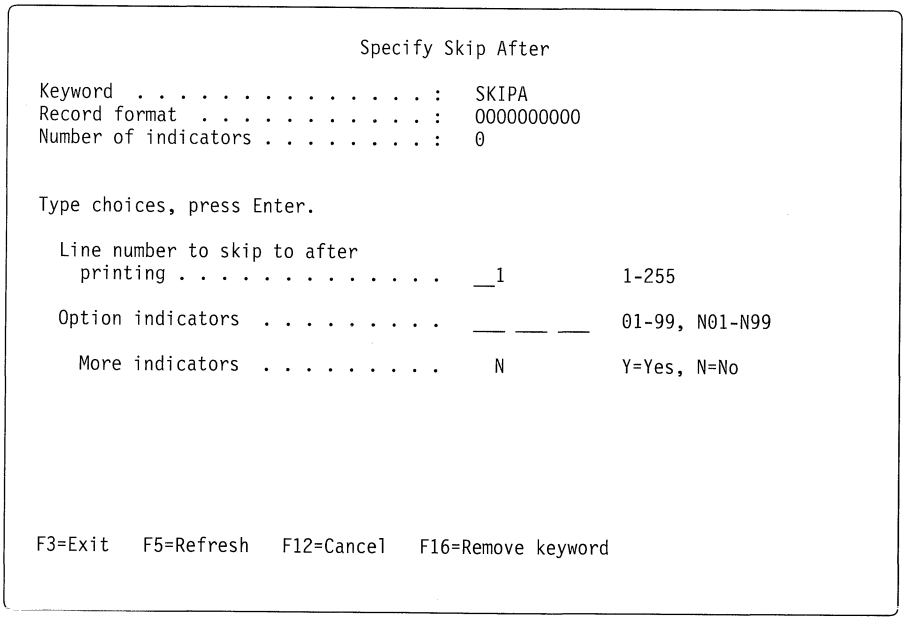

Figure 226. Specify Skip After Display (Record-Level)

The Specify Skip After display at the field level is shown in Figure 227 on page 203.

```
                          Specify Skip After

Keyword . . . . . . . . . . . . . . :  SKIPA
Field . . . . . . . . . . . . . . . :  0000000000
Record format . . . . . . . . . . . :  0000000000
Number of indicators . . . . . . . . :  0

Type choices, press Enter.

  Line number to skip to after
    printing . . . . . . . . . . . .  __1          1-255

  Option indicators . . . . . . . .  ___ ___ ___   01-99, N01-N99

    More indicators . . . . . . . .    N          Y=Yes, N=No




F3=Exit   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 227. Specify Skip After Display (Field-Level)

Skip Before (SKIPB)

Use this file-level, record-level, or field-level keyword to specify that the printer device is to skip to a specific line number before it prints the next line or lines.

Option indicators are valid for this keyword.

The Specify Skip Before display at the file level is shown in Figure 228.

```
                          Specify Skip Before

Keyword . . . . . . . . . . . . . . :  SKIPB
Number of indicators . . . . . . . . :  0


Type choices, press Enter.

  Line number to skip to before
    printing . . . . . . . . . . . .  __1          1-255

  Option indicators . . . . . . . .  ___ ___ ___   01-99, N01-N99

    More indicators . . . . . . . .    N          Y=Yes, N=No




F3=Exit   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 228. Specify Skip Before Display (File-Level)

The Specify Skip Before display at the record level is shown in Figure 229.

```
                          Specify Skip Before

Keyword . . . . . . . . . . . . . . :  SKIPB
Record format . . . . . . . . . . . :  0000000000
Number of indicators . . . . . . . . :  0


Type choices, press Enter.

  Line number to skip to before
    printing . . . . . . . . . . . .  __1          1-255

  Option indicators . . . . . . . . .  ___ ___ ___  01-99, N01-N99

    More indicators . . . . . . . . .    N          Y=Yes, N=No









F3=Exit   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 229. Specify Skip Before Display (Record-Level)

The Specify Skip Before display at the field level is shown in Figure 230.

```
                          Specify Skip Before

Keyword . . . . . . . . . . . . . . :  SKIPB
Field . . . . . . . . . . . . . . . :  0000000000
Record format . . . . . . . . . . . :  0000000000
Number of indicators . . . . . . . . :  0

Type choices, press Enter.

  Line number to skip to before
    printing . . . . . . . . . . . .  __1          1-255

  Option indicators . . . . . . . . .  ___ ___ ___  01-99, N01-N99

    More indicators . . . . . . . . .    N          Y=Yes, N=No









F3=Exit   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 230. Specify Skip Before Display (Field-Level)

Space After (SPACEA)

Use this record-level or field-level keyword to specify that the printer device is to space some number of lines after it prints one or more lines.

Option indicators are valid for this keyword.

The Specify Space After display at the record level is shown in Figure 231.

```
                          Specify Space After

Keyword . . . . . . . . . . . . . :  SPACEA
Record format . . . . . . . . . . :  0000000000
Number of indicators . . . . . . . :  0


Type choices, press Enter.

  Number of lines to space after
    printing . . . . . . . . . . . .  __1          1-255

  Option indicators . . . . . . . .  ___ ___ ___   01-99, N01-N99

    More indicators . . . . . . . .    N          Y=Yes, N=No




F3=Exit   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 231. Specify Space After Display (Record-Level)

The Specify Space After display at the field level is shown in Figure 232.

```
                          Specify Space After

Keyword . . . . . . . . . . . . . :  SPACEA
Field . . . . . . . . . . . . . . :  0000000000
Record format . . . . . . . . . . :  0000000000
Number of indicators . . . . . . . :  0

Type choices, press Enter.

  Number of lines to space after
    printing . . . . . . . . . . . .  __1          1-255

  Option indicators . . . . . . . .  ___ ___ ___   01-99, N01-N99

    More indicators . . . . . . . .    N          Y=Yes, N=No




F3=Exit   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 232. Specify Space After Display (Field-Level)

Space Before (SPACEB)

Use this record-level or field-level keyword to specify that the printer device is to space some number of lines before it prints the next line or lines.

Option indicators are valid for this keyword.

The Specify Space Before display at the record level is shown in Figure 233.

```
                          Specify Space Before

Keyword . . . . . . . . . . . . . . :   SPACEB
Record format . . . . . . . . . . . :   0000000000
Number of indicators . . . . . . . . :  0


Type choices, press Enter.

  Number of lines to space before
    printing . . . . . . . . . . . .    __1          1-255

  Option indicators . . . . . . . .     ___ ___ ___  01-99, N01-N99

    More indicators . . . . . . . .       N          Y=Yes, N=No




F3=Exit   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 233. Specify Space Before Display (Record-Level)

The Specify Space Before display at the field level is shown in Figure 234.

```
                          Specify Space Before

Keyword . . . . . . . . . . . . . . :   SPACEB
Field . . . . . . . . . . . . . . . :   0000000000
Record format . . . . . . . . . . . :   0000000000
Number of indicators . . . . . . . . :  0

Type choices, press Enter.

  Number of lines to space before
    printing . . . . . . . . . . . .    __1          1-255

  Option indicators . . . . . . . .     ___ ___ ___  01-99, N01-N99

    More indicators . . . . . . . .       N          Y=Yes, N=No




F3=Exit   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 234. Specify Space Before Display (Field-Level)

Text (TEXT)

Use this record-level or field-level keyword to supply a text description (or comment) for the record format or field.

Option indicators are not valid for this keyword.

The Specify Text display at the record level is shown in Figure 235.

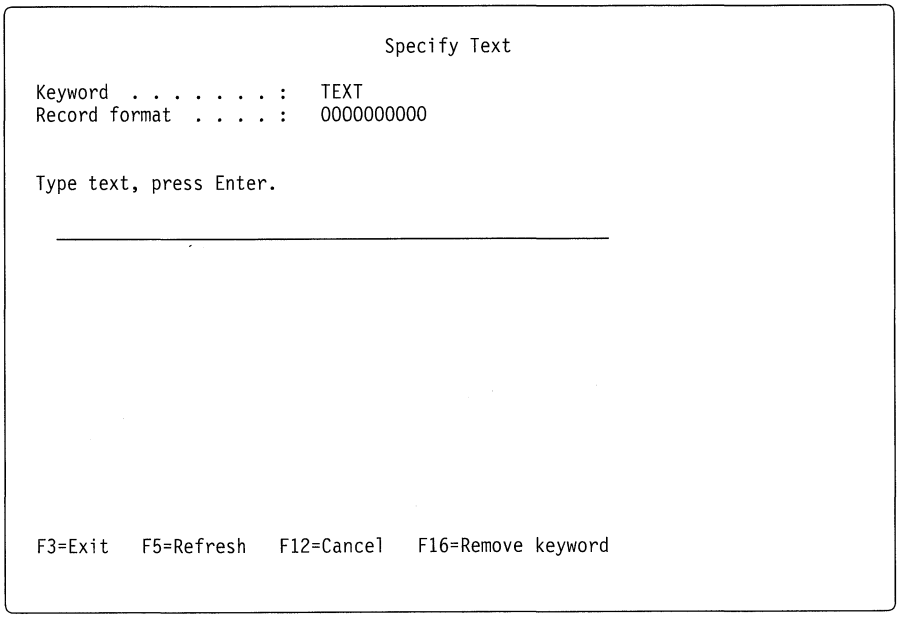

Figure 235. Specify Text Display (Record-Level)

The Specify Text display at the field level is shown in Figure 236.

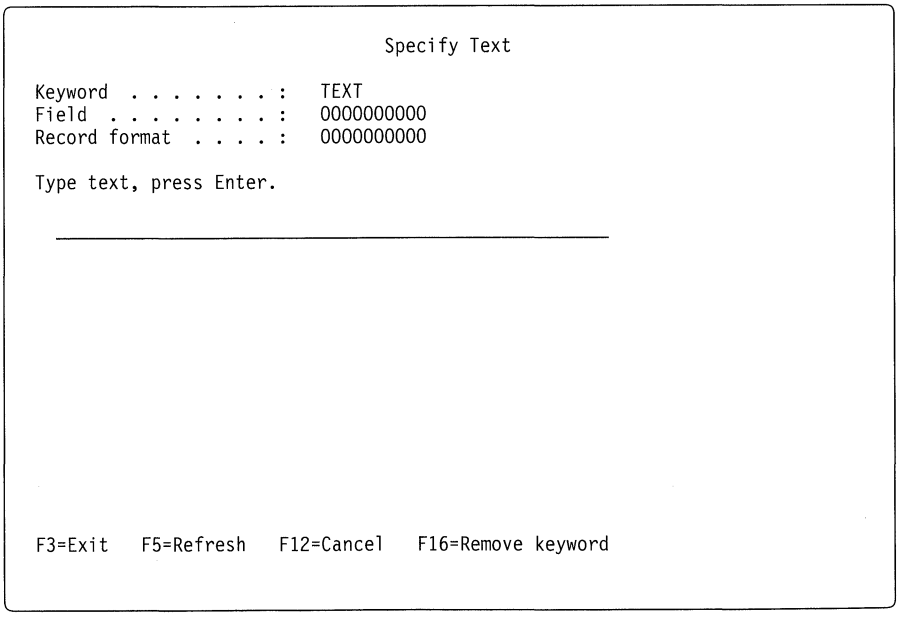

Figure 236. Specify Text Display (Field-Level)

Time (TIME)

This field-level keyword prints the current system time as a constant field 6 bytes long. You can specify the location of the field, the TIME keyword, and, optionally, the EDTCDE, EDTWRD, COLOR, HIGHLIGHT, CHRSIZ, FONT, UNDERLINE, or TEXT keyword.

This keyword has no parameters, so you do not see a data entry display.

Transparency (TRNSPY)

This field-level keyword prevents code points you have redefined (using the DFNCHR keyword) from being interpreted as SCS printer control commands when your program sends an output operation that prints the field you are defining.

This keyword has no parameters, so you do not see a data entry display.

Underline (UNDERLINE)

Use this field-level keyword to specify that the OS/400 system is to underline the field when it is printed. Specify UNDERLINE only if the printer supports underlining.

Option indicators are valid for this keyword.

The Specify Underline display is shown in Figure 237.

```
                          Specify Underline

Keyword . . . . . . . . . . . . . . :   UNDERLINE
Field . . . . . . . . . . . . . . . :   0000000000
Record format . . . . . . . . . . . :   0000000000
Number of indicators . . . . . . . . :   0

Type choices, press Enter.

  Option indicators . . . . . . . . .   __ __ __   01-99, N01-N99

    More indicators . . . . . . . . .     N          Y=Yes, N=No









F3=Exit   F5=Refresh   F12=Cancel   F16=Remove keyword
```

Figure 237. Specify Underline Display

RLU-Tolerated Advanced Function Printing Data Stream Keywords

The DDS keywords required for Advanced Function Printing Data Stream (AFPDS) support are tolerated by RLU, but not supported by it. When you load a source member that contains a record that contains a tolerated keyword, RLU saves all source lines in that record. The record is displayed without any of the fields that are defined for it. In the example shown in Figure 238, RCD004 is the AFPDS record. All other records are displayed with all their defined fields.

```
 Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
 RLU==> _____________________________________________________________     REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
 FLD1    <.............................>
  RCD001 ABC Company - Employee Directory
 00002 +
 00003 +
 FLD1    <..> <...........>                                      <...>    <....>
  RCD002 Dept Employee Name                                     Phone    Status
 FLD1    <..> <.......................................>         <...>      *
  RCD003 nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx     nnnnn      x
        ------------------------ Start of Page 002 --------------------------
  RCD004 ----------------------- AFPDS Record Format -------------------------
        --------------------------- End of Report -----------------------------




 F3=Exit   F11=Define field   F16=Delete field
 F22=Alternative keys         F24=More keys
```

Figure 238. Design Report Display with AFPDS Record Displayed

When you save the source member, RLU regenerates the tolerated keywords.

Because these keywords are tolerated, but not supported, you can neither specify nor change these keywords during an RLU session. You can, however, use the RLU Copy, Move, Delete, block Copy, block Move, and block Delete line commands on records that contain these keywords. When you print a report prototype, the records that contain these keywords are generated.

The tolerated keywords are shown in Figure 239.

Figure 239. RLU-Tolerated DDS Keywords

DDS Keyword	Name	Record Level	Field Level	Description
BOX	Box	X		Prints a rectangle.
ENDPAGE	Page Eject	X		Ejects the current page when the record is printed.
GDF	Graphic Data File	X		Prints a graphic data file.
LINE	Line	X		Prints a vertical or horizontal line.
OVERLAY	Overlay	X		Prints an overlay.
PAGSEG	Page Segment	X		Prints a page segment.
POSITION	Position		X	Defines the location of the field. The location is defined by a unit of measure instead of by line and column.
TXTRTT	Text Rotation		X	Rotates a field 0, 90, 180, or 270 degrees depending on the way the page is loaded into the printer.

Appendix B. Source Generated by RLU

An RLU source member contains three types of data:

- DDS source statements
- RLU comments
- User comments

This appendix describes this source data.

You can use the source entry utility (SEU) to browse the source member that you either created or changed with RLU. During the browse session, you can also use the SEU HIDE command to hide RLU comments in the member. For more information about using SEU, see the *SEU User's Guide and Reference*. For more information about using SEU to edit an RLU member, see "Editing RLU Source Using SEU" on page 18.

DDS Source Statements

For detailed information about DDS syntax, refer to the *DDS Reference*.

RLU Comments

When you save a new or changed RLU member, RLU stores information that is specific to RLU in comments, called RLU comments. Any information also contained in the DDS source code is not repeated in the RLU comments. DDS code and RLU comments together allow RLU to recreate your report design on the Design Report display.

The following tables describe the location, the purpose, and the contents of each RLU comment type in an RLU source member.

The following RLU comments are always generated:

- Time/Release Information
- File-Level Information

Figure 240 shows a description of RLU comments.

Figure 240 (Page 1 of 2). Description of RLU Comments

Comment Type	Associated DDS	Location in DDS
Time/Release Information	None	First RLU comment in file-level DDS.
File-Level Information	None	Following the Time/Release Information comment line.
Record-Level Information	Record format	Immediately following a record format specification and before any field specification.
Filler Line Information - Undefined Filler Line	None	Before or after a record format specification, but not within a single record format or set of sample texts.

Figure 240 (Page 2 of 2). Description of RLU Comments

Comment Type	Associated DDS	Location in DDS
Filler Line Information - Report Spacing Filler Line	Record format	Within a record format specification or set of sample texts.
Start of a Set of Sample Texts	All the fields within a record format	First line of a set of sample texts and (if in the first set of sample texts) after all fields in the record format but before the next record format.
Report Sample Data	Field	Immediately following a Start of a Set of Sample Texts comment line.
Report Continuation Line	None	Immediately following a Start of a Set of Sample Texts comment line, within a set of sample texts.
New Page Break	None	Between record formats, sets of sample texts, or Undefined Filler Line comments.
CRTPRTF Command String for Printer File	None	End of source.
CRTPRTF Command String for Sample Report	None	End of source.

Figure 241 shows the contents of RLU comments.

Figure 241 (Page 1 of 7). Contents of RLU Comments

Position	Information	Description
	All RLU Comment Types	
1-5	Sequence Number	This position contains blanks. They are not used and are ignored by RLU.
6	Form Type	An A in this position designates this as a DDS form. Any character is valid for input, but A is automatically generated for output.
7	Comment	An asterisk (*) in this position identifies this line as a comment. This must appear in the RLU source.
8-9	RLU Type Identification	%% in these positions identifies this line as an RLU comment.
	Time/Release Information	
10-11	RLU Time/Release Information Identification	TS in these positions identifies this line as a file-level time/release information line.
12-13	Positions Not Used	These positions contain blanks.
14-15	RLU Component Identification	These positions contain the RLU component identification.
16-17	Positions Not Used	These positions contain blanks.
18-25	Date of Last Update	These positions contain the last update year-month-day stamp (yyyymmdd).
26-27	Positions Not Used	These positions contain blanks.

Figure 241 (Page 2 of 7). Contents of RLU Comments

Position	Information	Description
28-33	Time of Last Update	These positions contain the last update hour-minute-second stamp (hhmmss).
34-35	Positions Not Used	These positions contain blanks.
36-45	User ID	These positions contain the last update user ID.
46-47	Positions Not Used	These positions contain blanks.
48-57	Release Number and Modification Number	These positions contain the release number and modification number of the current RLU session.
58-59	Positions Not Used	These positions contain blanks.
60-69	Product Number	These positions contain the product number of the current RLU version.
70-80	Positions Not Used	These positions contain blanks.
	File-Level Information	
10-11	RLU File Information Line Identification	FI in these positions identifies this line as a File-Level Information line.
12	Continuation Line Identification	A plus sign (+) in this position identifies the next line as a continuation File-Level Information line. A blank in this position identifies the line as the second File-Level Information line.
13	Printer Device Type	The value in this position identifies the type of printer device being used. Valid values are 1 for *SCS (the default), 2 for *IPDS, and 3 for *AFPDS. This position must be blank if the line is a second File-Level Information line to accommodate all the indicators.
14-16	Page Length	These positions contain the page length for the report in number of print lines. The valid range is 001 to 255 (066 is the default), and the value must be right-justified. These positions must be blank if the line is a second File-Level Information line to accommodate all the indicators.
17	Activate Indicators	This position contains 1 for Active or 0 for Non-active and indicates whether or not conditioned fields and keywords are activated. The default value is 0 and all indicators are assumed to be 1. If the value in this position is 1, all the indicators to become ON must be 1. Indicators of 0 become OFF. This position is blank if the line is a second File-Level Information Line, to accommodate the status of more indicators than can fit on a single line.
18	ON/OFF Toggle	This position contains 1 for ON or 0 for OFF to indicate the current setting of the ON/OFF toggle. The default value is 1 for ON. The ON/OFF toggle value has effect only when the Activate Indicators value is 1 for Active. This position is blank if the line is a second File-Level Information line.

Figure 241 (Page 3 of 7). Contents of RLU Comments

Position	Information	Description
19-68	Set of Indicators	These positions contain the indicator values (50 on the first File-Level Information line and 49 more on a second). The valid values are 1 and 0, and any invalid value is considered 0. If the line is a second File-Level Information line, position 68 must be blank.
69-80	Positions Not Used	These positions contain blanks.
	Record-Level Information	
10-11	RLU Record Information Line Identification	RI in these positions identifies this line as a record format information line.
12	Position Not Used	This position contains a blank.
13-17	Number of Sample Lines	These positions specify the number of sample lines generated.
18	Record Type	This position contains an H or a blank to indicate whether or not this is a database header record.
19-80	Positions Not Used	These positions contain blanks.
	Filler Line Information - Undefined Filler Line	
10-11	RLU Filler Line Identification	FL in these positions identifies this line as a filler line, and not associated with any record format.
12	Continuation of Undefined Filler Line	This position contains a plus sign (+) to identify the next line as a continuation line or a blank to indicate that there is no continuation.
13-15	Number of Occurrences	These positions specify the number of repeated blank filler lines (including the first one). The valid range is from 1 to 999.
16	Shift-Out Character (Reserved for DBCS)	This position contains a shift-out control character (hex '0E') for the continuation of a DBCS string.
17-78	Undefined Filler Line Data	This position contains the filler line data (exactly what shows on the Design Report display).
79-80	Shift-In Character (Reserved for DBCS)	These positions contain one of the following: • A shift-in control character (hex '0F') in position 79 and a blank in position 80, if the filler line text contains DBCS strings and the second byte of the last DBCS character ends in position 78. • A shift-in control character in position 80 if the filler line text contains DBCS strings and the second byte of the last DBCS character ends in position 79. • Blanks in both positions if single-byte character set (SBCS) text ends in position 78.

Figure 241 (Page 4 of 7). Contents of RLU Comments

Position	Information	Description
	Filler Line Information - Report Spacing Filler Line	
10-11	RLU Filler Line Identification	FS in these positions identifies this line as a report spacing filler line, associated with a record format.
12	Continuation of Report Spacing Filler Line	This position contains a plus sign (+) to identify the next line as a continuation line or a blank to indicate that there is no continuation.
13-15	Number of Occurrences	These positions specify the number of repeated blank filler lines (including the first one). The valid range is from 1 to 999.
16	Shift-Out Character (Reserved for DBCS)	This position contains a shift-out control character (hex '0E') for the continuation of a DBCS string.
17-78	Report Spacing Filler Line Data	These positions contain the filler line data (exactly what shows on the Design Report display).
79-80	Shift-In Character (Reserved for DBCS)	These positions contain one of the following: • A shift-in control character (hex '0F') in position 79 and a blank in position 80, if the filler line text contains DBCS strings and the second byte of the last DBCS character ends in position 78. • A shift-in control character in position 80 if the filler line text contains DBCS strings and the second byte of the last DBCS character ends in position 79. • Blanks in both positions if single-byte character set (SBCS) text ends in position 78.
	Start of a Set of Sample Texts	
10-11	Start Sample Text Identification	SS in these positions identifies this line as the beginning of a set of sample texts.
12	Continuation of Line	This position contains a plus sign (+) to identify the next line as a continuation line or a blank to indicate that there is no continuation.
13-15	Positions Not Used	These positions contain blanks.
16	Shift-Out Character (Reserved for DBCS)	This position contains a shift-out control character (hex '0E') for the continuation of a DBCS string.
17-78	Filler Text Data	These positions contain the filler text data (exactly what shows on the Design Report display).

Figure 241 (Page 5 of 7). Contents of RLU Comments

Position	Information	Description
79-80	Shift-In Character (Reserved for DBCS)	These positions contain one of the following: • A shift-in control character (hex '0F') in position 79 and a blank in position 80, if the filler text contains DBCS strings and the second byte of the last DBCS character ends in position 78. • A shift-in control character in position 80 if the filler text contains DBCS strings and the second byte of the last DBCS character ends in position 79. • Blanks in both positions if single-byte character set (SBCS) text ends in position 78.
	Report Sample Data	
10-11	RLU Report Sample Data Line Identification	SN in these positions identifies this line as a report sample data line.
12	Continuation of Line	This position contains a plus sign (+) to identify the next line as a continuation line or a blank to indicate that there is no continuation.
13-22	Field Name	These positions contain the field name with which the report sample data is associated.
23	Shift-Out Character (Reserved for DBCS)	This position contains a shift-out control character (hex '0E') for the continuation of DBCS sample data text.
24-78	Sample Data	These positions specify the sample data. The data can be alphanumeric or numeric. Blanks preceding the data are interpreted as leading blanks (for alphanumeric data) or suppressed zeros (for numeric data). If the line is not long enough to hold all the sample data text, a plus sign (+) in position 12 indicates that the line is followed by a continuation line. The remaining data is on the continuation line.
79-80	Shift-In Character (Reserved for DBCS)	These positions contain one of the following: • A shift-in control character (hex '0F') in position 79 and a blank in position 80, if the sample data contains DBCS strings and the second byte of the last DBCS character ends in position 78. • A shift-in control character in position 80 if the sample data contains DBCS strings and the second byte of the last DBCS character ends in position 79. • Blanks in both positions if single-byte character set (SBCS) text ends in position 78.

Figure 241 (Page 6 of 7). Contents of RLU Comments

Position	Information	Description
		Record Continuation Line
10-11	RLU Continuation Line Identification	CL in these positions identifies this line as a continuation line within a set of field or sample text lines.
12	Continuation of Line	This position contains a plus sign (+) to identify the next line as a continuation line or a blank to indicate that there is no continuation.
13-15	Number of Occurrences	These positions specify the number of repeated blank filler lines (including the first one). The valid range is from 1 to 999.
16	Shift-Out Character (Reserved for DBCS)	This position contains a shift-out control character (hex '0E') for the continuation of a DBCS string.
17-78	Continuation Line Data	These positions contain the filler text data (exactly what shows on the Design Report display).
79-80	Shift-In Character (Reserved for DBCS)	These positions contain one of the following: • A shift-in control character (hex '0F') in position 79 and a blank in position 80, if the filler text contains DBCS strings and the second byte of the last DBCS character ends in position 78. • A shift-in control character in position 80 if the filler text contains DBCS strings and the second byte of the last DBCS character ends in position 79. • Blanks in both positions if single-byte character set (SBCS) text ends in position 78.
		New Page Break
10-11	RLU New Page Identification	NP in these positions identifies this line as a New Page Break.
12-80	Positions Not Used	These positions contain blanks.
		CRTPRTF Command String for Printer File
10-11	Command String Identification	CP in these positions identifies this line as a CRTPRTF command string for the printer file.
12	Continuation of Parameter List	This position contains a plus sign (+) to identify the next line as a continuation line or a blank if there is no continuation.
13-15	Length of Command	These positions contain the length of the command, right-justified and padded with leading zeros. From Version 2, Release 2 and later, the value is always set to the maximum (999) for the downward compatibility of RLU.
16-80	Command String	These positions contain the command string to create the printer file, including all the specified parameters.

Figure 241 (Page 7 of 7). Contents of RLU Comments

Position	Information	Description
	CRTPRTF Command String for Sample Report	
10-11	Command String Identification	CS in these positions identifies this line as a CRTPRTF command string for the report prototype.
12	Continuation of Parameter List	This position contains a plus sign (+) to identify the next line as a continuation line or a blank if there is no continuation.
13-15	Length of Command	These positions contain the length of the command, right-justified and padded with leading zeros. From Version 2, Release 2 and later, the value is always set to the maximum (999) for downward compatibility of RLU.
16-80	Command String	These positions contain the command string to create the printer file, including all the specified parameters.

User Comments

An RLU source member can also contain text that you enter for documentation purposes and identify with an asterisk (*) in position 7. These user comments can only be added to an existing source member outside an RLU session.

When an RLU source member containing user comments is loaded into the work space at the start of an RLU session, RLU associates each user comment with the next RLU entity (file, record format, field, or keyword) that it encounters.

The consequences of this linking are:

- When you delete an entity, RLU also deletes all the associated user comments
- When you move an entity, RLU also moves all the associated user comments appropriately
- When you copy an entity, RLU does not copy the associated user comments

Non-RLU Source Considerations

When you are using RLU to work with existing printer file DDS source members that you did not create by using RLU, be aware of the following:

- When RLU loads the existing source member:
  - All field text is defaulted, according to data type
  - Non-DDS features such as indicator settings, page width, and printer type, unless they are explicitly specified, are defaulted
  - Record formats are shown in the order in which RLU encounters them in the source
  - The Specify Default (DFT) keyword is dropped from the source
  - Any invalid keywords are stored as comments
- When you save the existing source member:
  - The appropriate RLU comments are added to the source
  - All occurrences of DATE(*JOB) are stored as DATE (that is, the *JOB parameter is dropped)

Appendix C. Semantic Checking in RLU

RLU can check the DDS source you define with RLU to help you create and change error-free source members.

Semantic checking occurs during an RLU edit session when you are editing a report design on the Design Report display as RLU validates new and changed information that you enter on the display. RLU also validates information that you enter or change on other data entry displays when you return to the Design Report display. If RLU finds an error, you see a message on the work screen and the line containing the error is highlighted. You can then change the information in the appropriate manner. Be aware that if you ignore errors intentionally, RLU will not create the printer file.

When you load an existing source member into the RLU work space, **syntax checking** occurs. RLU does not perform semantic checking at this time. Syntax checking validates that data has not been corrupted since it was last edited with RLU. You could have created errors, such as a misspelled keyword, if you edited the source directly using SEU. If RLU finds any unrecoverable errors, you see a message on the work screen telling you what action RLU took.

This appendix describes how you request semantic checking in RLU and how it works.

How to Request Semantic Checking

You specify that you want RLU to check your source member as you edit on the Design Report display by pressing F13=Change session defaults (A).

Note: Throughout this manual, (A) after the function key indicates that the key is part of the alternative set of keys, and (B) after the function key indicates that the key is part of the base set of keys, on the Design Report display.

The Change Session Defaults display appears as shown in Figure 242 on page 222.

```
                          Change Session Defaults

Type choices, press Enter.

  Amount to roll . . . . . .  H__        H=Half, F=Full
                                         C=Cursor, D=Data
                                         1-999
  Uppercase input only . . . . . .  N    Y=Yes, N=No
  Show all field lines . . . . . .  Y    Y=Yes, N=No
  Full screen mode . . . . . .  N        Y=Yes, N=No

  Insert marked data . . . . . .  N      Y=Yes, N=No
  Replace marked data  . . . . . .  N    Y=Yes, N=No
  Semantic checking:
    When added/modified  . . . . . .  Y  Y=Yes, N=No
    From page number . . . . . .  ___    000-999
      Line number  . . . . . .  _____    00000-32767
    To page number . . . . . .  ___      000-999
      Line number  . . . . . .  _____    00000-32767
  Printer device type  . . . . . .  1    1=SCS, 2=IPDS, 3=AFPDS
                                                  More. . .
F3=Exit      F5=Refresh   F12=Cancel
F14=Find/Change options   F15=Browse/Copy options
```

Figure 242. Change Session Defaults Display

On this display, use the following prompts for semantic checking throughout your edit session:

- *When added/modified*

  Y for this prompt specifies that you want RLU to check every new and changed line in your report design as you enter or change it.

- *Printer device type*

  Specifying the type of printer you are using for this prompt helps RLU perform a more accurate semantic check since, for example, some keywords are only valid for certain printers.

Use the following prompts for a one-time semantic check of specific pages and lines:

- *From page number*

  Since the lines in your report design make up one or more pages, the number you enter for this prompt tells RLU on which page to start the check.

- *Line number*

  The number you enter for this prompt specifies the line on the From page where you want RLU to start the check.

- *To page number*

  The number you enter for this prompt tells RLU on which page to end the check.

- *Line number*

  The number you enter for this prompt specifies the line on the To page where you want RLU to end the check.

What Semantic Checking RLU Provides

For report lines and filler lines on the Design Report display, RLU checks the following:

- Record format definition
- Field definition
- Constant data definition

For record format, field, and constant data definition on the other data entry displays, RLU checks the following:

- Definable values
- Relations, keywords, and values

For file, record, field, and constant data keywords on the keyword list displays, RLU checks the following:

- Relations between keywords within the record format and the file

For required keyword parameters, RLU checks the following:

- Keyword parameter values
- Relations between parameter values

Summary of RLU Semantic Rules

Figure 243 shows the types of DDS keywords supported by the printers. Some rules for keyword specification are shown in Figure 244 on page 225, and Figure 245 on page 229 shows the rules for bar code specification.

Note: You cannot use RLU to work with the DDS keywords that are in AFPDS records. For more information about AFPDS records, see "RLU-Tolerated Advanced Function Printing Data Stream Keywords" on page 209.

Figure 243 (Page 1 of 2). Valid Printers for Keywords

Keyword	SCS	IPDS	DBCS	AFPDS
ALIAS	Y	Y	Y	Y
BARCODE		Y		Y
BLKFOLD	Y			
CDEFNT				Y
CHRID	Y	Y	Y	Y
CHRSIZ	Y	Y	Y	Y
COLOR		Y		Y
CPI	Y			
CVTDTA	Y	Y		Y
DATE	Y	Y		Y
DFNCHR	Y		Y	
DFNLIN	Y		Y	
DFT	Y	Y	Y	Y
DLTEDT	Y	Y		Y

Figure 243 (Page 2 of 2). Valid Printers for Keywords

Keyword	SCS	IPDS	DBCS	AFPDS
DRAWER	Y	Y	Y	Y
EDTCDE	Y	Y		Y
EDTWRD	Y	Y		Y
FLTFIXDEC	Y	Y		Y
FLTPCN	Y	Y		Y
FNTCHRSET				Y
FONT		Y		Y
HIGHLIGHT	Y	Y		Y
IGCALTTYP	Y	Y	Y	
IGCANKCNV	Y		Y	
IGCCDEFNT	Y		Y	Y
IGCCHRRTT	Y		Y	
INDARA	Y	Y	Y	Y
INDTXT	Y	Y	Y	Y
LPI		Y	Y	Y
MSGCON	Y	Y		Y
PAGNBR	Y	Y		Y
PAGRTT		Y	Y	Y
PRTQLTY		Y	Y	Y
REF	Y	Y	Y	Y
REFFLD	Y	Y	Y	Y
SKIPA	Y	Y	Y	Y
SKIPB	Y	Y	Y	Y
SPACEA	Y	Y	Y	Y
SPACEB	Y	Y	Y	Y
TEXT	Y	Y	Y	Y
TIME	Y	Y		Y
TRNSPY	Y	Y		
UNDERLINE	Y	Y	Y	Y

Figure 244 describes some of the rules for keyword specification in RLU. Each of the conditions listed generates an error message when not valid.

Figure 244 (Page 1 of 5). Some Rules for Keyword Specification

Keyword	Rules
ALIAS	• Must be different than any other ALIAS and field name in the record format • Not valid for a constant field
BARCODE	• ID must check as shown in Figure 245 on page 229 • Data type must check as shown in Figure 245 on page 229 • Field length must check as shown in Figure 245 on page 229 • Height can be any value between 1 and 9, or it can be left blank • Printer should not be SCS • ID must be CODE3OF9 if you specify asterisk fill • Not valid for field with DBCS data type • Not valid for a numeric field unless the number of decimal positions is zero • Not valid with constant field DATE, PAGNBR, or TIME • Not valid for field with CHRID, CVTDTA, DATE, EDTCDE, EDTWRD, FONT, HIGHLIGHT, PABNBR, TIME, or UNDERLINE also specified • Not valid for field with CHRSIZ, CPI, DFNCHR, DFNLIN, IGCANKCNV, or IGCCHRRTT specified for the record format • Not valid for database reference field with EDTCDE or EDTWRD specified for the database field
BLKFOLD	• Printer must be SCS • Not valid for a constant field • Not valid for a floating-point field
CDEFNT	• Not valid for field with either FONT or FNTCHRSET also specified for field • Not valid for record with either FONT or FNTCHRSET also specified for record format
CHRID	• Not valid for a constant, numeric, or floating-point field • Not valid for field with BARCODE also specified • Not valid for field with DFNCHR specified for the record format • Not valid for field with DFNCHR specified for the file • Not valid for field with TRNSPY also specified with SCS printer • Ignored for field with graphic FONT also specified or for field with non-numeric FONT also specified and graphic FONT specified for the record format
CHRSIZ	• Decimal CHRSIZ not valid for a field or record format with numeric FONT also specified for the same record format or field • BARCODE not valid for a field with CHRSIZ also specified for the record format

Figure 244 (Page 2 of 5). Some Rules for Keyword Specification

Keyword	Rules
COLOR	• Printer should not be SCS • Must have option indicators for each COLOR when specified more than once for the same field • Same COLOR not valid more than once for the same field • Not valid with CPI, DFNCHR, DFNLIN, IGCANKCNV, or IGCCHRRTT specified for the same record format
CPI	• Printer must be an SCS printer • Not valid with BARCODE, COLOR, LPI, or PRTQLTY specified for the same record format • Not valid with DRAWER specified for the same record format • IGCANKCNV or IGCCHRRTT not valid for record format with CPI specified at the field level
CVTDTA	• Field should be a character named field • Field length must be an even number • Specify with TRNSPY for SCS printer file • Not valid for a constant field • Not valid for a field with BARCODE also specified
DATE	• Valid for a constant field only • Specify with CPI, EDTCDE, EDTWRD, COLOR, HIGHLIGHT, CHRSIZ, SKIP, SPACE, FONT, INDTXT, PRTQLTY, TRNSPY, TEXT, and UNDERLINE only • Not valid with DFT, MSGCON, PAGNBR, or TIME
DFNCHR	• Printer should be SCS printer • Not valid for a field with CHRID and PRTQLTY also specified • Not valid with DRAWER specified for the same record format • Not valid with PRTQLTY specified for the same record format • Do not specify with IPDS keywords such as COLOR, LPI, and BARCODE
DFNLIN	• Starting line must be equal to or less than page length • Sum of length must be equal to or less than page length • Starting position must be equal to or less than page width • Sum of length must be equal to or less than page width • Printer should be SCS • Not valid for a record format with IPDS keywords such as COLOR, BARCODE, and LPI also specified
DFT	• Field must be a constant field • Specify with TRNSPY for DFT with hex values • Not valid with DATE, MSGCON, PAGNBR, or TIME • Not valid with IGCANKCNV or IGCALTTYP

Figure 244 (Page 3 of 5). Some Rules for Keyword Specification

Keyword	Rules
DLTEDT	• Field must be a named field • Valid with REF or REFFLD and when the field is referencing another previously referenced field
DRAWER	• Not valid with CPI specified for the same record format • Not valid with DFNCHR specified at the record level
EDTCDE	• Edit description must exist • Field must have zoned decimal data type • Field length must be 3 through 7 for edit code Y • Currency fill symbol must be blank, asterisk, or the system currency symbol • Asterisk fill and currency symbol fill valid for edit codes 1 through 4, A through D, and J through Q only • Not valid with BARCODE • Not valid for a field with EDTWRD also specified
EDTWRD	• Field must have zoned decimal data type • Sum of blanks and stop-zero-suppression characters (zeros) must equal field length • Edit mask cannot be too large • Not valid with BARCODE • Not valid for a field with EDTCDE also specified
FLTFIXDEC	• Field length must be equal to or greater than 6 • Not valid for a constant field • Valid for floating-point fields only
FLTPCN	• Field must be a floating-point field • Specify FLTPCN(*DOUBLE) if field length is greater than 9 • Not valid for a constant field • FLTPCN(*SINGLE) not valid if field length is greater than 9
FNTCHRSET	• Not valid for field with either FONT or CDEFNT also specified for field • Not valid for record with either FONT or CDEFNT also specified for record format

Figure 244 (Page 4 of 5). Some Rules for Keyword Specification

Keyword	Rules
FONT	• Not valid for field with either CDEFNT or FNTCHRSET also specified for field • Not valid for record with either CDEFNT or FNTCHRSET also specified for record format • Specify FONT(*VECTOR) with CHRSIZ for record format or field • Not valid for a field with BARCODE also specified • Ignored if printer is SCS printer • Numeric FONT not valid for a field or record format with decimal CHRSIZ also specified for the same record format or field • CHRID ignored if specified for field with graphic FONT also specified or for field with nonnumeric FONT also specified and graphic FONT specified for the record format • Do not specify numeric or graphic font with HIGHLIGHT that does not support HIGHLIGHT • Overlapping fields not diagnosed if FONT specified at file level
HIGHLIGHT	• Not valid for a field with BARCODE also specified • Do not specify with a numeric or graphic FONT that does not support HIGHLIGHT
IGCALTTYP	• Field must be a character field • Field must be a named field • Field length must be greater than 3 • BLKFOLD, CPI, and IGCANKCNV not valid with IGCALTTYP
IGCANKCNV	• Field must be a named field • Printer should not be an IPDS printer • Not valid with BLKFOLD, BARCODE, COLOR, CPI, IGCALTTYP, and LPI
IGCCDEFNT	• Field must have DBCS data type
IGCCHRRTT	• Field must have DBCS data type • Printer should not be an IPDS printer • Not valid for a constant field • Not valid with BARCODE, COLOR, and LPI
LPI	• Printer should not be SCS • Not valid with COLOR, CPI, DFNCHR, DFNLIN, IGCANKCNV, or IGCCHRRTT
MSGCON	• Field must be a constant field • Not valid with DATE, DFT, PAGNBR, or TIME • Not valid for a field with IGCANKCNV, IGCALTTYP, or IGCCHRRTT
PAGNBR	• Field must be a constant field • Not valid with DATE, DFT, MSGCON, or TIME • Only CPI, EDTCDE, EDTWRD, COLOR, HIGHLIGHT, CHRSIZ, SKIP, SPACE, FONT, INDTXT, PRTQLTY, TRNSPY, TEXT, and UNDERLINE are valid with DATE

Figure 244 (Page 5 of 5). Some Rules for Keyword Specification

Keyword	Rules
PAGRTT	• Printer should not be SCS
PRTQLTY	• Specify with CHRSIZ for a record format • Specify with CHRSIZ at the record level or CHRSIZ and BARCODE at the field level when specifying for a field • Printer must be an IPDS printer • Not valid with CPI, DFNCHR, or DFNLIN specified for the same record format
REFFLD	• Field must be a named field
SKIPA	• Specify option indicators when specifying for a file • Not valid for a field with a line number specified for the first field in the record format • Not valid at the file level in a file that contains DDS keywords for AFPDS support
SKIPB	• Specify option indicators when specifying for a file • Not valid for a field with a line number specified for the first field in the record format • Not valid at the file level in a file that contains DDS keywords for AFPDS support
SPACEA	• Not valid for a field with a line number specified for the first field in the record format
SPACEB	• Not valid for a field with a line number specified for the first field in the record format
TIME	• Field must be a constant field • Only CPI, EDTCDE, EDTWRD, COLOR, HIGHLIGHT, CHRSIZ, SKIP, SPACE, FONT, INDTXT, PRTQLTY, TRNSPY, TEXT, and UNDERLINE are valid with TIME • Not valid with DATE, DFT, MSGCON, or PAGNBR
TRNSPY	• Field must have character data type or be a constant field • Not valid for a field with CHRID also specified for an SCS printer • Printer should not be AFPDS printer
UNDERLINE	• Not valid for a field with BARCODE also specified

Figure 245 shows the rules for bar code specification.

Figure 245 (Page 1 of 2). Bar Codes

Bar Code ID	Data Type	Field Length
MSI	S	1-31
UPCA	S	11
UPCE	S	10
UPC2	S	2
UPC5	S	5

Figure 245 (Page 2 of 2). Bar Codes

Bar Code ID	Data Type	Field Length
EAN8	S	7
EAN13	S	12
EAN2	S	2
EAN5	S	5
CODE3OF9	A	1-50
INTERL20F5	S	1-31
INDUST20F5	S	1-31
MATRIX20F5	S	1-31
CODEABAR	A	1-50
CODE128	A	1-50
POSTNET	S	1-31

Appendix D. Double-Byte Character Set Considerations

You can use double-byte character set (DBCS) data in RLU.

This appendix describes the following:

- Requirements for using DBCS data
- Using DBCS data on the Design Report display
- DBCS-only keywords

For more detailed information about working with DBCS data, refer to the *Data Management Guide*.

DBCS Requirements for RLU

To enter DBCS data when editing an RLU source member:

- You must be using a DBCS-capable workstation.
- The source file in which the source member is saved must be one that specifically allows DBCS data.

  When you create a source physical file using the Create Source Physical File (CRTSRCPF) command, you must specify the IGCDTA(*YES) parameter to specify that the file will contain members with DBCS data.

Note: If you open a member in an IGCDTA(*YES) source file on a non-DBCS-capable workstation, the DBCS data will be illegible. Any attempt to alter the DBCS data can lead to data corruption.

For more information about AS/400 system commands, see the *CL Reference*. For more information about creating DBCS-capable source files, see the *Data Management Guide*.

Using DBCS Data on the Design Report Display

With a DBCS-capable work station:

- You can enter DBCS data surrounded by the appropriate shift-out and shift-in characters on the Design Report display
- Both O and G appear as possible values on the Define Field Information and the Specify Field Information displays
- If you enter DBCS data and press F11=Define field, the value for the *Data type* prompt defaults to 4=Open on the Define Field Information display
- You can define constant fields containing DBCS data

With any work station, you can do the following on the Design Report display:

- Define fields with data type O (Open) and G (Graphic).
- Reference database fields that are DBCS.

  Database fields that are of type J (Only), O, or E (Either) are treated as data type O, and fields that are of type G are treated as G.
- Specify DBCS-only keywords.

If you are using a non-DBCS-capable work station on a DBCS-capable system or a source physical file with IGCDTA(*NO) specified, you cannot enter DBCS data but you can still define fields with data type O or G, specify DBCS-only keywords, and reference database fields with data type J, O, E, or G.

If a referenced database field includes column headings that contain DBCS data, RLU replaces the column heading with the field name and you see a message indicating that the column heading is replaced.

DBCS-Only Keywords

RLU provides the following DBCS support with DDS printer file keywords:

- DFT accepts DBCS character strings
- Other text-related keywords such as INDTXT and TEXT accept DBCS character strings
- DFNLIN, IGCCDEFNT, and IGCCHRRTT are added to the list of valid keywords for record formats
- IGCALTTYP, IGCANKCNV, IGCCDEFNT, and IGCCHRRTT are added to the list of valid keywords for fields

On an SBCS system, you can specify DBCS-only keywords by using the fastpath only. The DBCS-only keywords are not displayed on the Work with Field, Record, and File Keywords displays.

DBCS-Graphic Considerations

If you are using DBCS-graphic data, be aware of the following:

- To define a DBCS-graphic constant, add a G before the quotation mark (') that delimits the string on the Specify Default display.
- On the Design Report display, the default sample data is a single-byte G in files created with IGCDTA(*NO), and a double-byte Ｇ in files created with IGCDTA(*YES).

  When creating prototype reports, double-byte sample data is used for DBCS-graphic fields in both types of files. Sample data for DBCS-graphic fields in a prototype report contain unrecognizable characters when viewed or printed on devices that are not DBCS-capable.
- On the Design Report display, the shift-in and shift-out characters are displayed for DBCS-graphic fields and constants. So that field alignment is maintained, the last DBCS character is not displayed. Any DBCS-graphic constants defined using the DFT keyword will have the complete constant sent to be printed. With named fields, the last double-byte character always prints as two single-byte blanks on the report.
- If the DBCS-graphic field contains only one DBCS character, only the shift-in and shift-out characters are displayed. If the shift-in and shift-out characters are deactivated, the position of the field is indicated by the field line.

Appendix E. Defining Fields Using the SDA Format

In RLU you can define fields in your report design and supply the necessary information about them by using function keys, line commands, and definition formats on the field line.

This appendix contains the following:

- Field definition formats
- Examples of using field definition formats
- Input/output results using field definition formats

Field Definition Formats

You enter field definition formats on the FLD1 field lines of the Design Report display. Field definition formats are used to define numeric fields, character fields, and constant fields.

To define a numeric field:

1. Type a plus sign (+) one position before where the field is to be located on the work display.
2. To define the field type, type 6 after the plus sign (+).

To define a character field:

1. Type a plus sign (+) one position before where the field is to be located on the work display.
2. To define the field type, type the letter 0 after the plus sign (+).

To define a constant field:

1. Type a single quotation mark (') one position before where the field is to be located on the work display.
2. Type a single quotation mark (') one position after the end of the field. The single quotation marks (') define the field type.

Figure 246 shows a 3-byte character field, a 3-byte numeric field, and a constant field on the FLD1 field line.

```
Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
RLU==> _____________________________________________________________     REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
FLD1          +000        +666           'constant'
 RCD001
       --------------------------- End of Report ----------------------------
```

Figure 246. Field Definition on the FLD1 Command Line

When you press Enter, the field definition formats are converted to the RLU Define Field (DF) command field definitions, and are displayed on the FLD1 line and the sample line as shown in Figure 247.

```
Columns . . . :    1  71        Design Report                 RPTLIB/RPTFILE
RLU==> ____________________________________________________________ REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
FLD1           <.>          <..>           <......>
 RCD001        XXX          999-           constant
       --------------------------- End of Report ----------------------------
```

Figure 247. Field Definition Conversion to RLU DF Command

Notes:

1. A field cannot begin in column 1 because the column 1 position is used for the plus sign (+) or the single quotation mark (').
2. You cannot enter a plus sign (+) in column 80 to define a field beginning in column 1 of the next line because the next line is not a FLD1 field line.
3. Each field definition needs 1 or 2 blank positions in addition to the length of the field you are defining. This allows room for the plus sign (+) or the single quotation marks (').
4. New field definitions cannot overwrite existing field definitions.
5. A zoned field is defined with a default of edit code L.
6. The length of a constant field is limited by the display size. If a length parameter is not specified, then the length of a numeric or character field is limited by the display size.
7. If you define a field that exceeds the display size, the field is not created and RLU deletes the field definition.

Examples: Using Field Definition Formats

The symbols used in the following examples of field definition formatting are:

e	Single precision
d	Double precision
n	Digit
j	Length
k	Decimal position
x	Alphanumeric

Examples of numeric field definitions are:

+6*nn*	Defines a field
+6*nn.nn*	Defines a field with 3 significant digits and 2 decimal positions
+6(*j*)	Defines a field *j* bytes long

	+6(*j,k*)	Defines a field *j* bytes long with *k* decimal positions
	+6(*j,k*)*e*	Defines a single-precision, floating-point field with *j* significant digits and *k* decimal positions
	+6(*j,k*)*d*	Defines a double-precision, floating-point field with *j* significant digits and *k* decimal positions
	+6*nn.nne*	Defines a single-precision, floating-point field with 3 significant digits and 2 decimal positions
	+6*nn.nnd*	Defines a double-precision, floating-point field with 3 significant digits and 2 decimal positions

Examples of character field definitions are:

+O*xxx*	Defines a field
+O(*j*)	Defines a field *j* bytes long

Examples of constant field definitions are:

'*abcde...*'	Defines a field
'*abc*''*def*'	Defines two constant fields

Input/Output Results Using Field Definition Formats

The following examples show the results of field definition using formats on the field line.

Field Definition	RLU Result
+6.	Not allowed
+6(9)+6(9)+6(9)	Overlapping fields defined
+6*nnn*	9999-
+3*nn*	Not allowed
+9*nn*	Not allowed
+6(5,2)	999.99-
+666.66*e*	0.00E+000
+6(5,2)*e*	0.00E+000
+6(5,2)*d*	0.00E+000
+O*xx*	XXX
'ABC'	ABC
'ABC''DEF'	ABC DEF
'ABC' 'DEF'	ABC DEF

Bibliography

The manuals below are listed with their full titles and base order numbers. When these manuals are referred to in the text, a shortened version of the title is used.

For more information, refer to the following IBM publications:

- *Application Development by Example*, SC41-9852
  Short title *Application Development by Example*
- *Application Development Tools: Programming Development Manager User's Guide and Reference*, SC09-1339
  Short title *PDM User's Guide and Reference*
- *Application Development Tools: Source Entry Utility User's Guide and Reference*, SC09-1338
  Short title *SEU User's Guide and Reference*
- *Database Guide*, SC41-9659
  Short title *Database Guide*
- *Data Description Specifications Reference*, SC41-9620
  Short title *DDS Reference*
- *Data Management Guide*, SC41-9658
  Short title *Data Management Guide*
- *Programming: Control Language Programmer's Guide*, SC41-8077
  Short title *CL Programmer's Guide*
- *Programming: Control Language Reference*, SC41-0030
  Short title *CL Reference*
- *Publications Guide*, GC41-9678
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- *System Concepts*, GC41-9802
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  Short title *IDDU User's Guide*

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