DataGeneral

Software Documentation

PROXI®
COBOL Code Generator
Software Developer's Manual
(AOS and AOS/VS)

PROXI®
COBOL Code Generator
Software Developer's Manual
(AOS and AOS/VS)

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For the latest enhancements, cautions, documentation changes, and other information on this product, please see the Release Notice (085-series) supplied with the software.

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Preface

The PROXI® COBOL Code Generator is an interactive system that helps you build compilable COBOL source code for business-related applications.

Who Should Read This Manual?

This manual is intended for the software developer who wants to modify the PROXI software to suit special applications. We assume that you are a sophisticated COBOL programmer and an experienced PROXI user.

This is not a tutorial or a "how-to" manual. It describes the inner workings of the PROXI system to give you the background you'll need to modify the software for your own purposes.

How the Manual is Organized

We've arranged the material according to this scheme:

Chapter 1	Gives an overview of how the PROXI system works.
Chapter 2	Illustrates the relationship between the PROXI programs and datafiles using a series of flow charts.
Chapter 3	Provides general information about the program parameter files and the skeleton files.
Chapter 4	Describes the file maintenance program's parameter file, and provides a listing of its skeleton file.
Chapter 5	Describes the file inquiry program's parameter file, and provides a listing of its skeleton file.
Chapter 6	Describes the report writer program's parameter file, and provides a listing of its skeleton file.
Chapter 7	Describes the form printing program's parameter file, and provides a listing of its skeleton file.

How to Use This Manual

We've designed this manual as a handy reference guide with tabbed sections to help you locate information quickly. You should begin by reading the first two chapters; these explain how the PROXI system works. For more specific information about the parameter and skeleton files, see Chapter 3. Chapters 4 through 7 provide detailed explanations of these files according to program type.

Related Manuals

In addition to the set of manuals for your operating system, you may want to refer to one or more of the following:

COBOL Reference Manual (AOS, AOS/VS) (093-000223)
PROXI® COBOL Code Generator User's Guide (093-000280)
PROXI® Librarian User's Guide (093-000123)

What Do You Think?

At the end of this manual you'll find a Remarks Form. This is your direct line to us in User Documentation -- please take advantage of it. We want to know what you like and dislike about this manual. We welcome your suggestions, and we really listen! Only when the manual does its job can it help you do yours. So, please help us help you.

Reader, Please Note:

We have used the terms console and terminal interchangeably in this manual.

We use these conventions for command formats in this manual:

COMMAND required *[optional]* ...

Where	**Means**
COMMAND	You must enter the command (or its accepted abbreviation) as shown.
required	You must enter some argument (such as a filename). Sometimes, we use: $\left\{ \begin{matrix} \text{required}_1 \\ \text{required}_2 \end{matrix} \right\}$ which means you must enter *one* of the arguments. Don't enter the braces; they only set off the choice.
[optional]	You have the option of entering this argument. Don't enter the brackets; they only set off what's optional.
...	You may repeat the preceding entry or entries. The explanation will tell you exactly what you may repeat.

Additionally, we use certain symbols in special ways:

Symbol	Means
⟩	Press the NEW LINE or carriage return (CR) key on your terminal's keyboard.
□	Be sure to put a space here. (We use this only when we must; normally, you can see where to put spaces.)

All numbers are decimal unless we indicate otherwise; e.g., 35_8.

Finally, in examples we use

THIS TYPEFACE TO SHOW YOUR ENTRY⟩
THIS TYPEFACE FOR SYSTEM QUERIES AND RESPONSES.

) is the CLI prompt.

Contacting Data General

If you

- have comments on this manual, please use the prepaid Remarks Form that appears after the Index.
- require additional manuals, please use the enclosed TIPS order form (USA only) or contact your Data General sales representative.
- experience software problems, please notify Data General Systems Engineering.

End of Preface

Contents

Chapter 1 - Introduction

Chapter 2 - Program Flow

Chapter 3 - The Parameter and Skeleton Files

Chapter 4 - The File Maintenance Program

Chapter 5 - The File Inquiry Program

Chapter 6 - The Report Writer Program

Chapter 7 - The Form Printing Program

Tables

Table

Illustrations

Figure

Chapter 1
Introduction

The PROXI® COBOL Code Generator is an interactive system that helps you build COBOL source code for business-related applications. This manual describes how the PROXI system works. We provide this information for the software developer who may want to modify the PROXI system to better suit the needs of a particular site.

The Components of the PROXI System

The PROXI software comprises a set of files that fall into these general categories:

- program object files
- copy files (in card and CRT format)
- data files (ISAM and sequential)
- CLI macro files

Building a Program

During an interactive session with the PROXI code generator, the user enters specific information about the program he/she wants to build. The file definitions module guides the user through a series of menus to produce a set of copy files for the program. The program generator module gathers information that goes into a program parameter file.

Figure 1-1 illustrates this process.

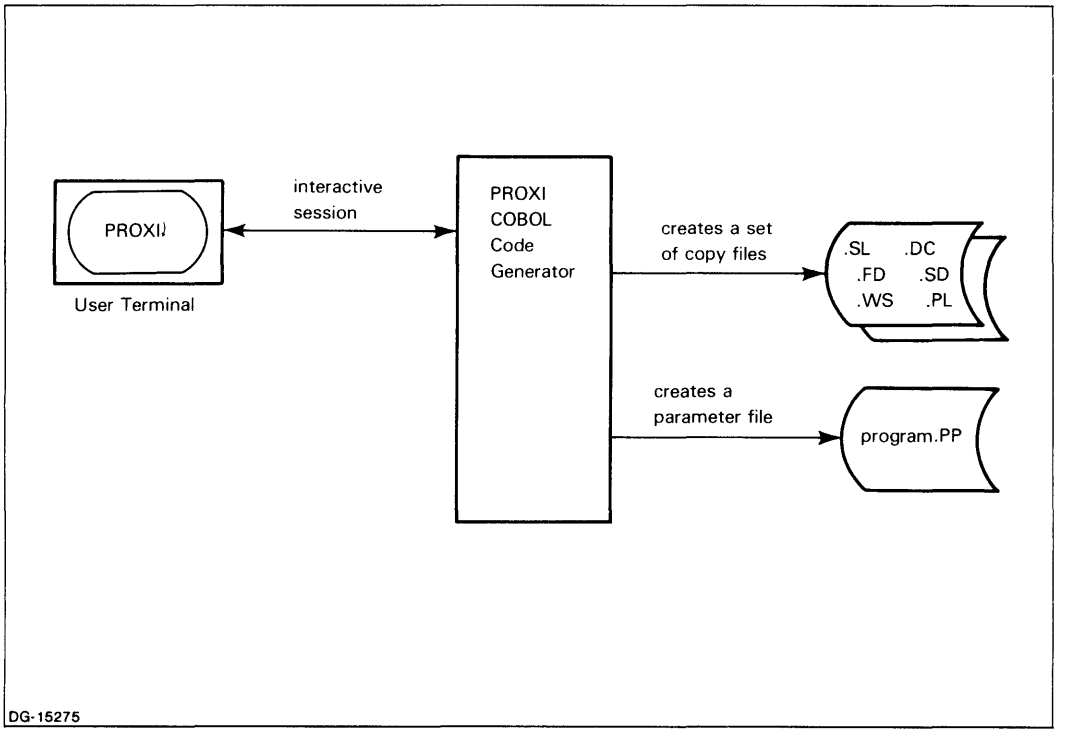


Figure 1-1. Major Output from a PROXI Code Generation Session

Chapter 2 illustrates the sequence of events that occurs during an interactive PROXI session. Refer to Chapter 2 for more detailed information about the individual programs and the files that they use and create.

Generating COBOL Code

After the user provides all the necessary information about the program, the PROXI program generator is ready to construct the COBOL source code according to the parameters that the user specified. To do this, the program generator uses a special skeleton file that is designed for the type of program the user wants to build. The skeleton file contains COBOL statements with coded instructions; these instructions allow the program generator to insert information from the parameter file to product a complete set of source code.

Figure 1-2 illustrates this step.

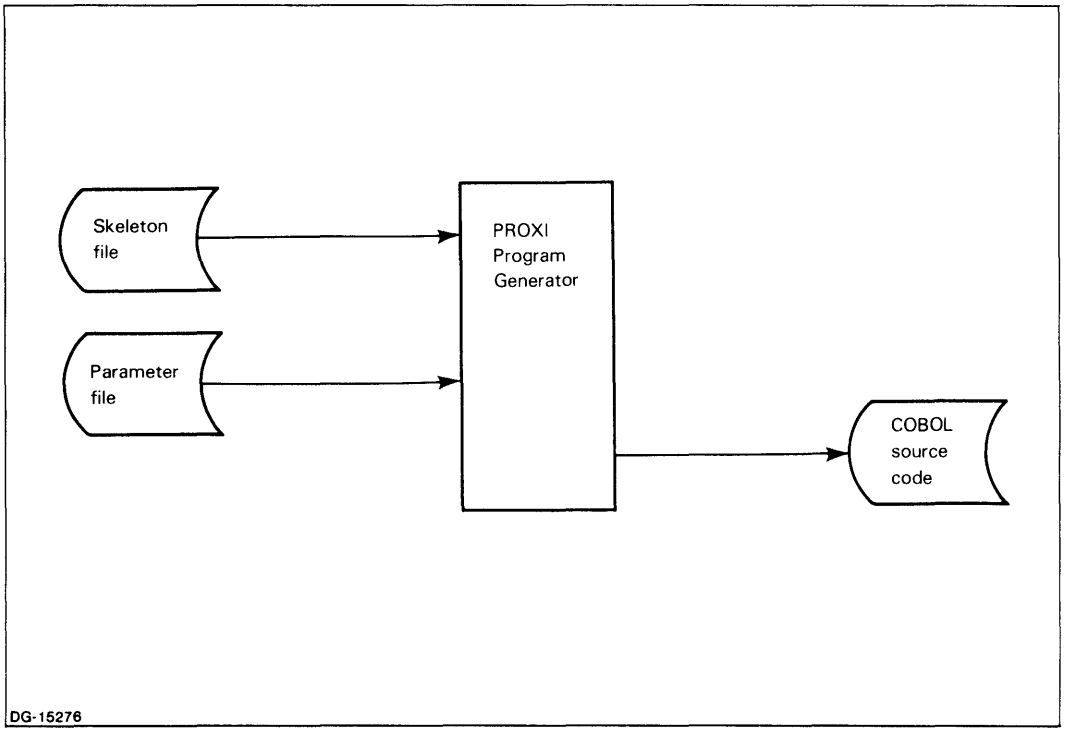


Figure 1-2. Generating COBOL Code

Chapter 3 provides general background information about the structure and contents of the program parameter files created through a PROXI session. This chapter also explains the format of the skeleton files and the instruction codes those files contain.

For specific information about the parameter and skeleton files for a particular program type (file maintenance, file inquiry, report writer, or form printing program), see Chapters 4 through 7.

End of Chapter

Chapter 2
Program Flow

This chapter explains the interactions between the programs and data files that the PROXI system uses to generate COBOL code. Flow chart diagrams illustrate the sequence of programs and the input and output operations performed.

Because the PROXI system comprises a large number of programs and data entry menus, we have divided the system flow charts into sections that correspond to the individual PROXI functions. Use Table 2-1 to locate a particular flow chart. The order of the flow charts follows the organization of the *PROXI® COBOL Code Generator User's Manual.*

Table 2-1. PROXI System Flow Charts

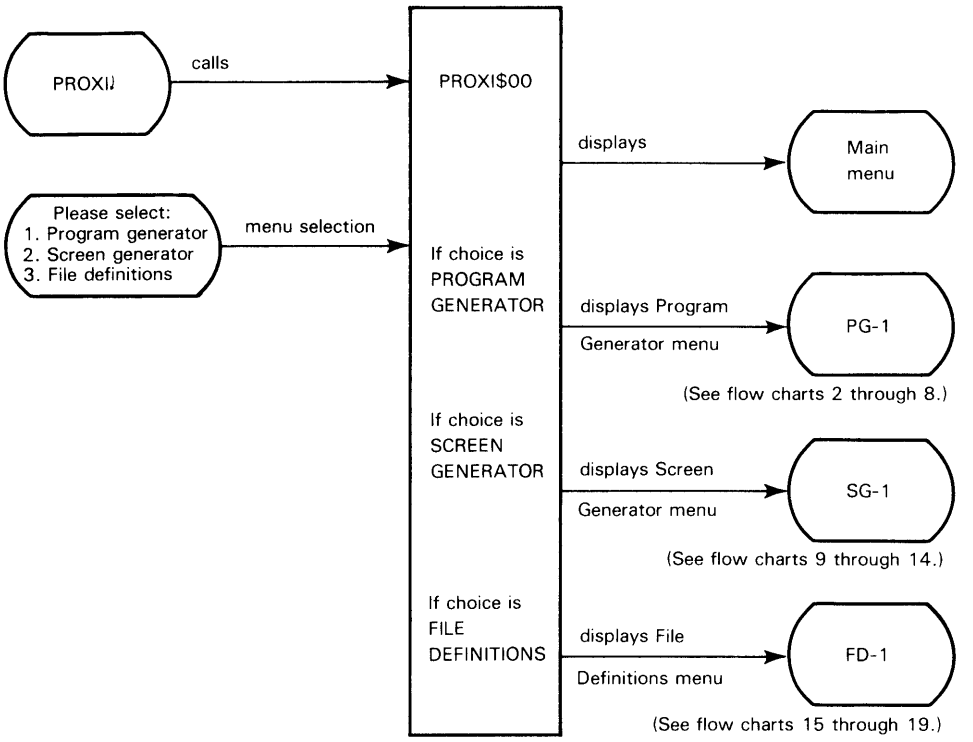
Flow Chart	Describes
1	Starting a PROXI Session (the Main Menu)
2	Program Generator: Creating a New Program
3	Program Generator: File Maintenance Program
4	Program Generator: File Inquiry Program
5	Program Generator: Report Writer Program
6	Program Generator: Form Printing Program
7	Program Generator: Changing a Program
8	Program Generator: Generating COBOL Code
9	Screen Generator: Adding a New Screen
10	Screen Generator: Changing a Screen
11	Screen Generator: Printing a Screen Definition
12	Screen Generator: Creating a Screen Section Copy File
13	Screen Generator: Creating a Screen Procedure Copy File
14	Screen Generator: Printing a Screen Copy File
15	File Definitions: Creating a .SL Copy File
16	File Definitions: Creating a .FD Copy File
17	File Definitions: Creating a .WS Copy File
18	File Definitions: Creating a .DC Copy File
19	File Definitions: Printing a File Definition Copy File

IMPORTANT

These flow charts show general program flow; they do not describe program logic. Whether or not a particular program executes often depends on the user's entries. These flow charts depict a complete sequence, assuming the user selects all possible options.

(When referring to a particular PROXI menu or data-entry screen, the flow charts use the same screen numbers as appear in the *PROXI® COBOL Code Generator User's Guide.* These numbers are used only within the documentation; they do not appear in the screen display.)

Flow Chart 1
Starting a PROXI Session



DG-15283

Comments

To begin a PROXI session, the operator types PROXI. The macro calls the master program, PROXI$00.PR, which displays the Main Menu.

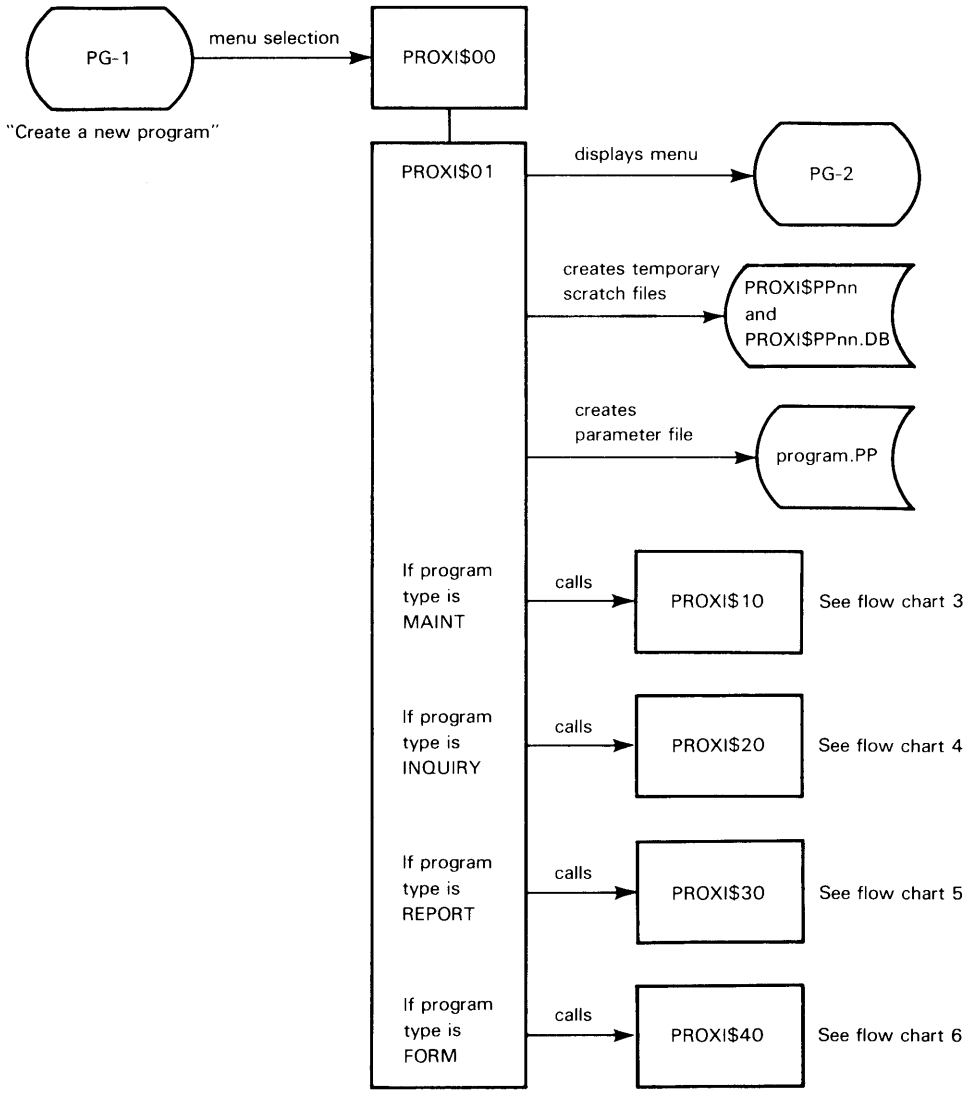
The user selects either "Program Generator", "Screen Generator", or "File Definitions". The program then displays the appropriate menu, depending on the module selected.

Flow charts 2 through 8 illustrate the program generator functions.

Flow charts 9 through 14 illustrate the screen generator functions.

Flow charts 15 through 19 illustrate the file definition functions.

Flow Chart 2
Program Generator: Creating a New Program



DG-15284

Comments

The user selects the "Create a new program" option from the Program Generator menu. The user must then name the new program and specify its type. The PROXI system uses a different set of programs and menus for each program type.

See flow chart 3 for the file maintenance program sequence.

See flow chart 4 for the file inquiry program sequence.

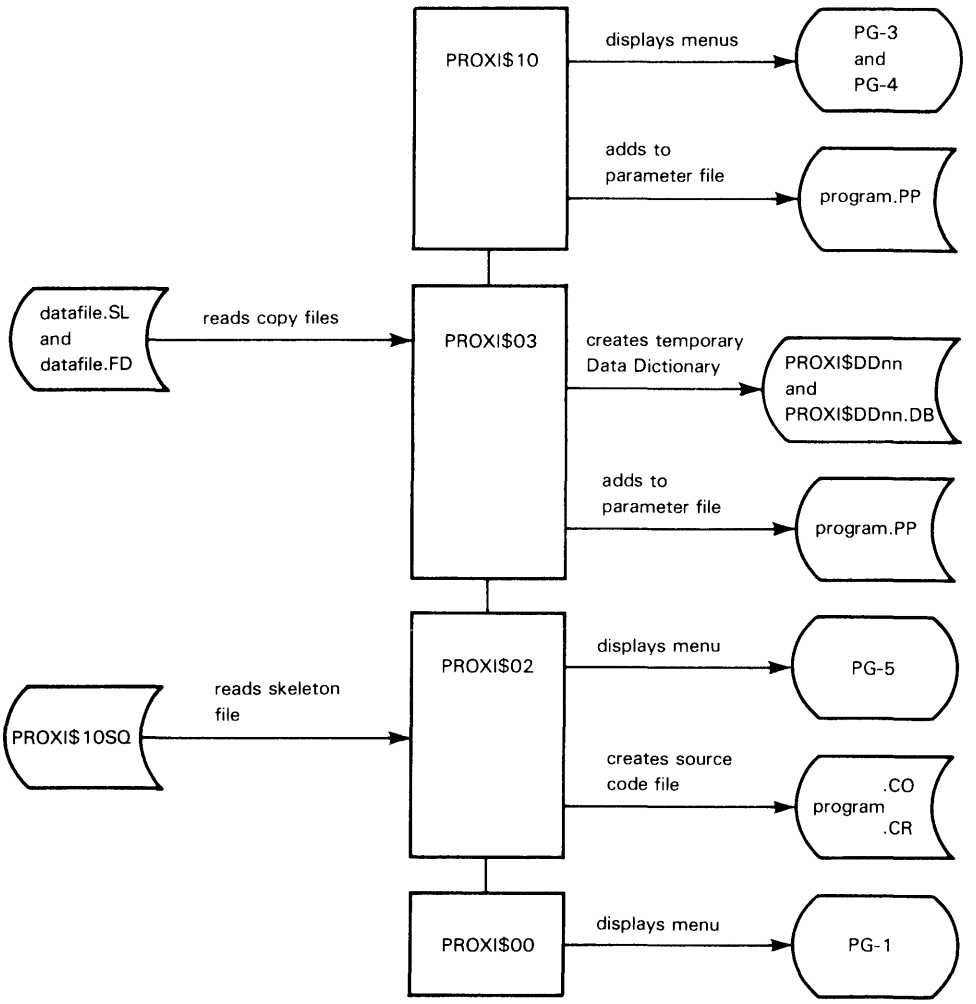
See flow chart 5 for the report writer program sequence.

See flow chart 6 for the form printing program sequence.

The program series uses temporary scratch files named PROXI$PPnn and PROXI$PPnn.DB (where nn is the user's terminal number). These files are deleted after the final additions to the program parameter file.

Flow Chart 3

Program Generator: Creating a File Maintenance Program



DG-15285

Comments

This flow chart continues from flow chart 2, where the user specified "MAINT" as the program type.

Menus PG-3 and PG-4 handle maintenance program parameters and reference file information.

The program series creates temporary Data Dictionary files called PROXI$DDnn and PROXI$DDnn.DB (where nn is the user's terminal number).

Menu PG-5 is the COBOL Code Generation menu.

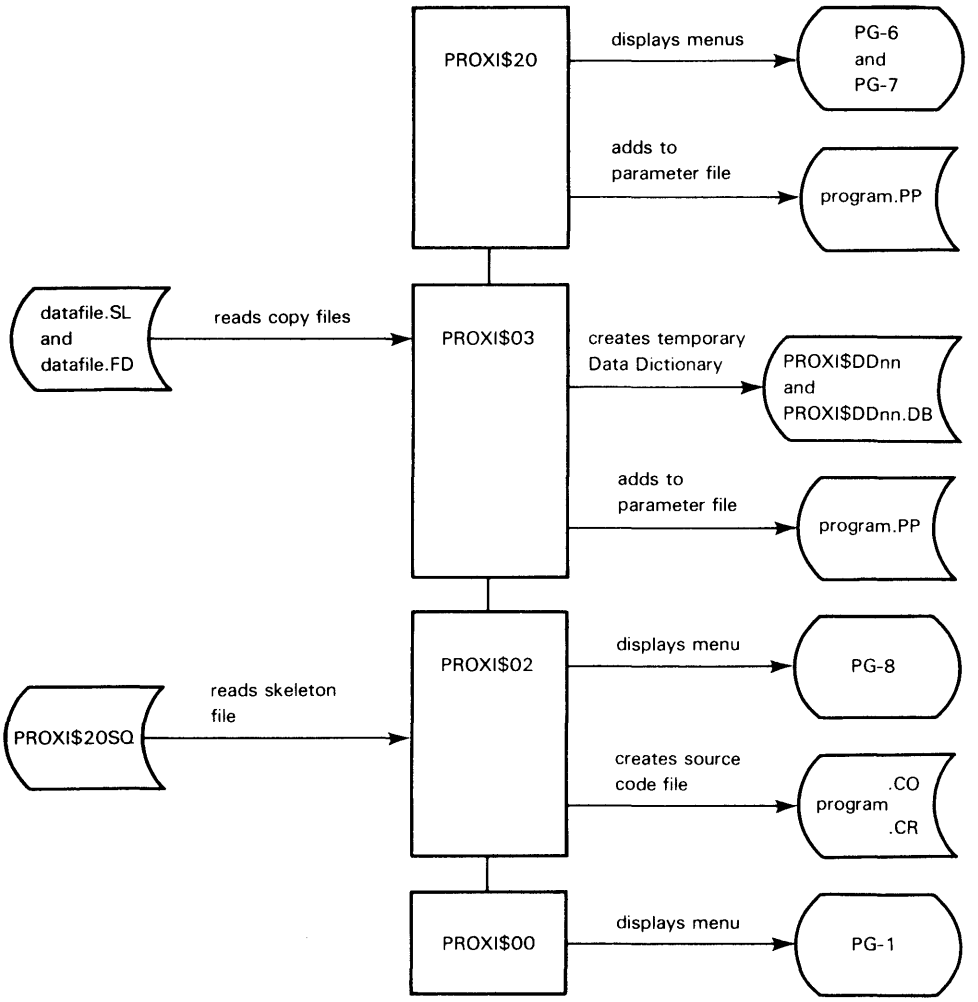
If the user chooses to generate COBOL code, the resulting source code file carries the appropriate extension:

.CO for COBOL code in card format (with line numbers)

.CR for COBOL code in CRT format (without line numbers)

Flow Chart 4

Program Generator: Creating a File Inquiry Program



DG-15286

Comments

This flow chart continues from flow chart 2, where the user specified "INQUIRY" as the program type.

Menus PG-6 and PG-7 handle inquiry program parameters and reference file information.

The program series creates temporary Data Dictionary files called PROXI$DDnn and PROXI$DDnn.DB (where nn is the user's terminal number).

Menu PG-8 is the COBOL Code Generation menu.

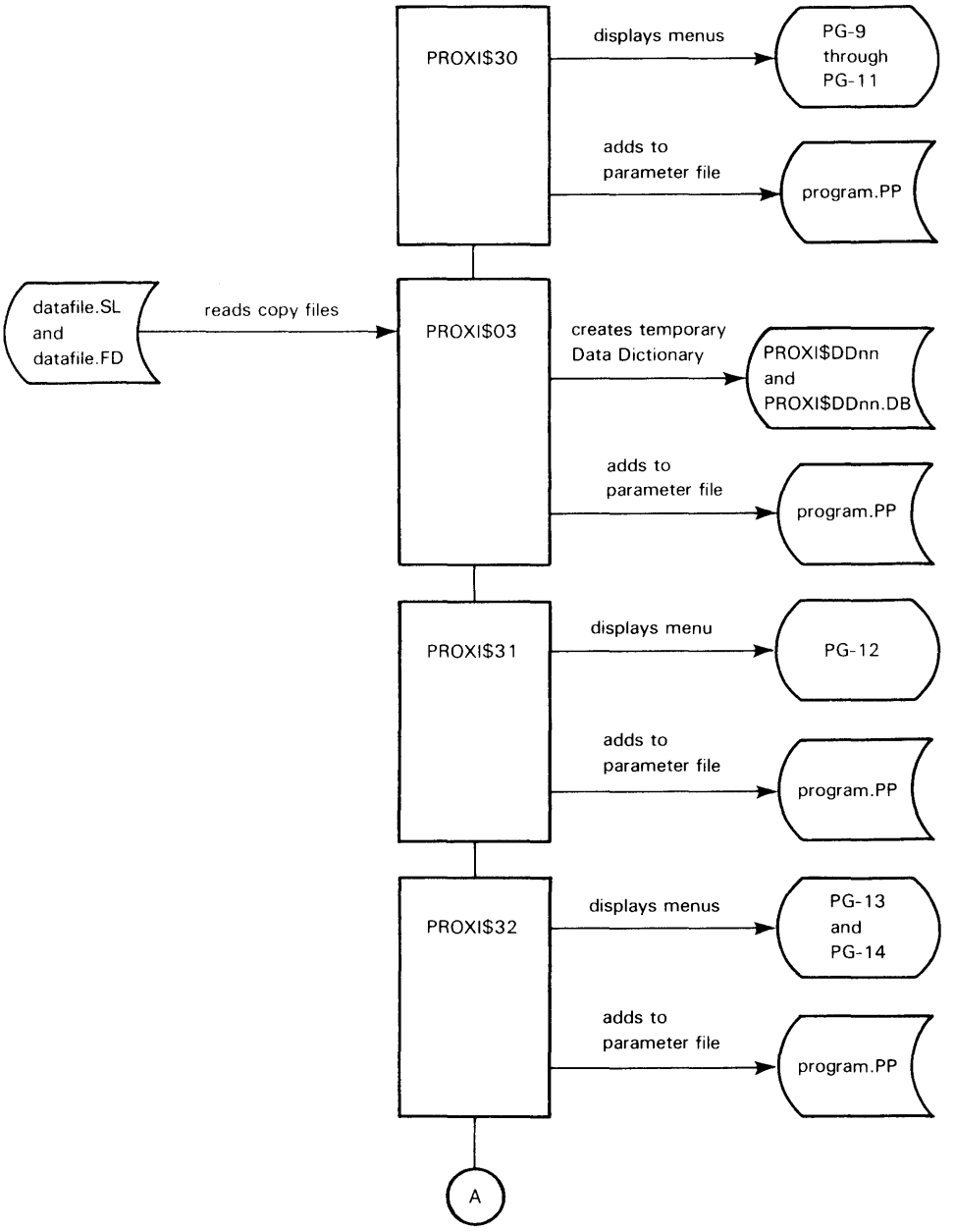
If the user chooses to generate COBOL code, the resulting source code file carries the appropriate extension:

.CO for COBOL code in card format (with line numbers)

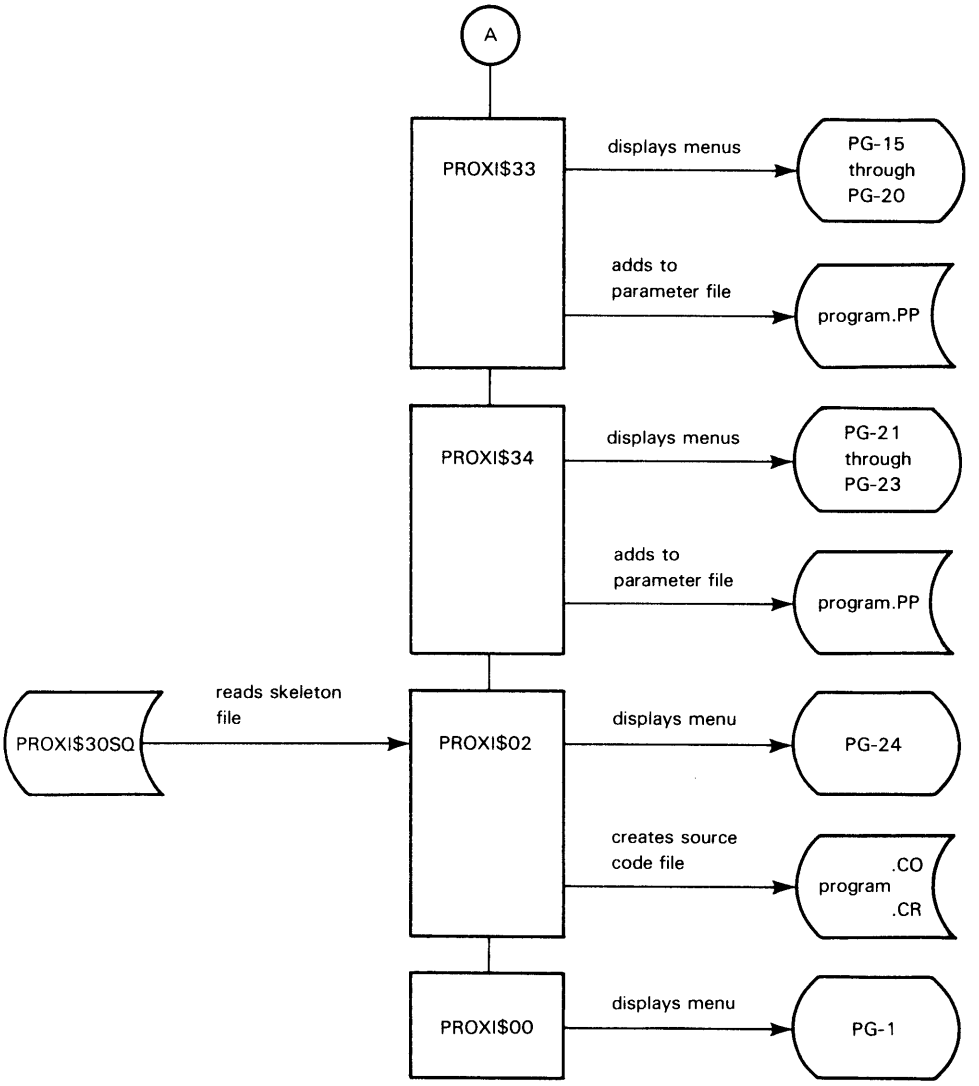
.CR for COBOL code in CRT format (without line numbers)

Flow Chart 5

Program Generator: Creating a Report Writer Program



DG-15287



DG-15287

Comments

This flow chart continues from flow chart 2, where the user specified "REPORT" as the program type.

Menus PG-9 through PG-11 handle the definition of input, reference files, and sort keys.

The program series creates temporary Data Dictionary files called PROXI$DDnn and PROXI$DDnn.DB (where nn is the user's terminal number).

Menu PG-12 requests report definition information.

Menus PG-13 and PG-14 request legend and header line definitions.

Menus PG-15 through PG-20 request detail line definitions.

Menus PG-21 through PG-23 request control break and total line definitions.

Menu PG-24 is the COBOL Code Generation menu.

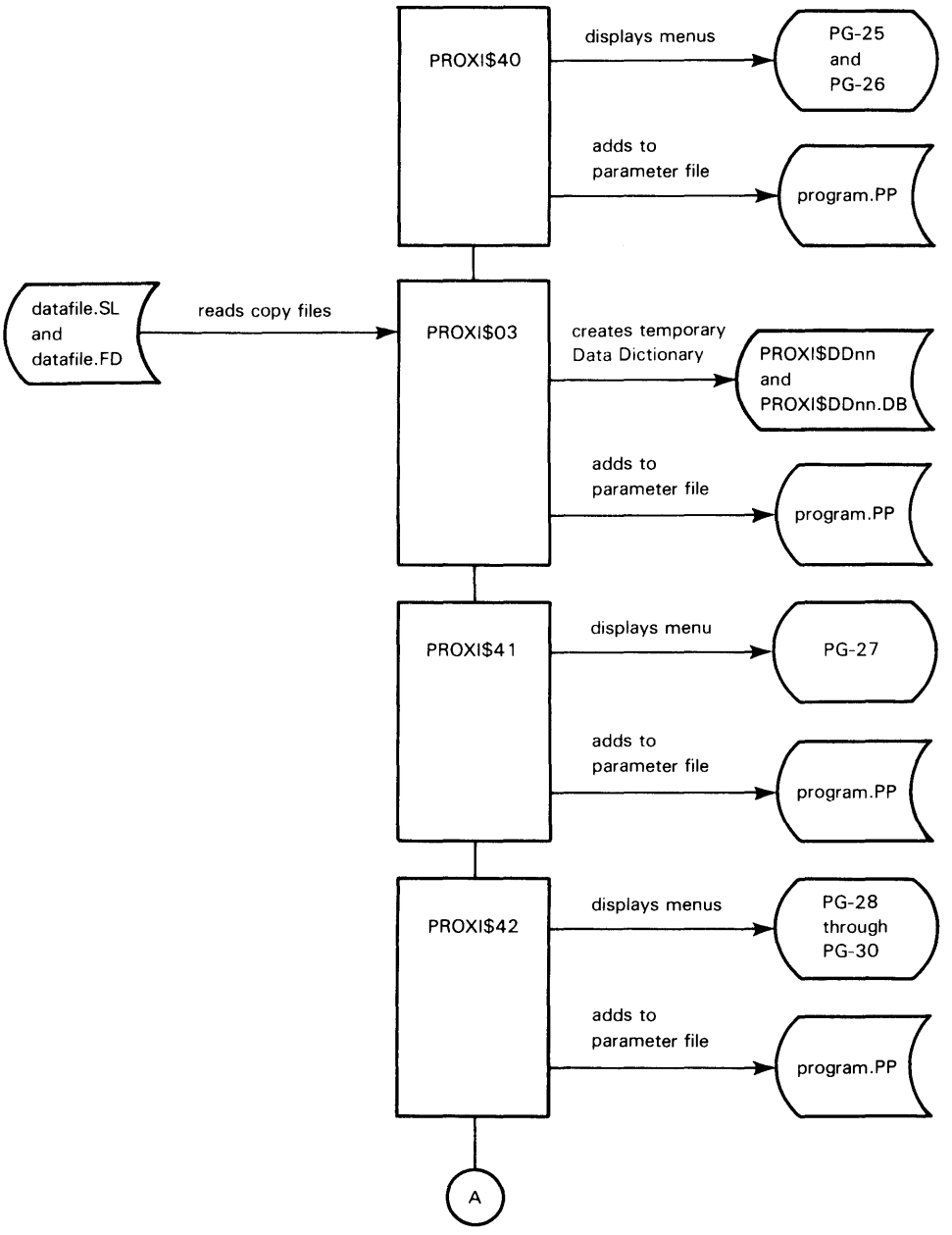
If the user chooses to generate COBOL code, the resulting source code file carries the appropriate extension:

.CO for COBOL code in card format (with line numbers)

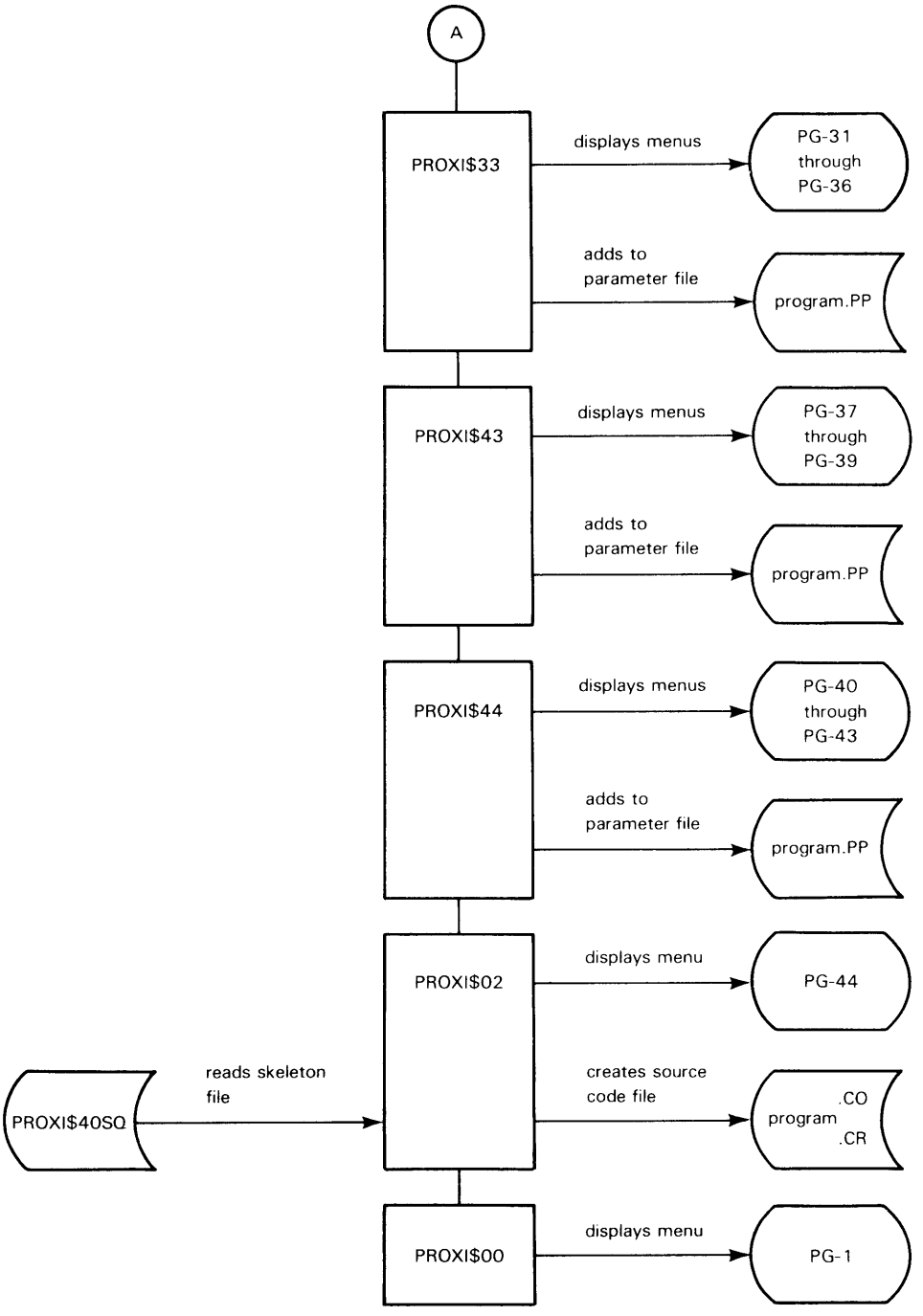
.CR for COBOL code in CRT format (without line numbers)

Flow Chart 6

Program Generator: Creating a Form Printing Program



DG-15288



DG-15288

Comments

This flow chart continues from flow chart 2, where the user specified "INQUIRY" as the program type.

Menus PG-25 and PG-26 handle the definition of input and reference files.

The program series creates temporary Data Dictionary files called PROXI$DDnn and PROXI$DDnn.DB (where nn is the user's terminal number).

Menu PG-27 requests form definition information.

Menus PG-28 through PG-30 request top-of-form line definitions.

Menus PG-31 through PG-36 request detail line definitions.

Menus PG-37 through PG-39 request page break line definitions.

Menus PG-40 through PG-43 request control break and total line definitions.

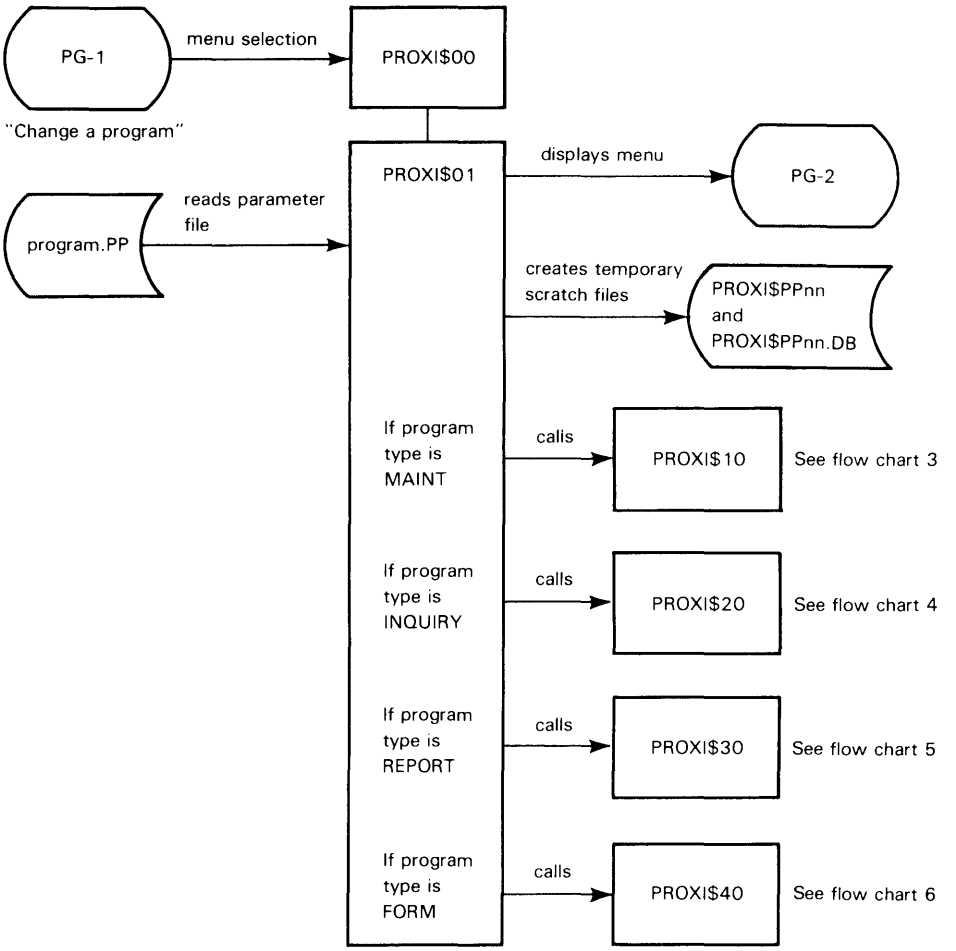
Menu PG-44 is the COBOL Code Generation menu.

If the user chooses to generate COBOL code, the resulting source code file carries the appropriate extension:

.CO for COBOL code in card format (with line numbers)

.CR for COBOL code in CRT format (without line numbers)

Flow Chart 7
Program Generator: Changing a Program



DG-15289

Comments

The user selects the "Change a program" option from the Program Generator menu. The user must then name the program to be changed. After the PROXI system locates the parameter file for the specified program, it displays the current information and allows the user to make changes.

See flow chart 3 for the file maintenance program sequence.

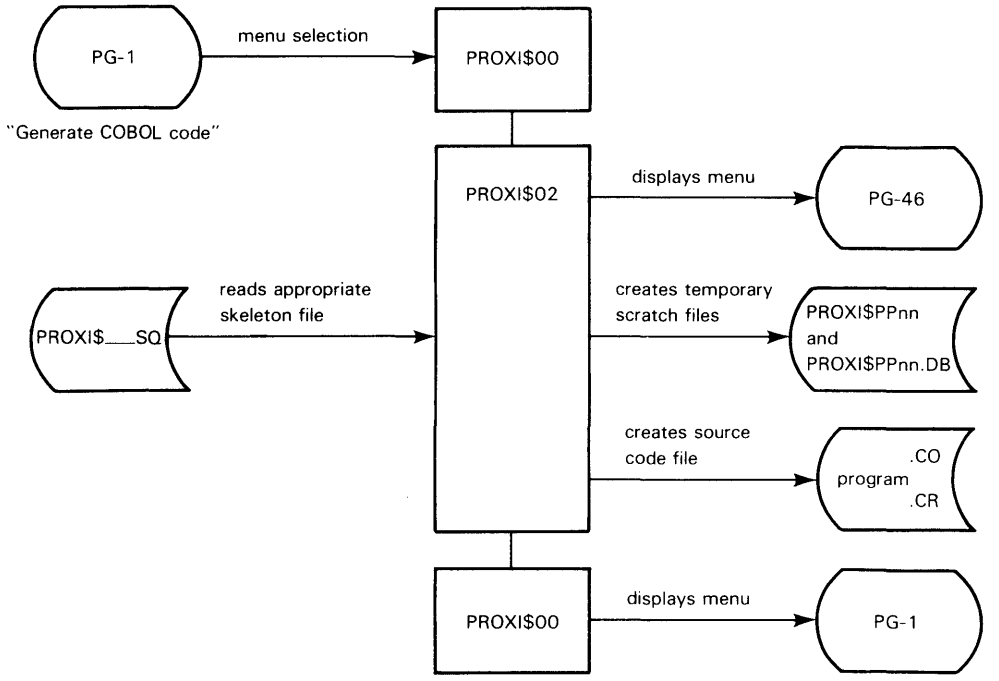
See flow chart 4 for the file inquiry program sequence.

See flow chart 5 for the report writer program sequence.

See flow chart 6 for the form printing program sequence.

The program series uses temporary scratch files named PROXI$PPnn and PROXI$PPnn.DB (where nn is the user's terminal number). These files are deleted after the final changes to the program parameter file.

Flow Chart 8
Program Generator: Generating COBOL Code



DG-15290

Comments

The PROXI system creates temporary scratch files called PROXI$PPnn and PROXI$PPnn.DB (where nn is the user's terminal number).

The Program Generator reads the appropriate skeleton file, depending on the program type:

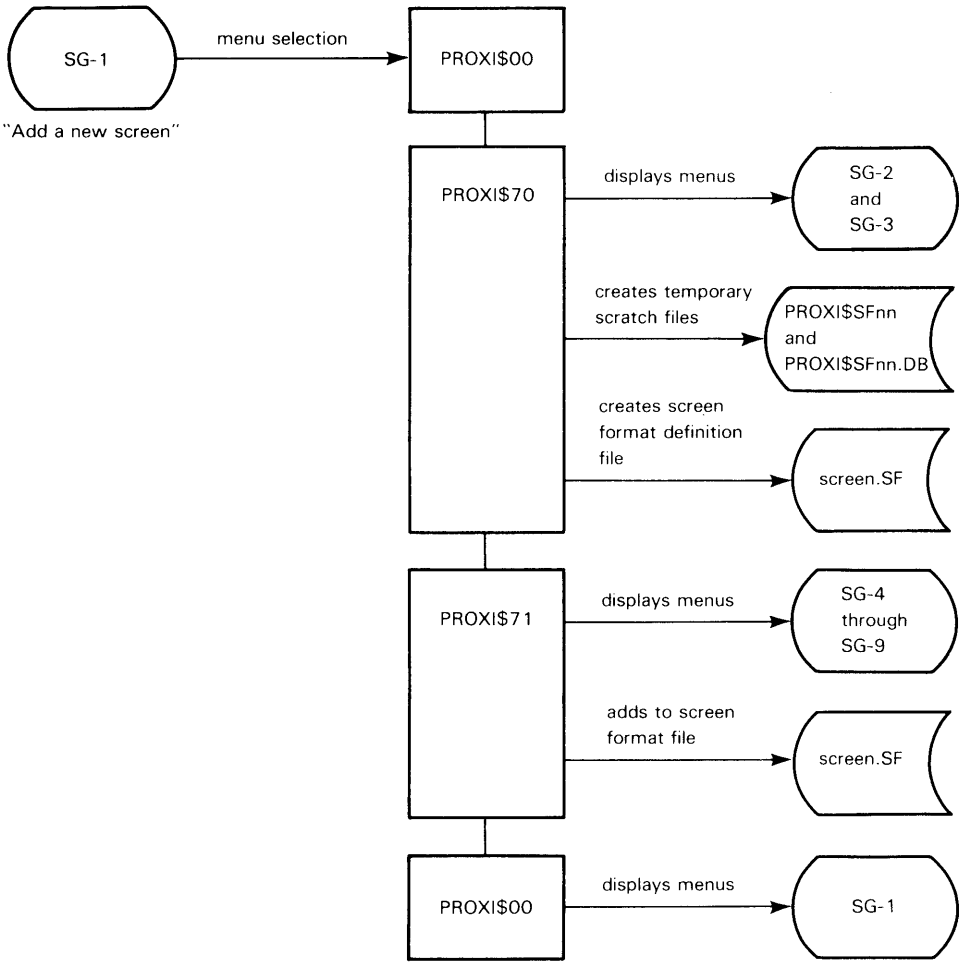
ISAM File	Sequential File	
PROXI$10SK	PROXI$10SQ	for a file maintenance program
PROXI$20SK	PROXI$20SQ	for a file inquiry program
PROXI$30SK	PROXI$30SQ	for a report writer program
PROXI$40SK	PROXI$40SQ	for a form printing program

If the user chooses to generate COBOL code, the resulting source code file carries the appropriate extension:

.CO for COBOL code in card format (with line numbers)

.CR for COBOL code in CRT format (without line numbers)

Flow Chart 9
Screen Generator: Adding a New Screen



DG-15291

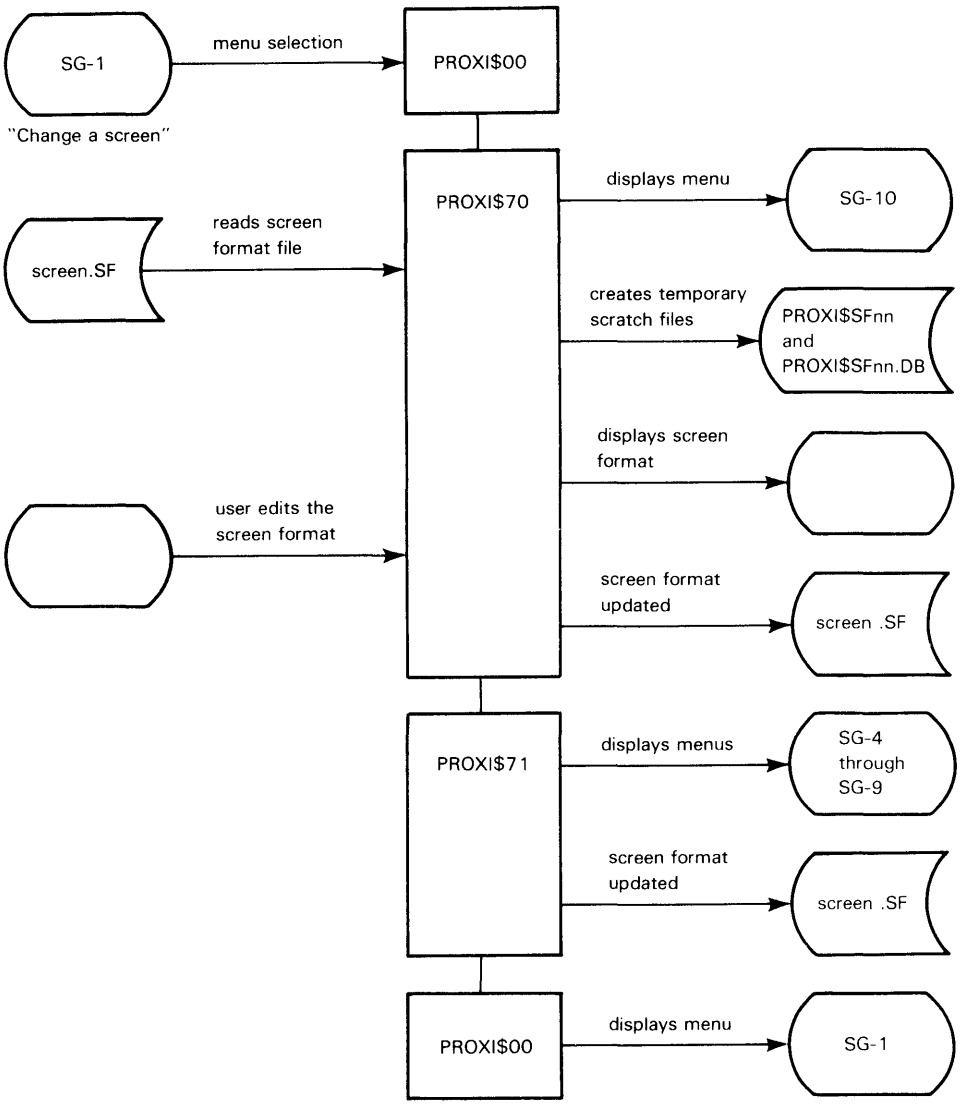
Comments

The user selects the "Add a new screen" option from the Screen Generator menu.

The program series uses temporary scratch files called PROXI$SFnn and PROXI$SFnn.DB (where nn is the user's terminal number). These files are deleted after the screen format file is built.

After completing this function, the user returns to the Screen Generator menu.

Flow Chart 10
Screen Generator: Changing a Screen



DG-15292

Comments

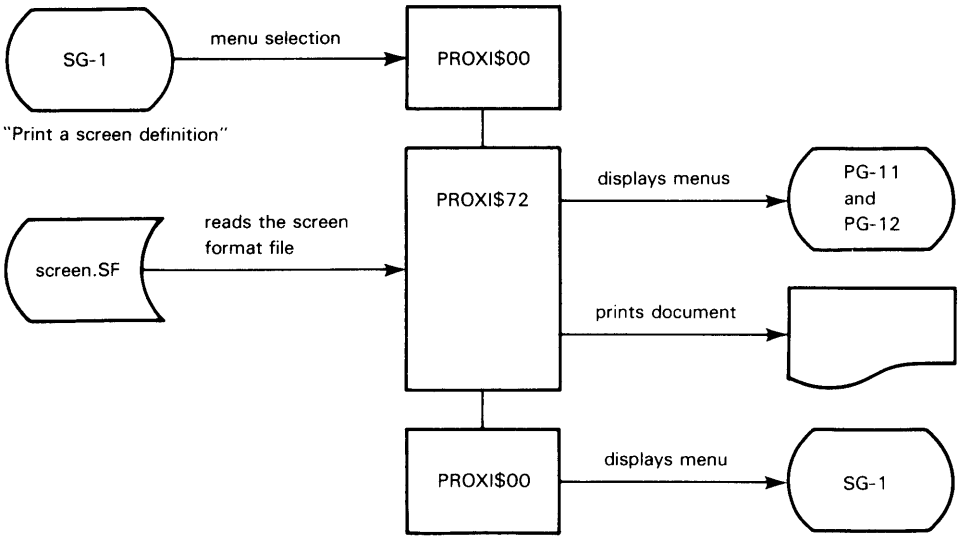
The user selects the "Change a screen" option from the Screen Generator menu.

The program series uses temporary scratch files called PROXI$SFnn and PROXI$SFnn.DB (where nn is the user's terminal number). These files are deleted after the screen format file is updated.

After completing this function, the user returns to the Screen Generator menu.

Flow Chart 11

Screen Generator: Printing a Screen Definition

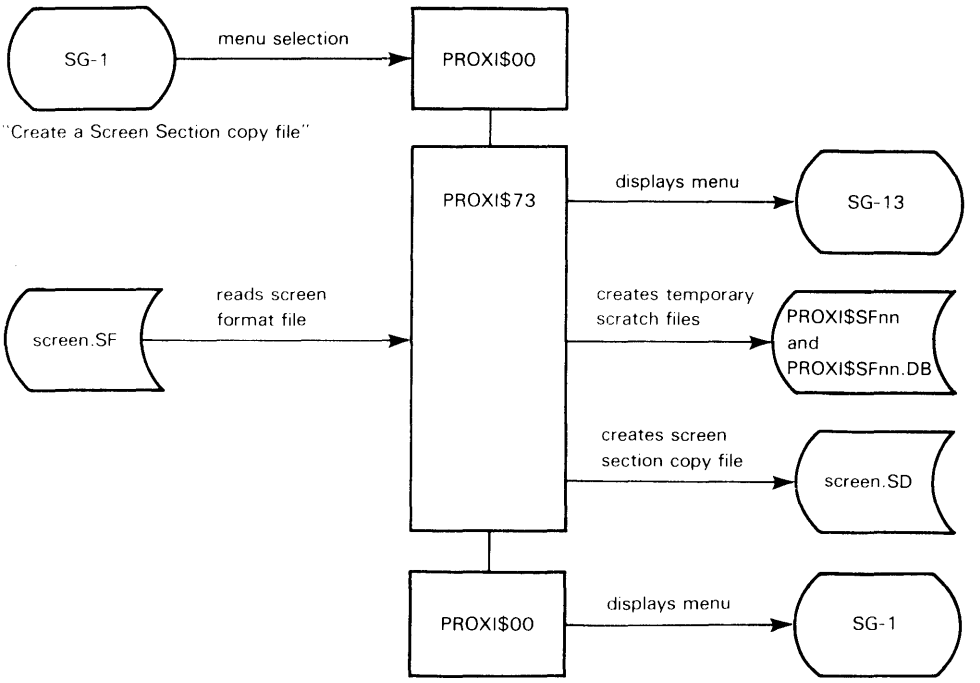


DG-15293

Comments

The user selects the "Print a screen definition" option from the Screen Generator menu. After completing this function, the user returns to the Screen Generator menu.

Flow Chart 12
Screen Generator: Creating a Screen Section Copy File



DG-15294

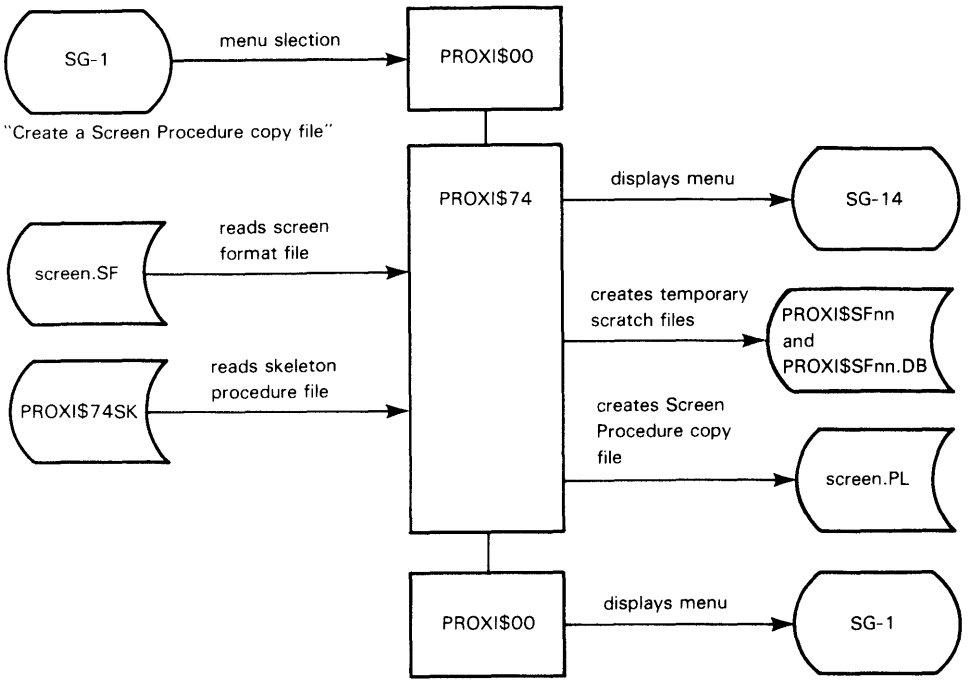
Comments

The user selects the "Create a Screen Section copy file" option from the Screen Generator menu.

The program series uses temporary scratch files called PROXI$SFnn and PROXI$SFnn.DB (where nn is the user's terminal number). These files are deleted after the screen format file is built.

After completing this function, the user returns to the Screen Generator menu.

Flow Chart 13
Screen Generator: Creating a Screen Procedure Copy File



DG-15295

Comments

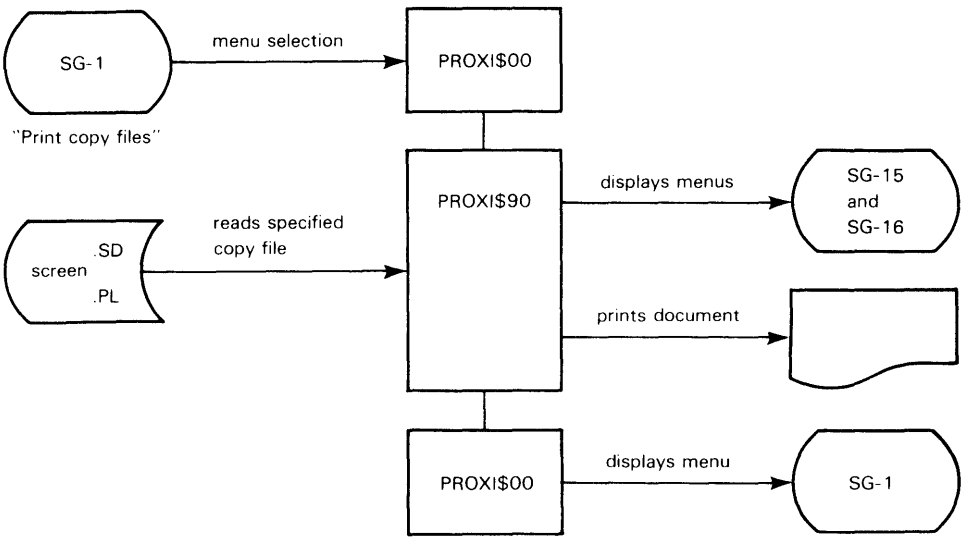
The user selects the "Create a Screen Procedure copy file" option from the Screen Generator menu.

The program series uses temporary scratch files called PROXI$SFnn and PROXI$SFnn.DB (where nn is the user's terminal number). These files are deleted after the screen format file is built.

After completing this function, the user returns to the Screen Generator menu.

Flow Chart 14

Screen Generator: Printing Screen Copy Files



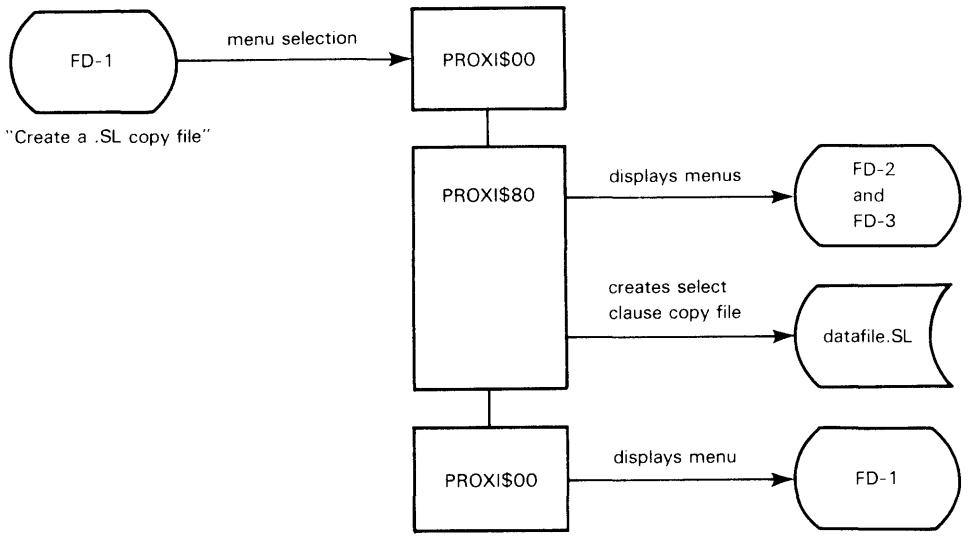
DG-15296

Comments

The user selects the "Print copy files" option from the Screen Generator menu. The user can print a screen section copy file (screen.SD) or a screen procedure copy file (screen.PL).

After completing this function, the user returns to the Screen Generator menu.

Flow Chart 15
File Definitions: Creating a .SL Copy File

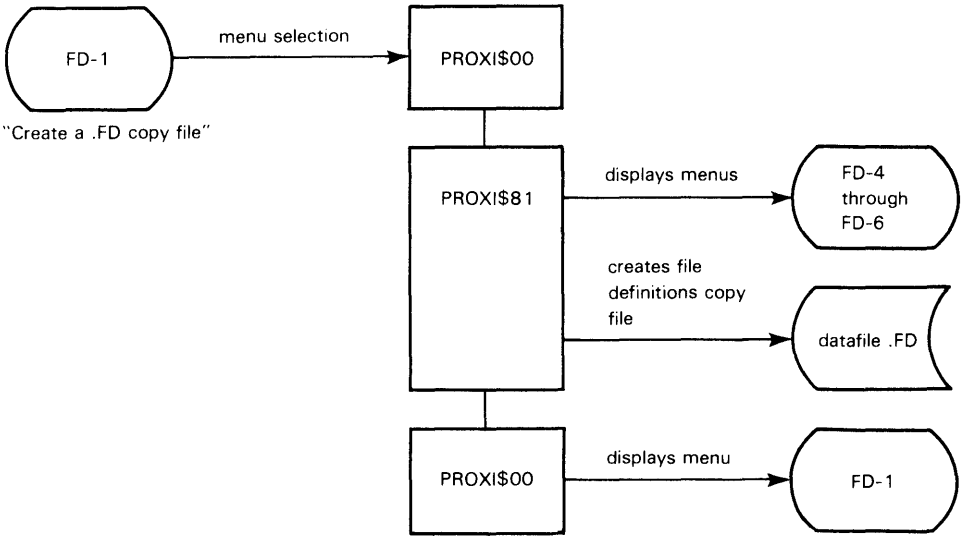


DG-15297

Comments

The user selects the "Create a .SL copy file" option from the File Definitions menu. After completing this function, the user returns to the File Definitions menu.

Flow Chart 16
File Definitions: Creating a .FD Copy File

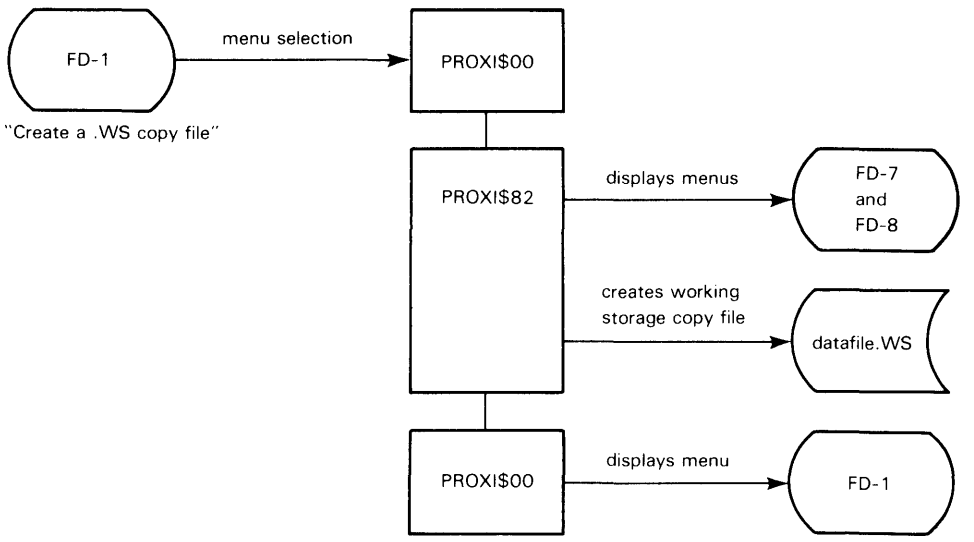


DG-15298

Comments

The user selects the "Create a .FD copy file" option from the File Definitions menu. After completing this function, the user returns to the File Definitions menu.

Flow Chart 17
File Definitions: Creating a .WS Copy File

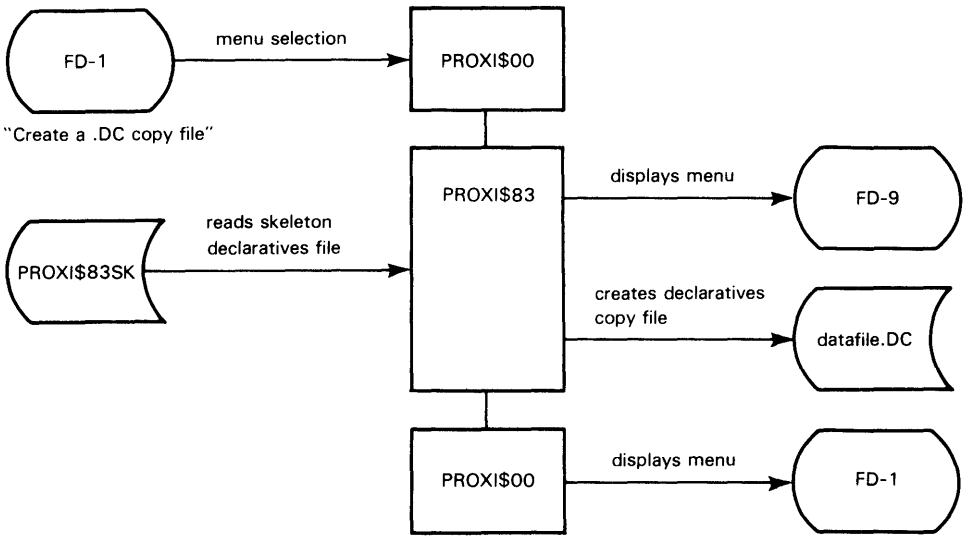


DG-15299

Comments

The user selects the "Create a .WS copy file" option from the File Definitions menu. After completing this function, the user returns to the File Definitions menu.

Flow Chart 18
File Definitions: Creating a .DC Copy File

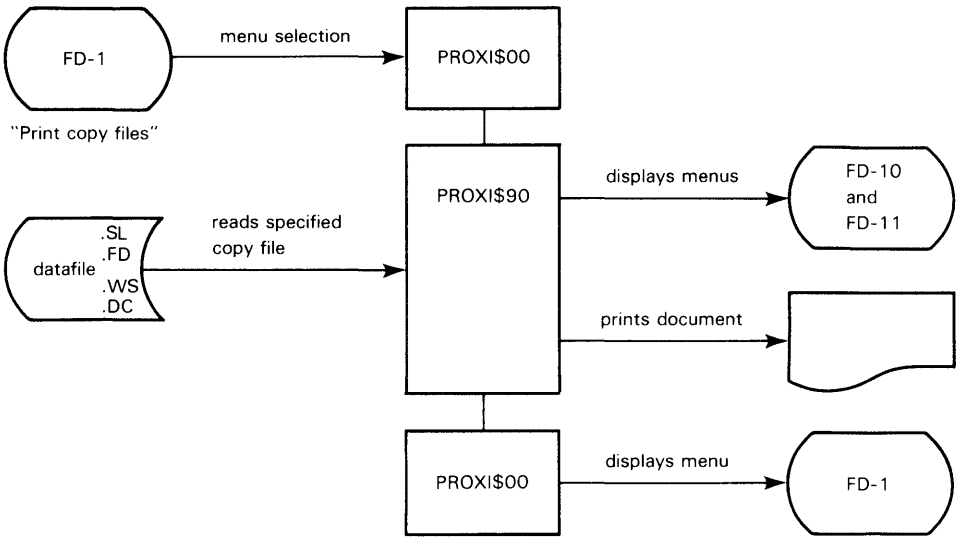


DG-15300

Comments

The user selects the "Create a .DC copy file" option from the File Definitions menu. After completing this function, the user returns to the File Definitions menu.

Flow Chart 19
File Definitions: Printing File Definition Copy Files



DG-15301

Comments

The user selects the "Print copy files" option from the File Definitions menu.

The user can print the select clause file (datafile.SL), the file descriptor entries (datafile.FD), the working storage entries (datafile.WS), or the declaratives file (datafile.DC).

After completing this function, the user returns to the File Definitions menu.

End of Chapter

Chapter 3
The Parameter and Skeleton Files

The PROXI program generator builds a program's source code by combining information from the program's parameter file and the appropriate skeleton file.

A parameter file contains detailed information about the program. The user provides this information during a PROXI session.

The PROXI system provides a skeleton file for each type of program (file maintenance, file inquiry, report writer, and form printing). The skeleton file contains COBOL-like statements with instruction codes. These codes enable the program generator to combine a skeleton statement with specific program parameters to produce COBOL source code. Thus, the program generator builds source code by fleshing out the general skeleton file with specifics. It takes these specifics from the parameter file.

This chapter provides general information about parameter files and skeleton files. For specific information about the files for a particular type of program, see:

- Chapter 4 (parameter and skeleton files for a file maintenance program)
- Chapter 5 (parameter and skeleton files for a file inquiry program)
- Chapter 6 (parameter and skeleton files for a report writer program)
- Chapter 7 (parameter and skeleton files for a form printing program)

About the Parameter Files

Each of the four program types requires a different set of parameters. So, the parameter file for a particular program type has a unique structure.

A program's parameter file contains only the information necessary to build the program. If the program does not need an available option, or if certain conditions do not apply, the parameter file entries that would otherwise be created simply do not exist. So, although the parameter file structure depends on the program type, the actual entries within that structure depend on the particular program.

Line Numbers

Each entry in a parameter file has a line number. Related entries are arranged within a particular numeric group. For example, information about reference files appears in the 300 series (line numbers 000300 through 000399).

The line number for a particular parameter identifies what that parameter is. This allows the program generator to locate a specific piece of information. In all parameter files, for example, line 000100 contains the name of the program.

Figure 3-1 illustrates the format of a parameter file entry. The first six columns contain the line number. Column 7 is left blank. Columns 8 and 9 contain the byte count of the parameter information, which begins in column 10.

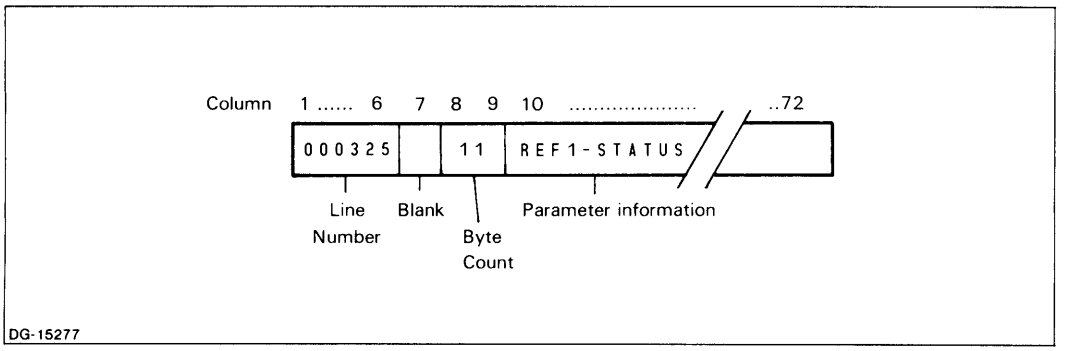


Figure 3-1. Format of a Parameter File Entry

In the formats and examples throughout the rest of this manual, we leave the byte count field (columns 8 and 9) blank. For instance, although an example might include the line

```
000205   LISTDATA-RECORD
```

the actual entry in the parameter file would be

```
000205 15LISTDATA-RECORD
```

In many cases, the digits within a line number are significant. For example, in a report writer program parameter file, line number 205030 contains information about

print field number 05	2 05 030
in detail line number 03	205 03 0

Information is added to the parameter file as the user enters it into data-entry screen. The sequence is not necessarily in numeric order.

Certain parameters are added to the file only when the user calls the program generator. The program generator scans the parameter file to produce certain groups of information. (Thus, if you examine a parameter file prior to generating code, it may not contain all the required information.)

Multiple Field Parameters

Most parameter file entries contain a single item of information. There are, however, three types of parameter lines that contain more than one field. One of these provides information about a print field; the second describes the first part of a logical test; and the last identifies a sort field and its picture. The next few sections describe each of these formats.

The Field Specification Parameter

The parameter files for report writer and form printing programs use a special format to define a print field. For report writer programs, this format describes detail line print fields and total line print fields. For form printing programs, this format describes print fields for detail lines, total lines, top-of-form lines, and page break lines.

A field specification parameter can include the following:

- The column where the field starts (a three-digit field)

- The field name or constant (a 30-character field)
- The print format (an 18-character field)
- The print length (a 3-digit field)
- The computation symbol (a single character -- numeric fields only)
- The accumulator (for computation when symbol is not T -- a three-character field)

A computation symbol appears only if the user requested a computation operation for a numeric field. If an accumulator is to be used, the name of the accumulator appears in the format Axx, where xx is the number of the accumulator (01 to 99).

Figure 3-2 illustrates the field specification format used in the parameter files.

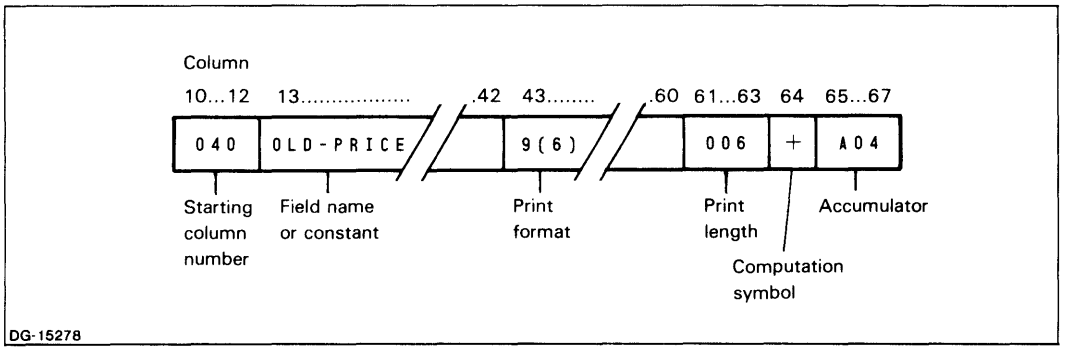


Figure 3-2. The Field Specification Parameter Format

All entries are left-justified within their field. Figure 3-3 shows an example of field specification parameter lines. In line number 202050, for example, the field called OLD-PRICE is to be printed beginning in column 40. The print format is 9(6), which means a print length of 6. The computation symbol is +, and accumulator A04 is to be used for the computation.

```
202010  005TOWN                X(12)          012
202020  020LISTDATA-KEY        ZZZZ9          005
202030  028DESCRIPTION         X(30)          030
202040  061NEW-PRICE           $Z,ZZ9.999     010T
202050  040OLD-PRICE           9(6)           006+A04
```

Figure 3-3. Sample Field Specification Parameters

The Logical Test Parameter

This format is used to build the first part of a logical test. A report writer or form printing program may include logical tests to determine whether or not a particular line should be printed or a record should be read. Figure 3-4 shows the basic format for a logical test.

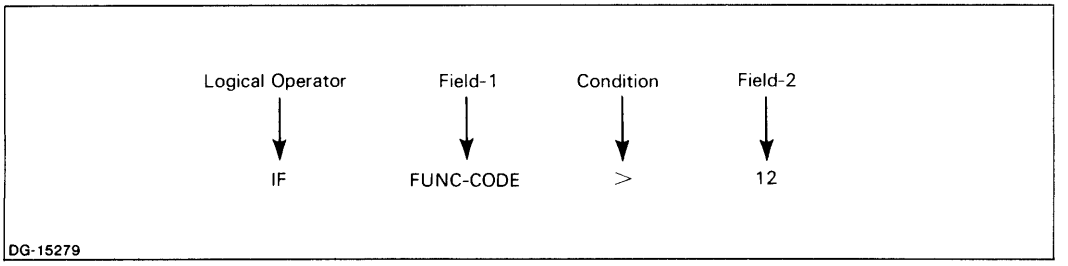


Figure 3-4. Format of a Logical Text

The parameter files for report writer and form printing programs use a pair of lines to define a logical test. The first line contains the first three test elements; the second line contains only the final test field.

Figure 3-5 illustrates the format used to describe the first part of a logical test. All entries are left-justified within their field.

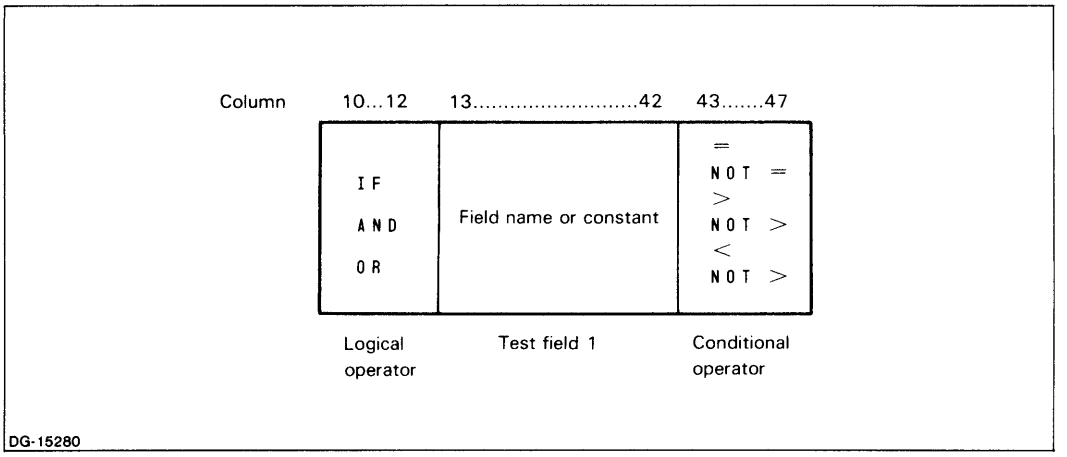


Figure 3-5. The Logical Test Parameter Format

The logical operator is one of these: IF, AND, or OR. The user names the test field or constant. The conditional operator is one of the following: = , < , > , NOT = , NOT > , or NOT <.

Figure 3-6 shows a sample section of a parameter file that defines two logical tests. Each test comprises two lines, the first of which defines the logical operator, first field, and conditional operator. The second line in each pair specifies the second field of the test.

```
301010   IF REGION-CODE                >
301012   LAST-REGION-CODE
301020   ANDREGION-CODE                NOT =
301022   99999
```

Figure 3-6. Sample Logical Test Parameters

The Sort Key Parameter

The sort key parameter contains two fields: the name of a field to be used for sorting, and that field's picture. Figure 3-7 illustrates the parameter file format used to specify a sort key.

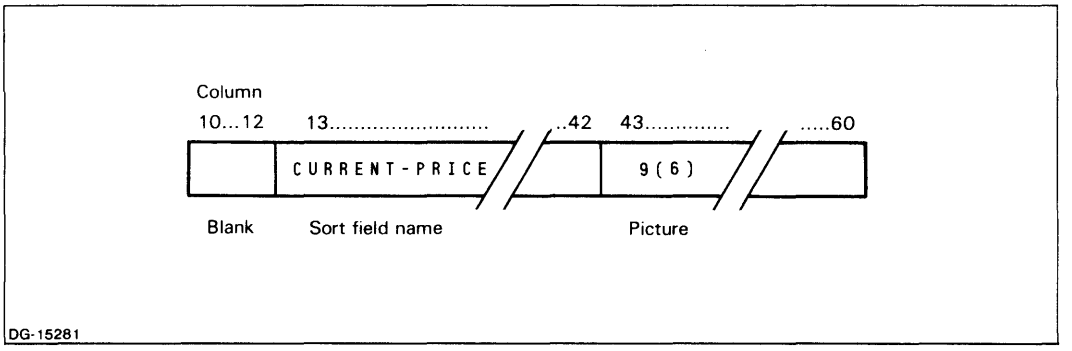


Figure 3-7. The Sort Key Parameter Format

Both entries are left-justified within their field. Figure 3-8 shows a sample section of a parameter file that specifies a series of sort keys.

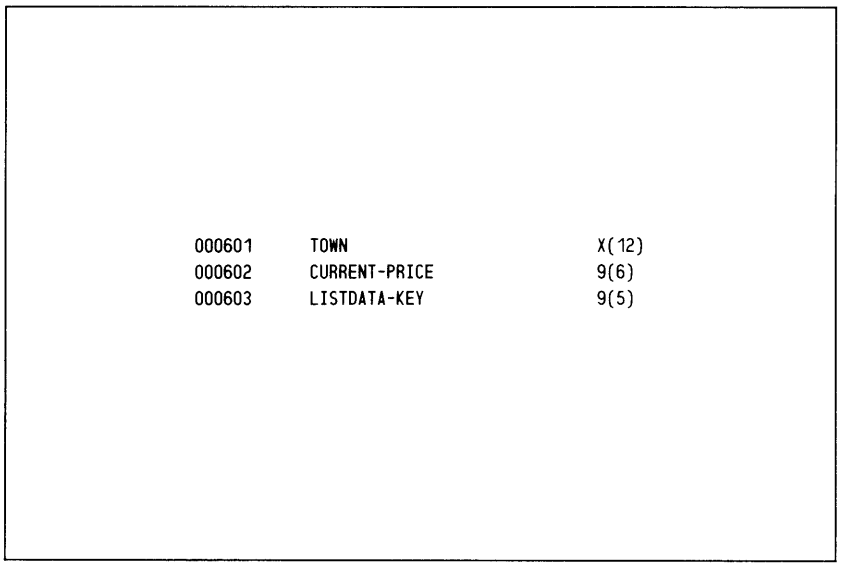


Figure 3-8. Sample Sort Key Parameters

About the Sequential Skeleton Files

The PROXI software provides a unique skeleton file for each of the four program types. These skeleton files contain COBOL-like statments and coded instructions. The program generator uses these to combine specific parameter file information with the general program skeleton.

In the original PROXI system, the skeletons were ISAM files. To give you more flexibility, the PROXI system now uses sequential skeleton files, which you can modify to suit your own needs.

This section describes the special symbols and codes that the skeleton files use. Armed with this information, you can interpret the skeleton file, observe how it works, and modify it so that it generates the type of code you need.

The names of the sequential skeleton files are:

PROXI$10SQ	The file maintenance program skeleton file
PROXI$20SQ	The file inquiry program skeleton file
PROXI$30SQ	The report writer program skeleton file
PROXI$40SQ	The form printing program skeleton file

How the Program Generator Uses the Skeleton File

To build COBOL source code, the program generator reads the appropriate skeleton file. The skeleton file contains two types of statements: COBOL code statements and function statements.

The COBOL code statements are normally incomplete; they require the program generator to insert one or more values from the parameter file. (This operation, called substitution, is explained shortly.) After completing all substitutions, the program generator writes the resulting line of code to the source file.

The other type of skeleton file line is a function statement, which instructs the program generator to perform a certain operation. These statements do not cause the program generator to write code to the source file.

Skeleton file statements of either type may require the program generator to execute a series of steps. When evaluating a skeleton statement, the program generator follows this order:

1. Perform all substitutions, beginning with the innermost and working outward.
2. Execute any function codes from left to right.

Substitution

When the skeleton file needs a value from the parameter file, it uses a substitution string. A substitution string specifies the number of a line in the parameter file. The string begins and ends with the # symbol. For example:

```
#100#
```

This substitution string specifies line 000100 of the parameter file.

When the program generator encounters a substitution string, it replaces the entire marked string (including the # symbols) with the contents of the specified parameter line.

For example, the skeleton file could include this line:

```
000200 PROGRAM-ID.  #100#.
```

The program generator replaces the substitution string (#100#) with the contents of parameter file line 000100. If line 000100 looks like this:

```
000100   LISTINGS
```

the program generator would build the source line:

```
PROGRAM-ID.  LISTINGS.
```

Substitution operations are sometimes nested. Parentheses surround each inner substitution. Let's assume that the parameter file contains these lines (among others):

```
000001   2
000320   LISTDATA
```

The skeleton instruction

```
COPY "#3(#1#)0#.WS".
```

specifies two substitutions. The inner substitution is marked with parentheses. Replacing the string #1# with the contents of line 000001, the intermediate result is:

```
COPY "#320#.WS".
```

Then, replacing the final string with the contents of line 000320, our result is:

```
COPY "LISTDATA.WS".
```

Blocks of Code

The skeleton file includes blocks of code that are treated as a unit. A test normally precedes the block to determine whether the program generator will execute the block of code or skip to the next line after it.

The skeleton file uses a label to identify the beginning and the end of a block. The label begins with a dollar sign ($) in column 8. The same label marks the beginning and end of a particular block. These labels do not appear in the source code file.

Figure 3-9 illustrates a sample block of code. In the figure, the label "$-SECOND-SCREEN" identifies the beginning and end of the block.

```
017900 $-SECOND-SCREEN
018000     DISPLAY #410#-FORMAT-SCREEN.
018100     PERFORM #410#-ENTER.
018200     IF ESCAPE-CODE = ESCAPE-KEY
018300         PERFORM NOT-PROCESSED.
018400         GO TO ADD-RECORDS-BEGIN.
018500     PERFORM #410#-ANY-CHANGE.
018600     IF ESCAPE-CODE = ESCAPE-KEY.
018700         PERFORM NOT-PROCESSED.
018800         GO TO ADD-RECORDS-BEGIN.
018900 $-SECOND-SCREEN
```

Figure 3-9. A Sample Block of Code

A block may be embedded within another block. The inner block must use a different label to distinguish it from the outer block. Figure 3-10 shows how labels identify a nested block.

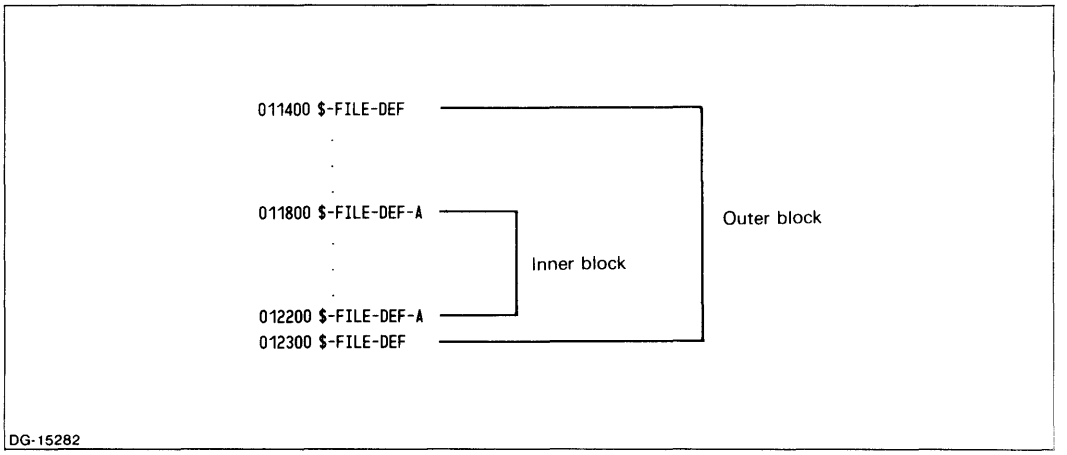


Figure 3-10. How Labels Identify a Nested Code Block

Displaying Code

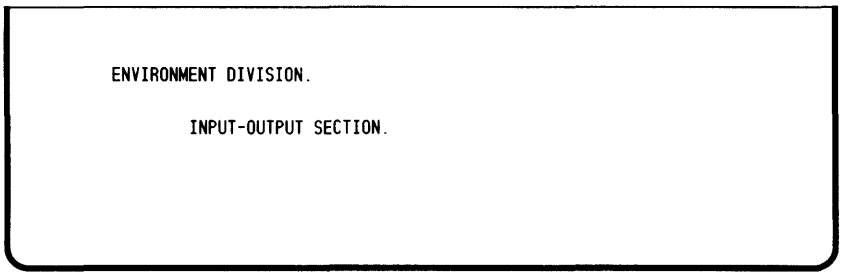
The symbol $ or % in column 7 of a skeleton file line instructs the program generator to display the rest of the line (from column 8 to the right) on the screen. PROXI users see this operation when they generate code. The program generator displays major headings (such as divisions) and minor headings (such as paragraph, section, and 01 levels) to show the progress of the code generation.

A dollar sign ($) in column 7 indicates a major heading, which the program generator displays near the bottom of the terminal screen. A percent (%) sign in column 7 indicates a minor heading, which the program generator displays below and to the right of a major heading.

For example:

```
000500$ENVIRONMENT DIVISION.
        .
        .
        .
001500%INPUT-OUTPUT SECTION.
```

These lines then appear at the bottom of the user's screen:



As the program generator encounters other major and minor display lines, it overwrites the previous entry with the new line.

The program generator DOES NOT copy the display indicator to the resulting COBOL source code file.

Skeleton File Function Codes

The skeleton files contain special function code symbols, which instruct the program generator to perform a particular operation. The skeleton file uses this notation to identify a function code:

#!x

where

x is the function code symbol, which may be a digit from 1 through 9, or the letter A or B

The function code usually follows a string of one or more characters. The characters constitute the argument(s) for the specified function. The symbol pair #! separates the argument(s) from the function code. (The function code descriptions in the pages that follow explain the arguments for each function code.)

When the preceding argument ends in a substitution string (as it usually does), the final # of the string also serves as the start of the function code string. For example:

```
#410#!2
```

instructs the program generator to perform function 2 using the contents of parameter file line 000410. (Notice that the second # is not doubled.)

The program generator performs all substitutions before evaluating the line, which it does from left to right.

Except for function codes 5 and 7, which may be embedded within other function code operations, only one function code can appear per line. If the program generator encounters any function code other than 5 or 7, it ignores the rest of the line.

Table 3-1 lists the skeleton file function codes. The following pages give a complete explanation of each code.

Table 3-1. Skeleton File Function Codes

Code	Action
#!1	Execute block if line not blank; otherwise skip block.
#!2	Execute block if line is blank; otherwise skip block.
#!3	Execute block if alphanumeric logical test result is true; otherwise skip block.
#!4	Execute block if numeric logical test result is true; otherwise skip block.
#!5	Perform computation on two strings.
#!6	Store a value in the parameter file.
#!7	Use byte count instead of contents in substitution.
#!8	Store skeleton file line number in parameter file.
#!9	Jump to line after specified line.
#!A	Increment parameter file line contents by one.
#!B	Isolate field(s) in a multiple field line.

#!1

Execute block if line not blank; otherwise, skip block.

Format

```
#line-no#!1
$-blockname
   .
   .
$-blockname
```

where:

line-no	is a line number in the parameter file.
blockname	is a label that identifies the beginning and the end of a block of code.

Description

The program generator examines the contents of the parameter file line that is specified in the substitution string. If the line contains data (i.e., is not blank), the program generator executes the block of code that follows. If the line is blank or does not exist, the program generator skips the block and continues at the next line after the block.

Example

```
026000 #430#!1
026100 $-FOURTH-SCREEN
       :
       :
026800 $-FOURTH-SCREEN
026900     PERFORM CHANGE-#200#-RECORD.
```

Examine line 000430 in the parameter file. If it contains data, then execute the series that follows ($-FOURTH-SCREEN).

If line 000430 does not contain data, skip the series and continue at line 026900.

#!2

Execute block if line is blank; otherwise, skip block.

Format

```
#line-no#!2
$-blockname
   .
   .
$-blockname
```

where:

line-no	is a line number in the parameter file.
blockname	is a label that identifies the beginning and the end of a block of code.

Description

The program generator examines the contents of the parameter file line that the substitution string specifies. If the line contains data (i.e., is not blank), the program generator skips the block of code that follows. If the line is blank or does not exist, the program generator executes the block.

Example

```
007500 #210#!2
007600 $-NO-NAME
          :
          :
007800 $-NO-NAME
007900 01 MENU-SCREEN.
```

Examine line 002100 in the parameter file. If it contains data, then skip the block ($-NO-NAME) and continue at line 007900.

If line 000210 is blank or does not exist, execute the block.

#!3

Execute block if alphanumeric logical test result is true; otherwise, skip the block.

Format

```
string1,operator,string2#!3
$-blockname
   .
   .
$-blockname
```

where:

string1	is a character string.
operator	is a relational operator: EQ, NE, LT, LE, GT, or GE.
string2	is a character string.
blockname	is a label that identifies the beginning and the end of a block of code.

Description

The program generator moves the two strings into alphanumeric working storage, then compares them according to the relational operator.

If the result is true, the program generator executes the block of code that follows. If the result is false, the program generator skips the block.

A comma must separate each string from the operator. The program generator performs all substitutions before comparing the strings.

Example

```
013600 Y,EQ,#300#!3
013700 $-FILE-DEF
        :
        :
014800 $-FILE-DEF
014900
015000     PERFORM GET-DATES.
```

If parameter file line 000300 contains Y, the program generator performs the block of code named $-FILE-DEF. If the line contains any other value, the program generator skips the block and continues at line 014900.

#!4

Execute block if numeric logical test result is true; otherwise skip the block.

Format

```
string1,operator,string2#!4
$-blockname
   .
   .
$-blockname
```

where:

string1	is a character string.
operator	is a relational operator: EQ, NE, LT, LE, GT, or GE.
string2	is a character string.
blockname	is a label that identifies the beginning and the end of a block of code.

Description

The program generator moves the two strings into numeric working storage, then compares them according to the relational operator.

If the result is true, the program generator executes the block of code that follows. If the result is false, the program generator skips the block.

A comma must separate each string from the operator. The program generator performs all substitutions before comparing the strings.

Example

```
022400 #2010#,LT,#5#!4
022500 $-LEG-06
          :
          :
022700 $-LEG-06
022800 01 LEGENDS-FROM-PAGE-2-ONWARD  PIC 9 VALUE #5#.
```

Compare the contents of lines 002010 and 000005 in the parameter file. If the former is less than the latter, execute the block called $-LEG-06. Otherwise, skip the block.

#!5

Perform a computation on two strings.

Format

string1,operator,string2#!5

where:

string1	is a character string representing a numeric value.
operator	is a computation operator: +, -, or /.
string2	is a character string representing a numeric value.

Description

The program generator first completes all substitutions, then performs the specified computation using the two strings.

(This function usually occurs with function code 6, which stores the resulting value in a line of the parameter file.)

Examples

```
049300 #1#,+,#10#!5#3#!6
```

Add the contents of parameter file lines 000001 and 000010. (The rest of the command instructs the program generator to store the result in line 000003 of the parameter file. See function code 6.)

```
053100 9000,+,#1#!5#2#!6
```

Add the value 9000 to the contents of parameter file line 000001. (The remainder of this command instructs the program generator to store the result in line 000002 of the parameter file. See function code 6.)

```
009800 #420#,+,#430#!5,-,1#!5#3#!6
```

Add the contents of parameter file lines 000420 and 000430, subtract 1 from the sum, and store the result in line 000003 of the parameter file.

#!6
Store a value into the parameter file.

Format

string#line-no#!6

where:

string — is a character string.

line-no — is a line number in the parameter file.

Description

The program generator stores the string argument in the specified line of the parameter file. The previous contents of the line (if any) are destroyed.

Examples

```
045800 DETAIL#9#!6
```

Store the character string "DETAIL" in line 000009 of the parameter file.

```
045600 1#1#!6
```

Store the value 1 in line 000001 of the parameter file.

```
038700 600,+,#1#!5#3#!6
```

Add 600 to the contents of parameter file line 000001, then store the result in line 000003 of the file. (See the description of function code 5.)

#!7

Replace the substitution string with the byte count of the specified parameter file line.

Format

#line-no#!7

where:

line-no is a line number in the parameter file.

Description

This function modifies the substitution operation. The program generator replaces the substitution string with the byte count of the parameter line contents, not the contents themselves.

Examples

```
012900 #410#!7#1#!6
```

Count the number of characters in parameter file line 000410, then store that value in line 000001 of the file. (See the description of function code 6.)

```
015200 #1020#!7,+,60#!5#1#!6
```

Count the number of bytes in parameter file line 001020, add 60, then store the result in line 000001 of the file.

#!8

Replace the parameter file line contents with the number of the current skeleton file line.

Format

#line-no#!8

where:

line-no is a line number in the parameter file.

Description

The program generator replaces the contents of the specified parameter file line with the line number of the current skeleton file instruction. The previous contents of the parameter file line (if any) are destroyed.

Examples

```
002700 #2#!8
```

Store the value 2700 in line 000002 of the parameter file.

```
018100 #6#!8
```

Store the value 18100 in line 000006 of the parameter file.

#!9

Jump to next line after line number in specified parameter line.

Format

#line-no#!9

where:

line-no is a line number in the parameter file.

Description

The program generator continues to read the skeleton file at the next line after the line number stored in the indicated parameter line. This function is usually used with function code 8, which stores the line number of a skeleton file instruction in a parameter file line.

Example

```
024800 #6#!8        (Stores the skeleton file line number 024800 in line 000006 of the parameter
     :               file.)
     :
     :
026500 #6#!9
```

The program generator checks parameter file line 000006, which now contains the value 024800. The program generator continues execution at next line after line 024800 (most likely line 024900).

#!A

Increment the contents of a parameter file line.

Format

#line-no#!A

where:

line-no is a line number in the parameter file.

Description

The program generator adds 1 to the value in the specified parameter file line, replacing the old value with the incremented one.

Examples

```
026200 #7#!A
```

Increment the contents of parameter file line 000007 by 1.

```
037200 #2#!A
```

Increment the contents of parameter file line 000002 by 1.

#!B

Isolates one or more individual fields within a multiple field parameter file line.

Format

[line-no]#!Btype

where:

line-no — is an optional argument, which specifies a line number in the parameter file.

type — specifies the type of multiple field parameter, and is either FIELD, SELECT, or SORT-KEY.

Description

This function allows the program generator to isolate individual fields within a multiple field parameter line.

If a line number argument precedes the function code, the function applies to that parameter file line. If the argument is omitted, the function applies to the most recently specified parameter file line.

There are three types of multiple field parameters: FIELD (a field specification parameter), SELECT (a logical test parameter), and SORT-KEY (a sort key parameter). One of these keywords follows the B function code. The keyword allows the program generator to apply the appropriate format to the parameter record, and thereby isolate any individual field within it.

For a detailed description of the multiple field parameter formats, see the earlier part of this chapter.

Once it has specified the parameter type, the skeleton file refers to a particular field within the parameter by using the following notation:

'n

where n may be 1, 2, 3, 4, 5, or 6.

Table 3-2 lists the contents of each field for each parameter type.

Table 3-2. Fields Within Multiple Field Parameters

Symbol	FIELD	SELECT	SORT-KEY
'1	Logical operator	Column number (start)	Key field
'2	Field 1	Field name or constant	Picture
'3	Conditional operator	Print format	-------
'4	-------	Print length	-------
'5	-------	Computation symbol	-------
'6	-------	Accumulator	-------

Examples

```
007700  #!BSORT-KEY
007800          10 SORTFILE-KEY-#1#      PIC #'2#.
```

Interpret the current parameter line according to the sort key format. Build a sorting variable using the contents of parameter file line 000001. Then, retrieve its picture from the second field in the parameter line. The result might appear something like this:

```
                10 SORTFILE-KEY-3        PIC 9(5).
```

```
013000 #!BFIELD
013100 999,NE,#'1#!3
```

Interpret the current parameter line according to the field specification format. If the third field (starting column position) is not equal to 999, then execute the block that follows.

```
050400 #!BSELECT
050500          #'1# #'2# #'3#
```

Interpret the current parameter according to the logical test format. Build the source code line using the first, second, and third fields in that line.

End of Chapter

Chapter 4
The File Maintenance Program

This chapter describes the file maintenance program parameter file and skeleton file.

The File Maintenance Program Parameter File

The parameter file for the file maintenance program is created by PROXI$01, and updated through PROXI$10, PROXI$03, and PROXI$02.

Table 4-1 lists the line number groups for the file maintenance program parameter file. The pages that follow give specific information about each group. (For general information about parameter files, see Chapter 3.)

Table 4-1. Line Number Groups for a File Maintenance Program

Line Number Group	Contains
100	General program parameters
200	Maintenance program parameters
300	Reference file parameters
400	Screen format parameters
500	Own code parameters
600	Print program parameters

The 100 Group
General program parameters

This group contains general information about the program.

Source menu: PG-2

Line #	Contents
000100	Name of the file maintenance program
000101	MAINT
000110	Application name
000120	Name of the next program on normal exit
000130	Name of the next program on error exit

Example

```
000100   LISTINGS
000101   MAINT
000110   Current Listings Update
000120   LOGON
000130   LOGON
```

The 200 Group

Maintenance program parameters

This group contains information about the principal data file.

Source menu: PG-3

Line #	Contents
000200	Name of the principal data file (datafile)
000204	datafile
000205	datafile-RECORD
000206	datafile-KEY
000207	datafile-STATUS
000210	Menu item name

Comments

If the user specified a variable other than datafile-RECORD as the first entry in datafile.FD, that variable name appears in line 000205. If datafile.FD does not exist, the default value for line 000205 is datafile-RECORD.

Example

```
000200  LISTDATA
000204  LISTDATA
000205  LISTDATA-RECORD
000206  LISTDATA-KEY
000207  LISTDATA-STATUS
000210  Listings
```

The 300 Group
Reference file parameters

This group contains reference file information.

Source menus: PG-3 and PG-4

Line #	Contents
000300	Reference file flag: Y (program uses one or more reference files) N (program does not use any reference files)

If line 000300 is Y, the following group appears for each reference file:

0003n0	Name of *n*th reference file (ref-file-n)
0003n4	ref-file-n
0003n5	ref-file-n-RECORD
0003n6	ref-file-n-KEY
0003n7	ref-file-n-STATUS

Comments

The program can use up to nine reference files. Lines 000310 through 000317 refer to the first file, lines 000320 through 000327 refer to the second, and so on.

Example

```
000300  Y
000310  REF01
000314  REF01
000315  REF01-RECORD
000316  REF01-KEY
000317  REF01-STATUS
000320  REF02
000324  REF02
000325  REF02-RECORD
000326  REF02-KEY
000327  REF02-STATUS
```

The 400 Group
Screen format parameters

This group lists the screen formats used by the program.

Source menu: PG-3

Line #	Contents
000400	Screen name 1
000410	Screen name 2
000420	Screen name 3
000430	Screen name 4

Example

```
000400   SCREENA
000410   SCREENB
000420   SCREENC
000430   SCREEND
```

The 500 Group
Own code parameters

This group contains information about the user's own code in the program.

Source menu: PG-3

Line #	Contents
000500	Own code (working storage) flag: Y (program uses working storage own code) N (program does not use working storage own code)
000510	Own code (procedure division) flag: Y (program uses procedure division own code) N (program does not use procedure division own code)

Example

```
000500  Y
000510  N
```

The 600 Group
Print program parameters

This group identifies the program to be used to print the principal data file.

Source menu: PG-3

Line #	Contents
000600	Name of the print program

Example

```
000600  PRINTIT
```

The File Maintenance Program Skeleton File

The following is a listing of the contents of the sequential skeleton file for a file maintenance program.

```
000100$IDENTIFICATION DIVISION.                                    24
000200%PROGRAM-ID.      #100#.                                     23
000300 AUTHOR.          AOS/VS PROXI FILE MAINTENANCE GENERATOR.   60
000400                                                             01
000500$ENVIRONMENT DIVISION.                                       21
000600 CONFIGURATION SECTION.                                      22
000700 SOURCE-COMPUTER. ECLIPSE.                                   25
000800*                                                            23
000900*                                                            23
001100*                                                            23
001100 OBJECT-COMPUTER. ECLIPSE.                                   25
001200*                                                            23
001300*                                                            23
001310 SPECIAL-NAMES.                                              20
001320      "@LIST" IS HARDCOPY-DEVICE.                           40
001400*                                                            23
001500%INPUT-OUTPUT SECTION.                                       21
001600 FILE-CONTROL.                                               13
001700     COPY "#200#.SL".                                       20
001800                                                            01
001900 Y,EQ,#300#!3                                                12
002000 $-FILE-DEF                                                  10
002100 1#1#!6                                                      06
002200 #2#!8                                                       05
002300 #3(#1#)0#!1                                                 11
002400 $-FILE-DEF-A                                                12
002500     COPY "#3(#1#)0#.SL".                                   24
002600 #1#!A                                                       05
002700 #2#!9                                                       05
002800 $-FILE-DEF-A                                                12
002900 $-FILE-DEF                                                  10
003000/                                                            01
003100$DATA DIVISION.                                              14
003200%FILE SECTION.                                               13
003300     COPY "#200#.FD".                                       20
003400                                                            01
003500 Y,EQ,#300#!3                                                12
003600 $-FILE-DEF                                                  10
003700 1#1#!6                                                      06
003800 #2#!8                                                       05
003900 #3(#1#)0#!1                                                 11
004000 $-FILE-DEF-A                                                12
004100     COPY "#3(#1#)0#.FD".                                   24
004200 #1#!A                                                       05
004300 #2#!9                                                       05
004400 $-FILE-DEF-A                                                12
004500 $-FILE-DEF                                                  10
```

```
004600/                                                          01
004700%WORKING-STORAGE SECTION.                                  24
004800                                                           01
004900 01 APPLICATION-NAME  PIC X(30)                           30
005000                      VALUE "#110#".                       34
005100 01 OC-STATUS  PIC 9.                                      20
005200     COPY "#200#.WS".                                      20
005300                                                           01
005400 Y,EQ,#300#!3                                               12
005500 $-FILE-DEF                                                 10
005600 1#1#!6                                                     D6
005700 #2#!8                                                      05
005800 #3(#1#)0#!1                                                11
005900 $-FILE-DEF-A                                               12
006000     COPY "#3(#1#)0#.WS".                                  24
006100 #1#!A                                                      05
006200 #2#!9                                                      05
006300 $-FILE-DEF-A                                               12
006400 $-FILE-DEF                                                 10
006500                                                           01
006600 Y,EQ,#500#!3                                               12
006700 $-OC-WS                                                    07
006800                                                           01
006900     COPY "#100#.WS".                                      20
007000 $-OC-WS                                                    07
007100                                                           01
007200     COPY "PROXI$CF01.WS".                                 25
007300/                                                          01
007400%SCREEN SECTION.                                           15
007500 #210#!2                                                    07
007600 $-NO-NAME                                                  09
007700 RECORDS#210#!6                                             14
007800 $-NO-NAME                                                  09
007900 01 MENU-SCREEN.                                           15
008000     05 BLANK SCREEN.                                      20
008100     05 LINE 01  COL 01  PIC X(30)  FROM APPLICATION-NAME.  57
008200     05 LINE 08  COL 10  "PLEASE SELECT".                  40
008300     05 LINE 08  COL 25  PIC 9   TO MENU-SELECTION.        50
008400     05 LINE 10  COL 16  "1. ADD NEW #210#.".              44
008500     05 LINE 12  COL 16  "2. CHANGE/INQUIRE".              44
008600     05 LINE 12  COL 34  "#210#.".                         33
008700     05 LINE 14  COL 16  "3. DELETE #210#.".               43
008800     05 LINE 16  COL 16  "4. PRINT #210#.".                42
008900                                                           01
009000 01 END-SCREEN.                                            14
009100     05 LINE 08  COL 25  "END".                            30
```

```
009200                                                                  01
009300     COPY "#400#.SD".                                             20
009400 #410#!1                                                          07
009500 $-SECOND-SCREEN                                                  15
009600     COPY "#410#.SD".                                             20
009700 $-SECOND-SCREEN                                                  15
009800 #420#!1                                                          07
009900 $-THIRD-SCREEN                                                   14
010000     COPY "#420#.SD".                                             20
010100 $-THIRD-SCREEN                                                   14
010200 #430#!1                                                          07
010300 $-FOURTH-SCREEN                                                  15
010400     COPY "#430#.SD".                                             20
010500 $-FOURTH-SCREEN                                                  15
010600                                                                  01
010700     COPY "PROXI$CF01.SD".                                        25
010800/                                                                 01
010900$PROCEDURE DIVISION.                                              19
011000 DECLARATIVES.                                                    13
011100       COPY "#200#.DC".                                          22
011200                                                                  01
011300 Y,EQ,#300#!3                                                     12
011400 $-FILE-DEF                                                       10
011500 1#1#!6                                                           06
011600 #2#!8                                                            05
011700 #3(#1#)0#!1                                                      11
011800 $-FILE-DEF-A                                                     12
011900     COPY "#3(#1#)0#.DC".                                         24
012000 #1#!A                                                            05
012100 #2#!9                                                            05
012200 $-FILE-DEF-A                                                     12
012300 $-FILE-DEF                                                       10
012400 EXIT-DECLARATIVES. EXIT.                                         24
012500 END DECLARATIVES.                                                17
012600/                                                                 01
012700* **********    LEVEL 1    **********                            36
012800                                                                  01
012900%MAIN-LOGIC SECTION.                                              19
013000 BEGIN.                                                           06
013100     PERFORM OPEN-#200#.                                          23
013200     IF #207# IS NOT = I-O-OK                                     28
013300         GO TO ERROR-PROGRAM.                                     28
013500                                                                  01
013600 Y,EQ,#300#!3                                                     12
013700 $-FILE-DEF                                                       10
013800 1#1#!6                                                           06
013900 #2#!8                                                            05
014000 #3(#1#)0#!1                                                      11
014100 $-FILE-DEF-A                                                     12
014200     PERFORM OPEN-#3(#1#)0#.                                      27
014300     IF #3(#1#)7# IS NOT = I-O-OK                                 32
014400         GO TO ERROR-PROGRAM.                                     28
014500 #1#!A                                                            05
014600 #2#!9                                                            05
```

```
014700 $-FILE-DEF-A                                                    12
014800 $-FILE-DEF                                                      10
014900                                                                 01
015000     PERFORM GET-DATES.                                          22
015100                                                                 01
015200     MOVE "N" TO ANY-CHANGE-ANSWER.                              34
015300                                                                 01
015400     COPY "PROXI$CF02.PL".                                       25
015500/                                                                01
015600* **********    LEVEL 2    **********                            36
015700                                                                 01
015800%ADD-RECORDS SECTION.                                            20
015900 ADD-RECORDS-BEGIN.                                              18
016000     DISPLAY #400#-FORMAT-SCREEN.                                32
016100     PERFORM #400#-ENTER-KEY.                                    28
016200     IF ESCAPE-CODE = ESCAPE-KEY                                 31
016300             OR ESCAPE-CODE = F1-KEY                             35
016400         GO TO ADD-RECORDS-BEGIN.                                32
016500     IF ESCAPE-CODE = END-KEY                                    28
016600         GO TO ADD-RECORDS-EXIT.                                 31
016700     PERFORM VERIFY-NEW-#200#.                                   29
016800     IF #207# IS = RECORD-ON-FILE                                32
016900         GO TO ADD-RECORDS-BEGIN.                                32
017000     PERFORM #400#-ENTER.                                        24
017100     IF ESCAPE-CODE = ESCAPE-KEY                                 31
017200         PERFORM NOT-PROCESSED                                   29
017300         GO TO ADD-RECORDS-BEGIN.                                32
017400     PERFORM #400#-ANY-CHANGE.                                   29
017500     IF ESCAPE-CODE = ESCAPE-KEY                                 31
017600         PERFORM NOT-PROCESSED                                   29
017700         GO TO ADD-RECORDS-BEGIN.                                32
017800 #410#!1                                                         07
017900 $-SECOND-SCREEN                                                 15
018000     DISPLAY #410#-FORMAT-SCREEN.                                32
018100     PERFORM #410#-ENTER.                                        24
018200     IF ESCAPE-CODE = ESCAPE-KEY                                 31
018300         PERFORM NOT-PROCESSED                                   29
018400         GO TO ADD-RECORDS-BEGIN.                                32
018500     PERFORM #410#-ANY-CHANGE.                                   29
018600     IF ESCAPE-CODE = ESCAPE-KEY                                 31
018700         PERFORM NOT-PROCESSED                                   29
018800         GO TO ADD-RECORDS-BEGIN.                                32
018900 $-SECOND-SCREEN                                                 15
019000 #420#!1                                                         07
019100 $-THIRD-SCREEN                                                  14
019200     DISPLAY #420#-FORMAT-SCREEN.                                32
019300     PERFORM #420#-ENTER.                                        24
019400     IF ESCAPE-CODE = ESCAPE-KEY                                 31
019500         PERFORM NOT-PROCESSED                                   29
019600         GO TO ADD-RECORDS-BEGIN.                                32
019700     PERFORM #420#-ANY-CHANGE.                                   29
019800     IF ESCAPE-CODE = ESCAPE-KEY                                 31
019900         PERFORM NOT-PROCESSED                                   29
020000         GO TO ADD-RECORDS-BEGIN.                                32
```

```
020100 $-THIRD-SCREEN                                                  14
020200 #430#!1                                                         07
020300 $-FOURTH-SCREEN                                                 15
020400     DISPLAY #430#-FORMAT-SCREEN.                                32
020500     PERFORM #430#-ENTER.                                        24
020600     IF ESCAPE-CODE = ESCAPE-KEY                                 31
020700         PERFORM NOT-PROCESSED                                   29
020800         GO TO ADD-RECORDS-BEGIN.                                32
020900     PERFORM #430#-ANY-CHANGE.                                   29
021000     IF ESCAPE-CODE = ESCAPE-KEY                                 31
021100         PERFORM NOT-PROCESSED                                   29
021200         GO TO ADD-RECORDS-BEGIN.                                32
021300 $-FOURTH-SCREEN                                                  15
021400     PERFORM ADD-#200#.                                          22
021500     GO TO ADD-RECORDS-BEGIN.                                    28
021600 ADD-RECORDS-EXIT.  EXIT.                                         24
021700                                                                 01
021800%CHANGE-RECORDS SECTION.                                          23
022300 CHANGE-RECORDS-BEGIN.                                            21
022400     UNLOCK #204#.                                               17
022500     DISPLAY #400#-FORMAT-SCREEN.                                32
022600     PERFORM #400#-ENTER-KEY.                                    28
022700     IF ESCAPE-CODE = ESCAPE-KEY                                 31
022800         GO TO CHANGE-RECORDS-BEGIN.                             35
022900     IF ESCAPE-CODE = END-KEY                                    28
023000         GO TO CHANGE-RECORDS-EXIT.                              34
023010     IF ESCAPE-CODE = F1-KEY-S                                   29
023020          PERFORM NEAREST-#200#-RECORD.                          38
023100     IF ESCAPE-CODE = F1-KEY                                     27
023200         PERFORM NEXT-#200#-RECORD                               33
023300     ELSE                                                        08
023400         PERFORM READ-#200#-RECORD.                              34
023500     IF #207# IS NOT = I-O-OK                                    28
023600         GO TO CHANGE-RECORDS-BEGIN.                             41
023700     DISPLAY #400#-DISPLAY-SCREEN.                               33
023800     PERFORM #400#-ANY-CHANGE.                                   29
023810     IF ESCAPE-CODE = HARDCOPY                                   30
023820         DISPLAY #400#-FORMAT-SCREEN UPON                        50
023825                             HARDCOPY-DEVICE                     50
023830         DISPLAY #400#-DISPLAY-SCREEN UPON                       50
023835                             HARDCOPY-DEVICE.                    50
023900     IF ESCAPE-CODE = ESCAPE-KEY                                 31
024000         PERFORM NOT-PROCESSED                                   29
024100         GO TO CHANGE-RECORDS-BEGIN.                             35
```

```
024200 #410#!1                                                    07
024300 $-SECOND-SCREEN                                            15
024400     DISPLAY #410#-FORMAT-SCREEN.                           32
024500     DISPLAY #410#-DISPLAY-SCREEN.                          33
024600     PERFORM #410#-ANY-CHANGE.                              29
024610     IF ESCAPE-CODE = HARDCOPY                              30
024620         DISPLAY #410#-FORMAT-SCREEN UPON                   50
024625                             HARDCOPY-DEVICE                50
024630         DISPLAY #410#-DISPLAY-SCREEN UPON                  50
024635                             HARDCOPY-DEVICE.               50
024700     IF ESCAPE-CODE = ESCAPE-KEY                            31
024800         PERFORM NOT-PROCESSED                              29
024900         GO TO CHANGE-RECORDS-BEGIN.                        35
025000 $-SECOND-SCREEN                                            15
025100 #420#!1                                                    07
025200 $-THIRD-SCREEN                                             14
025300     DISPLAY #420#-FORMAT-SCREEN.                           32
025400     DISPLAY #420#-DISPLAY-SCREEN.                          33
025500     PERFORM #420#-ANY-CHANGE.                              29
025510     IF ESCAPE-CODE = HARDCOPY                              30
025520         DISPLAY #420#-FORMAT-SCREEN UPON                   50
025525                             HARDCOPY-DEVICE                50
025530         DISPLAY #420#-DISPLAY-SCREEN UPON                  50
025535                             HARDCOPY-DEVICE.               50
025600     IF ESCAPE-CODE = ESCAPE-KEY                            31
025700         PERFORM NOT-PROCESSED                              29
025800         GO TO CHANGE-RECORDS-BEGIN.                        35
025900 $-THIRD-SCREEN                                             14
026000 #430#!1                                                    07
026100 $-FOURTH-SCREEN                                            15
026200     DISPLAY #430#-FORMAT-SCREEN.                           32
026300     DISPLAY #430#-DISPLAY-SCREEN.                          33
026400     PERFORM #430#-ANY-CHANGE.                              29
026410     IF ESCAPE-CODE = HARDCOPY                              30
026420         DISPLAY #430#-FORMAT-SCREEN UPON                   50
026425                             HARDCOPY-DEVICE                50
026430         DISPLAY #430#-DISPLAY-SCREEN UPON                  50
026435                             HARDCOPY-DEVICE.               50
026500     IF ESCAPE-CODE = ESCAPE-KEY                            31
026600         PERFORM NOT-PROCESSED                              29
026700         GO TO CHANGE-RECORDS-BEGIN.                        35
026800 $-FOURTH-SCREEN                                            15
026900     PERFORM CHANGE-#200#-RECORD.                           32
027000     GO TO CHANGE-RECORDS-BEGIN.                            31
027100 CHANGE-RECORDS-EXIT.  EXIT.                                27
```

```
027200                                                          01
027300%DELETE-RECORDS SECTION.                                  23
027800 DELETE-RECORDS-BEGIN.                                    21
027900     UNLOCK #204#.                                        17
028000     DISPLAY #400#-FORMAT-SCREEN.                         32
028100     PERFORM #400#-ENTER-KEY.                             28
028200     IF ESCAPE-CODE = ESCAPE-KEY                          31
028300         GO TO DELETE-RECORDS-BEGIN.                      35
028400     IF ESCAPE-CODE = END-KEY                             28
028500         GO TO DELETE-RECORDS-EXIT.                       34
028600     IF ESCAPE-CODE = F1-KEY                              27
028700         PERFORM NEXT-#200#-RECORD                        33
028800     ELSE                                                 08
028900        PERFORM READ-#200#-RECORD.                        33
029000     IF #207# IS NOT = I-O-OK                             28
029100         GO TO DELETE-RECORDS-BEGIN.                      40
029200     DISPLAY #400#-DISPLAY-SCREEN.                        33
029300     PERFORM VERIFY-#200#.                                25
029400     IF QUESTION-ANSWER IS = "N"                          31
029500         GO TO DELETE-RECORDS-BEGIN.                      35
029600     PERFORM DELETE-#200#-RECORD.                         32
029700     GO TO DELETE-RECORDS-BEGIN.                          31
029800 DELETE-RECORDS-EXIT.  EXIT.                               27
029900                                                          01
030000%PRINT-RECORDS SECTION.                                   22
030100 PRINT-RECORDS-BEGIN.                                     20
030200 #600#!1                                                  07
030300 $-PRINT-PROGRAM-DEFINED                                  23
030400     DISPLAY WAIT-LINE-24.                                25
030500     PERFORM CLOSE-FILES.                                 24
030600     CALL PROGRAM "#600#".                                25
030700 $-PRINT-PROGRAM-DEFINED                                  23
030800 PRINT-RECORDS-EXIT. EXIT.                                25
030900                                                          01
031000%END-OF-PROGRAM SECTION.                                  23
031100 END-OF-PROGRAM-BEGIN.                                    21
031200     DISPLAY WAIT-LINE-24.                                25
031300     PERFORM CLOSE-FILES.                                 24
031400     CALL PROGRAM "#120#".                                25
031500     STOP RUN.                                            13
031600 END-OF-PROGRAM-EXIT. EXIT.                               26
031700                                                          01
031800 ERROR-PROGRAM SECTION.                                   22
031900 ERROR-PROGRAM-BEGIN.                                     20
032000     DISPLAY WAIT-LINE-24.                                25
032100     CALL PROGRAM "#130#".                                25
032200     STOP RUN.                                            13
032300 ERROR-PROGRAM-EXIT. EXIT.                                25
```

```
032400/                                                          01
032500* **********    LEVEL 3    **********                       36
032600                                                           01
032700     COPY "#400#.PL".                                      20
032800 #410#!1                                                   07
032900 $-SECOND-SCREEN                                           15
033000     COPY "#410#.PL".                                      20
033100 $-SECOND-SCREEN                                           15
033200 #420#!1                                                   07
033300 $-THIRD-SCREEN                                            14
033400     COPY "#420#.PL".                                      20
033500 $-THIRD-SCREEN                                            14
033600 #430#!1                                                   07
033700 $-FOURTH-SCREEN                                           15
033800     COPY "#430#.PL".                                      20
033900 $-FOURTH-SCREEN                                           15
034000                                                           01
034100 Y,EQ,#510#!3                                              12
034200 $-OC-PL                                                   07
034300     COPY "#100#.PL".                                      20
034400 $-OC-PL                                                   07
034500/                                                          01
034600* **********    INPUT/OUTPUT ROUTINES    **********        50
034700                                                           01
034800%I-O-SECTION SECTION.                                      20
034900 OPEN-#200#.                                               11
034910    MOVE 00 TO OPEN-ERROR.                                 25
035000     OPEN I-O #204#.                                       19
035010    IF #207# = NO-FILE                                     21
035011        PERFORM FILE-NOT-FOUND.                            30
035100     IF #207# = USE-ERROR                                  24
035110        PERFORM FILE-NOT-AVAILABLE.                        34
035111 FILE-NOT-FOUND.                                           15
035112     DISPLAY " ".                                          16
035113     DISPLAY "#200#" WITH NO ADVANCING.                    38
035114     DISPLAY " FILE NOT FOUND - CREATE IT(Y/N) "           47
035115         WITH NO ADVANCING.                                26
035116     ACCEPT ANY-CHANGE-CHAR-1.                             29
035117          IF ANY-CHANGE-CHAR-1 IS NOT = 'Y'                42
035118              STOP RUN                                     21
035119          ELSE                                             13
035120              OPEN OUTPUT #204#                            30
035121              CLOSE #204#                                  24
035122              MOVE 91 TO OPEN-ERROR                        34
035123              OPEN I-O #204#.                              28
```

```
035124                                                                  01
035300 VERIFY-NEW-#200#.                                                17
035400     READ #204# RECORD.                                           22
035500     IF #207# = RECORD-ON-FILE                                    29
035510         OR #207# = RECORD-LOCKED                                 32
035600                                    PERFORM ALREADY-ON-FILE.      58
035700 ADD-#200#.                                                       10
035800     WRITE #205#                                                  15
035900                           INVALID KEY PERFORM ALREADY-ON-FILE.   61
036000     IF #207# = RECORD-LOCKED                                     28
036100                                    PERFORM ALREADY-ON-FILE.      58
036200 READ-#200#-RECORD.                                               18
036300     READ #204# RECORD LOCK                                       26
036400                           INVALID KEY PERFORM NOT-ON-FILE.      57
036500     IF #207# = RECORD-LOCKED                                     28
036600                           PERFORM #200#-IN-USE.                 46
036700 NEXT-#200#-RECORD.                                               18
036800     READ #204# NEXT RECORD LOCK                                  31
036900                                AT END PERFORM NOT-ON-FILE.      57
037000     IF #207# = RECORD-LOCKED                                     28
037100                                PERFORM #200#-IN-USE.             49
037110         RETRIEVE #204# KEY INTO #204#-KEY.                       42
037120 NEAREST-#200#-RECORD.                                            22
037130     READ #204# RECORD LOCK KEY IS #200#-KEY APPROXIMATE          55
037140                               AT END PERFORM NOT-ON-FILE.        54
037150     IF #207# = RECORD-LOCKED                                     28
037160                                PERFORM #200#-IN-USE.             49
037170         RETRIEVE #204# KEY INTO #204#-KEY.                       43
037200 CHANGE-#200#-RECORD.                                             20
037300     REWRITE #205#.                                               18
037400     UNLOCK #204#.                                                17
037500 DELETE-#200#-RECORD.                                             20
037600     DELETE #204# RECORD.                                         24
037700     IF #207# IS = I-O-OK                                         24
037800                                PERFORM #200#-DELETED.            50
037900     UNLOCK #204#.                                                17
038000                                                                  01
038100 Y,EQ,#300#!3                                                     12
038200 $-FILE-DEF                                                       10
038300 1#1#!6                                                           06
038400 #2#!8                                                            05
038500 #3(#1#)0#!1                                                      11
038600 $-FILE-DEF-A                                                     12
038700 OPEN-#3(#1#)0#.                                                  15
038800     OPEN INPUT #3(#1#)4#.                                        25
038900     IF #3(#1#)7# = USE-ERROR                                     28
039000         PERFORM #3(#1#)0#-IN-USE.                                33
039100 READ-#3(#1#)0#.                                                  15
039200     READ #3(#1#)4#                                               18
039300         INVALID KEY                                              19
039400             MOVE SPACE TO #3(#1#)5#.                             36
039500 #1#!A                                                            05
039600 #2#!9                                                            05
039700 $-FILE-DEF-A                                                     12
039800 $-FILE-DEF                                                       10
```

```
039900                                                              01
040000 CLOSE-FILES.                                                 12
040100     CLOSE #204#.                                             16
040200                                                              01
040300 Y.EQ,#300#!3                                                 12
040400 $-FILE-DEF                                                   10
040500 1#1#!6                                                       06
040600 #2#!8                                                        05
040700 #3(#1#)0#!1                                                  11
040800 $-FILE-DEF-A                                                 12
040900     CLOSE #3(#1#)4#.                                         20
041000 #1#!A                                                        05
041100 #2#!9                                                        05
041200 $-FILE-DEF-A                                                 12
041300 $-FILE-DEF                                                   10
041400/                                                             01
041500* **********    MESSAGES    **********                        37
041600                                                              01
041700%MESSAGES SECTION.                                            17
041800 ALREADY-ON-FILE.                                             16
041900     MOVE "ERROR: Record already on file." TO MESSAGE-FIELD.  59
042000     PERFORM DISPLAY-MESSAGE.                                 28
042100 CHANGE-NOT-ALLOWED.                                          19
042200     MOVE "CHANGES NOT ALLOWED TO THESE FIELDS"               46
042300                  TO MESSAGE-FIELD.                          33
042400     PERFORM DISPLAY-MESSAGE.                                 28
042500 #200#-DELETED.                                               14
042600     MOVE "#200# RECORD DELETED" TO MESSAGE-FIELD.            49
042700     PERFORM DISPLAY-MESSAGE.                                 28
042800 #200#-IN-USE.                                                13
042900     MOVE "#200# RECORD IN USE" TO MESSAGE-FIELD.             48
043000     PERFORM DISPLAY-MESSAGE.                                 28
043100 FILE-NOT-AVAILABLE.                                          19
043200     MOVE "#200# FILE IS IN USE" TO MESSAGE-FIELD.            49
043300     PERFORM DISPLAY-MESSAGE.                                 28
043400 NOT-ON-FILE.                                                 12
043500     MOVE "RECORD NOT ON FILE" TO MESSAGE-FIELD.              47
043600     PERFORM DISPLAY-MESSAGE.                                 28
043700 NOT-PROCESSED.                                               14
043800     MOVE "NOT PROCESSED" TO MESSAGE-FIELD.                   42
043900     PERFORM DISPLAY-MESSAGE.                                 28
044000 VERIFY-#200#.                                                13
044100     MOVE "IS THIS THE RIGHT RECORD ?" TO MESSAGE-FIELD.      55
044200     PERFORM ASK-QUESTION.                                    25
```

```
044300                                                                  01
044400 Y.EQ.#300#!3                                                     12
044500 $-FILE-DEF                                                       10
044600 1#1#!6                                                           06
044700 #2#!8                                                            05
044800 #3(#1#)0#!1                                                      11
044900 $-FILE-DEF-A                                                     12
045000 #3(#1#)0#-IN-USE.                                                17
045100     MOVE "#3(#1#)0# FILE IN USE  -  TRY AGAIN LATER" TO          55
045200                                                 MESSAGE-FIELD.62
045300     PERFORM DISPLAY-MESSAGE.                                    28
045400 #1#!A                                                            05
045500 #2#!9                                                            05
045600 $-FILE-DEF-A                                                     12
045700 $-FILE-DEF                                                       10
045800/                                                                 01
045900* **********    UTILITY ROUTINES    **********                   45
046000                                                                  01
046100%UTILITY-ROUTINES SECTION.                                        25
046200     COPY "PROXI$CF01.PL".                                       25
```

End of Chapter

Chapter 5
The File Inquiry Program

This chapter describes the file inquiry program parameter file and skeleton file.

The File Inquiry Program Parameter File

The parameter file for a file inquiry program is created by PROXI$01, and updated by PROXI$20, PROXI$03, and PROXI$02.

Table 5-1 lists the line number groups for the file inquiry program parameter file. The pages that follow give specific information about each group. (For general information about parameters files, see Chapter 3.)

Table 5-1. Line Number Groups for a File Inquiry Program

Line Number Group	Contains
100	General program parameters
200	Inquiry program parameters
300	Reference file parameters
400	Screen format parameters
500	Own code parameters

The 100 Group

General program parameters

This group contains general information about the program.

Source menu: PG-2

Line #	Contents
000100	Name of the file inquiry program
000101	INQUIRY
000110	Application name
000120	Name of the next program on normal exit
000130	Name of the next program on error exit

Example

```
000100   CHECKLIST
000101   INQUIRY
000110   Display current listings
000120   LOGON
000130   LOGON
```

The 200 Group

Inquiry program parameters

This group contains information about the principal data file.

Source menu: PG-6

Line #	Contents
000200	Name of the principal data file (datafile)
000204	datafile
000205	datafile-RECORD
000206	datafile-KEY
000207	datafile-STATUS

Comments

If the user specified a variable other than datafile-RECORD as the first entry in datafile.FD, that variable name appears in line 000205. If datafile.FD does not exist, the default value for line 000205 is datafile-RECORD.

Example

```
000200  LISTDATA
000204  LISTDATA
000205  LISTDATA-RECORD
000206  LISTDATA-KEY
000207  LISTDATA-STATUS
```

The 300 Group
Reference file parameters

This group contains reference file information.

Source menus: PG-6 and PG-7

Line #	Contents
000300	Reference file flag: Y (program uses one or more reference files) N (program does not use any reference files)

If line 000300 is Y, the following group appears for each reference file.

0003n0	Name of *n*th reference file (ref-file-n)
0003n4	ref-file-n
0003n5	ref-file-n-RECORD
0003n6	ref-file-n-KEY
0003n7	ref-file-n-STATUS

Comments

The program can use up to nine reference files. Lines 000310 through 000317 refer to the first file, lines 000320 through 000327 refer to the second, and so on.

Example

```
000300  Y
000310  REFA
000314  REFA
000315  REFA-RECORD
000316  REFA-KEY
000317  REFA-STATUS
000320  REFB
000324  REFB
000325  REFB-RECORD
000326  REFB-KEY
000327  REFB-STATUS
000330  REFC
000334  REFC
000335  REFC-RECORD
000336  REFC-KEY
000337  REFC-STATUS
```

The 400 Group

Screen format parameters

This group lists the screen formats used by the program.

Source menu: PG-6

Line #	Contents
000400	Screen name 1
000410	Screen name 2
000420	Screen name 3
000430	Screen name 4

Example

```
000400  SCREEN01
000410  SCREEN02
```

The 500 Group
Own code parameters

This group contains information about the program's use of own code.

Source menu: PG-6

Line #	Contents
000500	Own code (working storage) flag: Y (program uses working storage own code) N (program does not use working storage own code)
000510	Own code (procedure division) flag: Y (program uses procedure division own code) N (program does not use procedure division own code)

Example

```
000500  N
000510  Y
```

The File Inquiry Program Skeleton File

The following is a listing of the contents of the skeleton file for a file inquiry program.

```
000100$IDENTIFICATION DIVISION.                                    24
000200%PROGRAM-ID.      #100#.                                     23
000300 AUTHOR.    AOS/VS PROXI FILE INQUIRY GENERATOR.             50
000400                                                             01
000500$ENVIRONMENT DIVISION.                                       21
000600 CONFIGURATION SECTION.                                      22
000700 SOURCE-COMPUTER. ECLIPSE.                                   23
000800*                                                            23
000900*                                                            23
001000*                                                            23
001100 OBJECT-COMPUTER. ECLIPSE.                                   23
001200*                                                            23
001300*                                                            23
001310 SPECIAL-NAMES.                                              20
001320      "@LIST" IS HARDCOPY-DEVICE.                           40
001400*                                                            23
001500%INPUT-OUTPUT SECTION.                                       21
001600 FILE-CONTROL.                                               13
001700     COPY "#200#.SL".                                       20
001800                                                            01
001900 Y,EQ,#300#!3                                                12
002000 $-FILE-DEF                                                  10
002100 1#1#!6                                                      06
002200 #2#!8                                                       05
002300 #3(#1#)0#!1                                                 11
002400 $-FILE-DEF-A                                                12
002500     COPY "#3(#1#)0#.SL".                                   24
002600 #1#!A                                                       05
002700 #2#!9                                                       05
002800 $-FILE-DEF-A                                                12
002900 $-FILE-DEF                                                  10
003000/                                                            01
003100$DATA DIVISION.                                              14
003200%FILE SECTION.                                               13
003300     COPY "#200#.FD".                                       20
003400                                                            01
003500 Y,EQ,#300#!3                                                12
003600 $-FILE-DEF                                                  10
003700 1#1#!6                                                      06
003800 #2#!8                                                       05
003900 #3(#1#)0#!1                                                 11
004000 $-FILE-DEF-A                                                12
004100     COPY "#3(#1#)0#.FD".                                   24
004200 #1#!A                                                       05
004300 #2#!9                                                       05
004400 $-FILE-DEF-A                                                12
004500 $-FILE-DEF                                                  10
```

```
004600/                                                          01
004700%WORKING-STORAGE SECTION.                                  24
004800                                                           01
004900 01 APPLICATION-NAME  PIC X(30)                           30
005000                      VALUE "#110#".                       34
005100 01 OC-STATUS  PIC 9.                                      20
005200     COPY "#200#.WS".                                      20
005300                                                           01
005400 Y,EQ,#300#!3                                               12
005500 $-FILE-DEF                                                 10
005600 1#1#!6                                                     06
005700 #2#!8                                                      05
005800 #3(#1#)0#!1                                                11
005900 $-FILE-DEF-A                                               12
006000     COPY "#3(#1#)0#.WS".                                  24
006100 #1#!A                                                      05
006200 #2#!9                                                      05
006300 $-FILE-DEF-A                                               12
006400 $-FILE-DEF                                                 10
006500                                                           01
006600 Y,EQ,#500#!3                                               12
006700 $-OC-WS                                                    07
006800                                                           01
006900     COPY "#100#.WS".                                      20
007000 $-OC-WS                                                    07
007100                                                           01
007200     COPY "PROXI$CF01.WS".                                 25
007300/                                                          01
007400%SCREEN SECTION.                                           15
007500     COPY "#400#.SD".                                      20
007600 #410#!1                                                    07
007700 $-SECOND-SCREEN                                            15
007800     COPY "#410#.SD".                                      20
007900 $-SECOND-SCREEN                                            15
008000 #420#!1                                                    07
008100 $-THIRD-SCREEN                                             14
008200     COPY "#420#.SD".                                      20
008300 $-THIRD-SCREEN                                             14
008400 #430#!1                                                    07
008500 $-FOURTH-SCREEN                                            15
008600     COPY "#430#.SD".                                      20
008700 $-FOURTH-SCREEN                                            15
008800                                                           01
008900     COPY "PROXI$CF01.SD".                                 25
```

```
009000/                                                          01
009100$PROCEDURE DIVISION.                                       19
009200%DECLARATIVES.                                             13
009300     COPY "#200#.DC".                                      20
009400                                                           01
009500 Y.EQ.#300#!3                                              12
009600 $-FILE-DEF                                                10
009700 1#1#!6                                                    06
009800 #2#!8                                                     05
009900 #3(#1#)0#!1                                               11
010000 $-FILE-DEF-A                                              12
010100     COPY "#3(#1#)0#.DC".                                  24
010200 #1#!A                                                     05
010300 #2#!9                                                     05
010400 $-FILE-DEF-A                                              12
010500 $-FILE-DEF                                                10
010600 EXIT-DECLARATIVES. EXIT.                                  24
010700 END DECLARATIVES.                                         17
010800/                                                          01
010900* **********    LEVEL 1    **********                      36
011000                                                           01
011100%MAIN-LOGIC SECTION.                                       19
011200 BEGIN.                                                    06
011300     PERFORM OPEN-#200#.                                   23
011400     IF #207# IS NOT = I-O-OK                              28
011500         GO TO ERROR-PROGRAM.                              28
011700                                                           01
011800 Y.EQ.#300#!3                                              12
011900 $-FILE-DEF                                                10
012000 1#1#!6                                                    06
012100 #2#!8                                                     05
012200 #3(#1#)0#!1                                               11
012300 $-FILE-DEF-A                                              12
012400     PERFORM OPEN-#3(#1#)0#.                               27
012500     IF #3(#1#)7# IS NOT = I-O-OK                          32
012600         GO TO ERROR-PROGRAM.                              28
012700 #1#!A                                                     05
012800 #2#!9                                                     05
012900 $-FILE-DEF-A                                              12
013000 $-FILE-DEF                                                10
013100                                                           01
013200     PERFORM GET-DATES.                                    22
013300     MOVE "INQUIRY" TO SELECTION-TYPE.                     37
013400     PERFORM INQUIRE-RECORDS.                              28
013500     PERFORM END-OF-PROGRAM.                               27
```

```
013600/                                                          01
013700* **********    LEVEL 2    **********                       36
013800                                                           01
013900%INQUIRE-RECORDS SECTION.                                  24
014400 INQUIRE-RECORDS-BEGIN.                                    22
014500     DISPLAY #400#-FORMAT-SCREEN.                          32
014600     PERFORM #400#-ENTER-KEY.                              28
014700     IF ESCAPE-CODE = ESCAPE-KEY                           31
014800         GO TO INQUIRE-RECORDS-BEGIN.                      36
014900     IF ESCAPE-CODE = END-KEY                              28
015000         GO TO INQUIRE-RECORDS-EXIT.                       35
015010     IF ESCAPE-CODE = F1-KEY-S                             29
015020         PERFORM NEAREST-#200#-RECORD.                     38
015100     IF ESCAPE-CODE = F1-KEY                               27
015200         PERFORM NEXT-#200#-RECORD                         33
015300     ELSE                                                  08
015400         PERFORM READ-#200#-RECORD.                        34
015500     IF #207# IS NOT = I-O-OK                              28
015600         GO TO INQUIRE-RECORDS-BEGIN.                      36
015700     DISPLAY #400#-DISPLAY-SCREEN.                         33
015800     PERFORM CONTINUE-MESSAGE.                             29
015805     ACCEPT ESCAPE-CODE FROM ESCAPE KEY.                   39
015810     IF ESCAPE-CODE = HARDCOPY                             29
015820        DISPLAY #400#-FORMAT-SCREEN UPON                   50
015825                              HARDCOPY-DEVICE              50
015830        DISPLAY #400#-DISPLAY-SCREEN UPON                  50
015835                              HARDCOPY-DEVICE.             50
015900     IF ESCAPE-CODE = ESCAPE-KEY                           31
016000         PERFORM NOT-PROCESSED                             29
016100         GO TO INQUIRE-RECORDS-BEGIN.                      36
016200 #410#!1                                                   07
016300 $-SECOND-SCREEN                                           15
016400     DISPLAY #410#-FORMAT-SCREEN.                          32
016500     DISPLAY #410#-DISPLAY-SCREEN.                         33
016600     PERFORM CONTINUE-MESSAGE.                             29
016605     ACCEPT ESCAPE-CODE FROM ESCAPE KEY.                   39
016610     IF ESCAPE-CODE = HARDCOPY                             30
016620        DISPLAY #410#-FORMAT-SCREEN UPON                   50
016625                              HARDCOPY-DEVICE              50
016630        DISPLAY #410#-DISPLAY-SCREEN UPON                  50
016635                              HARDCOPY-DEVICE.             50
016700     IF ESCAPE-CODE = ESCAPE-KEY                           31
016800         PERFORM NOT-PROCESSED                             29
016900         GO TO INQUIRE-RECORDS-BEGIN.                      36
017000 $-SECOND-SCREEN                                           15
```

```
017100 #420#!1                                                  07
017200 $-THIRD-SCREEN                                           14
017300     DISPLAY #420#-FORMAT-SCREEN.                         32
017400     DISPLAY #420#-DISPLAY-SCREEN.                        33
017500     PERFORM CONTINUE-MESSAGE.                            29
017505     ACCEPT ESCAPE-CODE FROM ESCAPE KEY.                  39
017510     IF ESCAPE-CODE = HARDCOPY                            30
017520        DISPLAY #420#-FORMAT-SCREEN UPON                  50
017525                              HARDCOPY-DEVICE             50
017530        DISPLAY #420#-DISPLAY-SCREEN UPON                 50
017535                              HARDCOPY-DEVICE.            50
017600     IF ESCAPE-CODE = ESCAPE-KEY                          31
017700         PERFORM NOT-PROCESSED                            29
017800         GO TO INQUIRE-RECORDS-BEGIN.                     36
017900 $-THIRD-SCREEN                                           14
018000 #430#!1                                                  07
018100 $-FOURTH-SCREEN                                          15
018200     DISPLAY #430#-FORMAT-SCREEN.                         32
018300     DISPLAY #430#-DISPLAY-SCREEN.                        33
018400     PERFORM CONTINUE-MESSAGE.                            29
018405     ACCEPT ESCAPE-CODE FROM ESCAPE KEY.                  39
018410     IF ESCAPE-CODE = HARDCOPY                            30
018420        DISPLAY #430#-FORMAT-SCREEN UPON                  50
018425                              HARDCOPY-DEVICE             50
018430        DISPLAY #430#-DISPLAY-SCREEN UPON                 50
018435                              HARDCOPY-DEVICE.            50
018500     IF ESCAPE-CODE = ESCAPE-KEY                          31
018600         PERFORM NOT-PROCESSED                            29
018700         GO TO INQUIRE-RECORDS-BEGIN.                     36
018800 $-FOURTH-SCREEN                                          15
018900     GO TO INQUIRE-RECORDS-BEGIN.                         32
019000 INQUIRE-RECORDS-EXIT.  EXIT.                             28
019100                                                         01
019200                                                         01
019300%END-OF-PROGRAM SECTION.                                  23
019400 END-OF-PROGRAM-BEGIN.                                    21
019500     DISPLAY WAIT-LINE-24.                                25
019600     PERFORM CLOSE-FILES.                                 24
019700     CALL PROGRAM "#120#".                                25
019800     STOP RUN.                                            13
019900 END-OF-PROGRAM-EXIT. EXIT.                               26
020000                                                         01
020100 ERROR-PROGRAM SECTION.                                   22
020200 ERROR-PROGRAM-BEGIN.                                     20
020300     DISPLAY WAIT-LINE-24.                                25
020400     PERFORM CLOSE-FILES.                                 24
020500     CALL PROGRAM "#130#".                                25
020600     STOP RUN.                                            13
020700 ERROR-PROGRAM-EXIT. EXIT.                                25
```

```
020800/                                                                 01
020900* **********    LEVEL 3    **********                              36
021000                                                                  01
021100     COPY "#400#.PL".                                             20
021200 #410#!1                                                          07
021300 $-SECOND-SCREEN                                                  15
021400     COPY "#410#.PL".                                             20
021500 $-SECOND-SCREEN                                                  15
021600 #420#!1                                                          07
021700 $-THIRD-SCREEN                                                   14
021800     COPY "#420#.PL".                                             20
021900 $-THIRD-SCREEN                                                   14
022000 #430#!1                                                          07
022100 $-FOURTH-SCREEN                                                  15
022200     COPY "#430#.PL".                                             20
022300 $-FOURTH-SCREEN                                                  15
022400                                                                  01
022500 Y,EQ,#510#!3                                                     12
022600 $-OC-PL                                                          07
022700     COPY "#100#.PL".                                             20
022800 $-OC-PL                                                          07
022900/                                                                 01
023000* **********    INPUT/OUTPUT ROUTINES    **********               50
023100                                                                  01
023200%I-O-SECTION SECTION.                                             20
023300 OPEN-#200#.                                                      11
023400     OPEN INPUT #204#.                                            21
023500     IF #207# = USE-ERROR                                         24
023600         PERFORM FILE-NOT-AVAILABLE.                              35
023700 READ-#200#-RECORD.                                               18
023800     READ #204# RECORD                                            21
023900                          INVALID KEY PERFORM NOT-ON-FILE.        57
024000     IF #207# = RECORD-LOCKED                                     28
024100                          PERFORM #200#-IN-USE.                   46
024200 NEXT-#200#-RECORD.                                               18
024300     READ #204# NEXT RECORD                                       26
024400                             AT END PERFORM NOT-ON-FILE.          57
024500     IF #207# = RECORD-LOCKED                                     28
024600                            PERFORM #200#-IN-USE.                 49
024700                                                                  01
024710 NEAREST-#200#-RECORD.                                            22
024720     READ #204# RECORD KEY IS #200#-KEY APPROXIMATE               51
024730                       AT END PERFORM NOT-ON-FILE.                49
024740     IF #207# = RECORD-LOCKED                                     28
024750                            PERFORM #200#-IN-USE.                 49
024760         RETRIEVE #204# KEY INTO #204#-KEY.                       43
024800 Y,EQ,#300#!3                                                     12
```

```
024900 $-FILE-DEF                                                      10
025000 1#1#!6                                                          06
025100 #2#!8                                                           05
025200 #3(#1#)0#!1                                                     11
025300 $-FILE-DEF-A                                                    12
025400 OPEN-#3(#1#)0#.                                                 15
025500     OPEN INPUT #3(#1#)4#.                                       25
025600     IF #3(#1#)7# = USE-ERROR                                    28
025700         PERFORM #3(#1#)0#-IN-USE.                               33
025800 READ-#3(#1#)0#.                                                 15
025900     READ #3(#1#)4#                                              18
026000         INVALID KEY                                             19
026100             MOVE SPACE TO #3(#1#)5#.                            36
026200 #1#!A                                                           05
026300 #2#!9                                                           05
026400 $-FILE-DEF-A                                                    12
026500 $-FILE-DEF                                                      10
026600                                                                 01
026700 CLOSE-FILES.                                                    12
026800     CLOSE #204#.                                                16
026900                                                                 01
027000 Y,EQ,#300#!3                                                    12
027100 $-FILE-DEF                                                      10
027200 1#1#!6                                                          06
027300 #2#!8                                                           05
027400 #3(#1#)0#!1                                                     11
027500 $-FILE-DEF-A                                                    12
027600     CLOSE #3(#1#)4#.                                            20
027700 #1#!A                                                           05
027800 #2#!9                                                           05
027900 $-FILE-DEF-A                                                    12
028000 $-FILE-DEF                                                      10
028100                                                                 01
028200/                                                                01
028300* **********    MESSAGES    **********                           37
028400                                                                 01
028500%MESSAGES SECTION.                                               17
028600 #200#-IN-USE.                                                   13
028700     MOVE "#200# RECORD IN USE" TO MESSAGE-FIELD.                48
028800     PERFORM DISPLAY-MESSAGE.                                    28
028900 FILE-NOT-AVAILABLE.                                             19
029000     MOVE "#200# FILE IS IN USE" TO MESSAGE-FIELD.               49
029100     PERFORM DISPLAY-MESSAGE.                                    28
029200 NOT-ON-FILE.                                                    12
029300     MOVE "RECORD NOT ON FILE" TO MESSAGE-FIELD.                 47
029400     PERFORM DISPLAY-MESSAGE.                                    28
029500 NOT-PROCESSED.                                                  14
029600     MOVE "NOT PROCESSED" TO MESSAGE-FIELD.                      42
029700     PERFORM DISPLAY-MESSAGE.                                    28
029800 CONTINUE-MESSAGE.                                               17
029900     MOVE "TYPE CR TO CONTINUE" TO MESSAGE-FIELD.                48
030000     DISPLAY CLEAR-MESSAGE.                                      26
030100     DISPLAY QUESTION-SCREEN.                                    28
030200     ACCEPT QUESTION-SCREEN.                                     27
030300     DISPLAY CLEAR-MESSAGE.                                      26
```

```
030400                                                                  01
030500 Y.EQ.#300#!3                                                     12
030600 $-FILE-DEF                                                       10
030700 1#1#!6                                                           06
030800 #2#!8                                                            05
030900 #3(#1#)0#!1                                                      11
031000 $-FILE-DEF-A                                                     12
031100 #3(#1#)0#-IN-USE.                                                17
031200     MOVE "#3(#1#)0# FILE IN USE  -  TRY AGAIN LATER" TO          55
031300                                              MESSAGE-FIELD.     62
031400     PERFORM DISPLAY-MESSAGE.                                    28
031500 #1#!A                                                            05
031600 #2#!9                                                            05
031700 $-FILE-DEF-A                                                     12
031800 $-FILE-DEF                                                       10
031900/                                                                 01
032000* **********    UTILITY ROUTINES    **********                    45
032100                                                                  01
032200%UTILITY-ROUTINES SECTION.                                        25
032300     COPY "PROXI$CF01.PL".                                       25
```

End of Chapter

Chapter 6
The Report Writer Program

This chapter describes the report writer program parameter file and skeleton file.

The Report Writer Program Parameter File

The report program parameter file is created by PROXI$01, and updated by PROXI$30, PROXI$03, PROXI$31 through PROXI$34, and PROXI$02.

Table 6-1 lists the line number groups for the report writer program parameter file. The pages that follow give specific information about each group. (For general information about parameters files, see Chapter 3.)

Table 6-1. Line Number Groups for a Report Writer Program

Line Number Group	Contains
100	General program parameters
200	Report program parameters
300	Reference file parameters
400	Printing procedure parameters
600	Sorting parameters
1000	Title parameters
2000	Legend line parameters
3000	Heading line parameters
8000	Accumulator parameters
9000	Totaling parameters
100000	Record selection parameters
200000	Detail line parameters
300000	Conditional detail line printing parameters
400000	Control break parameters
500000	Total line parameters

The 100 Group

General program parameters

This group contains general information about the program.

Source menu: PG-2

Line #	Contents
000100	Name of the report writing program
000101	REPORT
000110	Application name
000120	Name of the next program on normal exit
000130	Name of the next program on error exit

Example

```
000100  SHOWLIST
000101  REPORT
000110  Current Listings
000120  LOGON
000130  LOGON
```

The 200 Group

Report program parameters

This group contains information about the principal data file and range selection.

Source menu: PG-9

Line #	Contents
000200	Name of the principal data file (datafile)
000204	datafile
000205	datafile-RECORD
000206	datafile-KEY
000207	datafile-STATUS
000210	Key range selection flag: Y (operator can specify a range of records) N (no key range selection)
000220	Length of the key field (if line 000210 is Y): 01 to 99

Comments

If the user specified a variable other than datafile-RECORD as the first entry in datafile.FD, that variable name appears in line 000205. If datafile.FD does not exist, the default value for line 000205 is datafile-RECORD.

Example

```
000200  LISTDATA
000204  LISTDATA
000205  LISTDATA-RECORD
000206  LISTDATA-KEY
000207  LISTDATA-STATUS
000210  Y
000220  06
```

The 300 Group
Reference file parameters

This group contains reference file information.

Source menus: PG-9 and PG-10

Line #	Contents
000300	Reference file flag: Y (program uses one or more reference files) N (program does not use any reference files)

If line 000300 is Y, the following group appears for each reference file.

0003n0	Name of *n*th reference file (ref-file-n)
0003n2	Field used to access ref-file-n
0003n4	ref-file-n
0003n5	ref-file-n-RECORD
0003n6	ref-file-n-KEY
0003n7	ref-file-n-STATUS

Comments

The program can use up to nine reference files. Lines 000310 through 000317 refer to the first file, lines 000320 through 000327 refer to the second, and so on.

Normally, the record key field is taken from the principal data file. It can, however, be an accumulator or a field from a previously read reference file.

Example

```
000300  Y
000310  REF01
000312  LIST-CODE
000314  REF01
000315  REF01-RECORD
000316  REF01-KEY
000317  REF01-STATUS
000320  REF02
000322  MAP-NO
000324  REF02
000325  REF02-RECORD
000326  REF02-KEY
000327  REF02-STATUS
```

The 400 Group

Printing procedure parameters

This group describes printing procedures for the report program.

Source menu: PG-12

Line #	Contents
000400	Print or spool option: P (direct report to printer) S (direct report to spool file) O (request operator decision)
000410	Spool file name
000420	Page width (number of print columns per page): 080 or 132
000430	Number of print lines per page: 00 to 99
000440	Runtime information flag: Y (print runtime information on each page) N (do not print runtime information)

Example

```
000400  0
000410  SPOOLIST
000420  080
000430  60
000440  N
```

The 600 Group
Sorting parameters

This group describes the keys for sorting the data file.

Source menu: PG-11

Line #	Contents
000600	Sort flag: Y (sort the principal data file before printing report) N (do not sort the principal data file)

If line 000600 is Y, this line format appears for each key:

0006nn	Specification for key nn: Key field name (starts in column 13) Key's picture (starts in column 43)
000620	Picture of the record key used to access the principal data file

Comments

The program may use up to ten key fields to sort the principal data file. Line 000601 identifies the first field, line 000602 identifies the second, and so on.

The pictures for the sort keys are taken from the file descriptor entries for the principal data file (datafile.FD).

For more information about the format of the sort key parameter, see Chapter 3.

Example

```
000600  Y
000601      TOWN                        X(12)
000602      CURRENT-PRICE               9(6)
000603      LISTDATA-KEY                9(5)
000620  9(5)
```

The 1000 Group
Title parameters

This group contains the text of the report title.

Source menu: PG-12

Line #	Contents
001000	First group of 30 characters
001010	Second group of 30 characters
001020	Third group of 30 characters (only for 132-column reports)

Comments

The title is divided into three groups of 30 characters each. If the page width is 80 characters, the title can be up to 60 characters long. The third line, then, is used only for reports whose page width is 132 columns.

Example

```
001000   BIRKS & ABERGELDIE REAL ESTATE
001010    COMPANY
```

The 2000 Group
Legend line parameters

This group contains information about legend lines.

Source menus: PG-12 and PG-13

Line #	Contents
002000	Legend lines flag: Y (report includes legend lines) N (report does not include legend lines)

If line 002000 is Y, the following lines appear:

002010	Number of legend lines to print on page two and all subsequent pages
002n00	First group of 33 characters in legend line n
002n10	Second group of 33 characters in legend line n
002n20	Third group of 33 characters in legend line n
002n30	Fourth group of 33 characters in legend line n

Comments

The program can print up to nine legend lines. Lines 002100 through 002130 contain the text of the first legend line, lines 002200 through 002230 contain the text of the second, and so on.

Unused lines do not appear in the parameter file; unused spaces (if any) in the last group are padded with blanks.

Example

```
002000  Y
002010  0
002100  This report shows the active list
002110  ings for this office.
002200  For information about old listing
002210  s, see the Blue Book.
```

This group contains information about heading lines.

Source menus: PG-12 and PG-14

Line #	Contents
003000	Heading lines flag: Y (the report includes heading lines) N (the report does not use heading lines)
003n00	First group of 33 characters for heading line n
003n10	Second group of 33 characters for heading line n
003n20	Third group of 33 characters for heading line n
003n30	Fourth group of 33 characters for heading line n

Comments

The program can print up to nine heading lines. Lines 003100 through 003130 contain the text of the first legend line, lines 003200 through 003230 contain the text of the second, and so on.

Unused lines do not appear in the parameter file; unused spaces (if any) in the last group are padded with blanks.

Example

```
003000  Y
003100  ^^^^^^Town^^^^^^^^Listing^^^^^^^^
003110  ^Description^^^^^^^^^^^^^^^^Price^
003200  ^^^^^^----^^^^^^^^-------^^^^^^^^
003210  ^-----------^^^^^^^^^^^^^^^-----^
```

(In this example, we use a caret to show where a blank appears.)

The 8000 Group

Accumulator parameters

This group contains information about the accumulators used for computation.

Source menus: PG-19 and PG-23

Line #	Contents
0080xx	Picture for accumulator Axx (A01 to A99): S9(11)V9(6)
008100	Number of accumulators used in the program: 01 to 09
00810n	Number of *n*th accumulator: 01 to 99

Comments

The program can use up to nine accumulators. Line 008101 specifies the first accumulator used, line 008102 specifies the second, and so on.

Example

```
008003   S9(11)V9(6)          (Picture for accumulator A03)
008005   S9(11)V9(6)          (Picture for accumulator A05)
008100   02                   (The program uses two accumulators)
008101   05                   (First accumulator used is A05)
008102   03                   (Second accumulator used is A03)
```

The 9000 Group
Totaling parameters

This group contains information about totaling and total fields.

Source menus: PG-22 and PG-23

Line #	Contents
009000	Level where totaling starts: 0 (start at detail line) 01 to 99 (start at the specified control break)
0090xx	Number of fields to be printed in total line xx: 01 to 99
0091yy	Print format for total field number yy

Comments

The program can contain up to 99 total lines, numbered 01 through 99. Line 009001 reports the number of fields in the first total line, line 009002 reports the number of fields in the second, and so on.

The program can have up to 99 print fields in all total lines. Lines 009101 gives the print format for the first field, line 009102 gives the print format for the second field (regardless of the total line), and so on.

The number of the total line bears no relation to the number of the detail line. If, for example, detail lines 01, 03, and 05 contain total fields, they generate total lines 01, 02, and 03, respectively.

Example

```
009000   0             (Totaling starts at detail line)
009001   02            (Two fields in total line 01)
009002   01            (One field in total line 02)
009101   $Z,ZZ9.999    (Print format for total field 01)
009102   99V99         (Print format for total field 02)
009103   9999V9        (Print format for total field 03)
```

The 100000 Group
Record selection parameters

This group describes conditions for record selection.

Source menus: PG-15 and PG-16

Line #	Contents
100000	Record selection flag: Y (record selection used) N (record selection not used)
1xx000	Number of the first detail line controlled by record selection group xx: 001 to 099

The following pair of lines describes test yy within record selection group xx:

1xxyy0	Logical operator, field-1, and conditional operator
1xxyy2	Field-2

Comments

The program can include up to 99 groups of record selection criteria. Each group can contain up to 99 logical tests.

Lines 101010 and 101012, for example, define the first logical test in the first record selection group; lines 101020 and 101022 define the second test in the first group, and so on.

Lines 199010 and 199012 describe the first logical test in the 99th record selection group.

Chapter 3 describes the format used to specify the first three elements of a logical test.

Example

```
100000  Y
101000  001
101010  IF PART-NUMBER              >
101012  5000
101020  ANDCLASS                    NOT =
101022  OLD-PART
102000  005
102010  IF ON-ORDER-FLAG            =
102012  Y
```

The 200000 Group
Detail line parameters

This group describes the detail lines and their fields.

Source menus: PG-17 and PG-19

Line #	Contents
2xx000	Number of blank lines before detail line xx: 0 to 9, P, or T
2xx002	Number of blank lines after detail line xx: 0 to 9, P, T, or *
2xx004	Conditional printing flag for detail line xx: Y (print this line only on certain conditions) N (no printing conditions)
2xxyy0	Specification for field yy in detail line xx

Comments

The program can print up to 99 detail lines. Each detail line can contain up to 99 print fields. In the line number formats, xx represents the detail line number (01 to 99). And yy represents the field number (01 to 99) within the specified line.

The field specification includes the field's starting column number, the field name or constant, the print format, and the printing length. For numeric fields, a computation symbol and accumulator name may appear.

(Chapter 3 describes the field specification format.)

Example

```
201000  0
201002  *
201004  Y
201010  070"REDUCED"                X(7)            007
202000  0
202002  0
202004  N
202010  005TOWN                     X(12)           012
202020  020LISTDATA-KEY             ZZZZ9           005
202030  028DESCRIPTION              X(30)           030
202040  061CURRENT-PRICE            $Z,ZZ9.999      010T
202050  040ORIGINAL-PRICE           9(6)            006+A04
```

The 300000 Group
Conditional detail line printing parameters

This group describes the conditions for printing detail lines.

Source menu: PG-18

Line #	Contents
3xx000	Number of the detail line controlled by condition xx: 001 to 099

The following pair of lines describes test yy within condition xx:

3xxyy0	Logical operator, field-1, conditional operator
3xxyy2	Field-2

Comments

The program can include up to 99 groups of printing conditions for printing detail lines. Each group can contain up to 99 logical tests. Lines 301010 and 301012, for example, define the first logical test within the first condition group; lines 301020 and 301022 define the next logical test in that group.

Lines 399010 and 399012 define the first logical test in the 99th conditional group.

Chapter 3 describes the format used to specify the first three elements of a logical test.

Example

```
301000   001
301010   IF CURRENT-PRICE
301012   ORIGINAL-PRICE
```

The 400000 Group
Control break parameters

This group describes control break fields and total fields.

Source menu: PG-21

Line #	Contents
4xx000	Number of first total line under control break xx: 001 to 099
4xx002	Name of the field for control break xx
4xx004	Number of blank lines after total line for control break xx: 0 to 9, P, or T
4xx006	Print format for the field named in 4xx002

Comments

The program can include up to 99 control breaks.

Lines 401000 through 401006 refer to the first control break, lines 402000 through 402006 refer to the second, and so on.

Example

```
401000  001
401002  TOWN
401004  2
401006  X(12)
402000  003
402002  EOF
402004  T
402006  X
```

The 500000 Group
Total line parameters

This group describes the fields in the total lines and specifies the number of blank lines to be printed before each total line.

Source menu: PG-22 and PG-23

Line #	Contents
5xx000	Number of blank lines before total line xx: 0 to 9, T, or P
5xxyy0	Specification for field yy in total line xx

Comments

This group is for specifying additional information for the total lines. It appears only when the user enters additional information after specifying the control breaks. When the program encounters a control break, it prints the number of total lines that have been generated by the T computation option.

This group specifies extra information that has to be printed on the total lines. It also specifies additional lines to be printed as a result of the control break. If you refer to the previous group (400000), you will see that line 401000 (control break 01) causes the control break to use the additional total lines, starting with total line 01.

When the end-of-file control break occurs, the program performs both control breaks and prints the last set of totals for control break 01, and the grand totals for the entire report, using the additional total information line 03 (as shown below in lines 503000 and 503010).

(Chapter 3 describes the format used to specify a print field.)

Example

```
501000  1
501010  032"Total value for this town."  X(26)            026
502000  1
502010  005LISTING-COUNT                 99               002=A99
503000  5
503010  001TOTAL-ALL-LISTINGS            $ZZ,Z99,999      011
```

The Report Writer Program Skeleton File

The following is a listing of the contents of the skeleton file for a report writer program.

```
000100$IDENTIFICATION DIVISION.                                    24
000200%PROGRAM-ID.      #100#.                                     23
000300 AUTHOR.   AOS/VS PROXI FILE REPORT GENERATOR.               50
000400                                                             01
000500$ENVIRONMENT DIVISION.                                       21
000600 CONFIGURATION SECTION.                                      22
000700 SOURCE-COMPUTER. ECLIPSE.                                   23
000800*                                                            23
000900*                                                            23
001000*                                                            23
001100 OBJECT-COMPUTER. ECLIPSE.                                   23
001200*                                                            23
001300*                                                            23
001400*                                                            23
001500%INPUT-OUTPUT SECTION.                                       21
001600                                                             01
001700 FILE-CONTROL.                                               13
001800                                                             01
001900     COPY "PROXI$CF03.SL".                                   25
002000     COPY "PROXI$CF04.SL".                                   25
002100                                                             01
002200     COPY "#200#.SL".                                        20
002300                                                             01
002400 Y,EQ,#300#!3                                                12
002500 $-FILE-DEF                                                  10
002600 1#1#!6                                                      06
002700 #2#!8                                                       05
002800 #3(#1#)0#!1                                                 11
002900 $-FILE-DEF-A                                                12
003000     COPY "#3(#1#)0#.SL".                                    24
003100 #1#!A                                                       05
003200 #2#!9                                                       05
003300 $-FILE-DEF-A                                                12
003400 $-FILE-DEF                                                  10
003500                                                             01
003600 Y,EQ,#600#!3                                                12
003700 $-SORTFILE-DEF                                              14
003800      SELECT SORTFILE                                        20
003900          ASSIGN TO DISK     SORTFILE-NAME                   41
004000          ORGANIZATION IS INDEXED                            32
004100          ACCESS MODE IS DYNAMIC                             31
004200          RECORD KEY IS   SORTFILE-KEY                       37
004300          FILE STATUS IS SORTFILE-STATUS.                    40
004400 $-SORTFILE-DEF                                              14
```

```
004500/                                                    01
004600$DATA DIVISION.                                      14
004700%FILE SECTION.                                       13
004800     COPY "PROXI$CF03.FD".                           25
004900     COPY "PROXI$CF04.FD".                           25
005000                                                     01
005100     COPY "#200#.FD".                                20
005200                                                     01
005300 Y,EQ,#300#!3                                         12
005400 $-FILE-DEF                                          10
005500 1#1#!6                                              06
005600 #2#!8                                               05
005700 #3(#1#)0#!1                                         11
005800 $-FILE-DEF-A                                        12
005900     COPY "#3(#1#)0#.FD".                            24
006000 #1#!A                                               05
006100 #2#!9                                               05
006200 $-FILE-DEF-A                                        12
006300 $-FILE-DEF                                          10
006400                                                     01
006500 Y,EQ,#600#!3                                         12
006600 $-SORTFILE-DEF                                      14
006700  FD SORTFILE                                        12
006900       LABEL RECORDS ARE STANDARD.                   33
007000  01 SORTFILE-RECORD.                                20
007100     05 SORTFILE-KEY.                                20
007200 1#1#!6                                              06
007300 #7#!8                                               05
007400 600,+,#1#!5#3#!6                                    16
007500 #(#3#)#!1                                           09
007600 $-SORT-KEY-DEF                                      14
007700 #!BSORT-KEY                                         11
007800         10 SORTFILE-KEY-#1#   PIC #'2#.            39
007900 #1#!A                                               05
008000 #7#!9                                               05
008100 $-SORT-KEY-DEF                                      14
008200         10 SORTFILE-KEY-KEY  PIC #620#.            39
008300     05 SORTFILE-DATA  PIC XX.                       29
008400 $-SORTFILE-DEF                                      14
```

```
008500/                                                          01
008600$WORKING-STORAGE SECTION.                                  24
008700%                                                          01
008800     COPY "#200#.WS".                                      20
008900                                                           01
009000 Y,EQ,#300#!3                                              12
009100 $-FILE-DEF                                                10
009200 1#1#!6                                                    06
009300 #2#!8                                                     05
009400 #3(#1#)0#!1                                               11
009500 $-FILE-DEF-A                                              12
009600     COPY "#3(#1#)0#.WS".                                  24
009700 #1#!A                                                     05
009800 #2#!9                                                     05
009900 $-FILE-DEF-A                                              12
010000 $-FILE-DEF                                                10
010100                                                           01
010200 Y,EQ,#600#!3                                              12
010300 $-SORTFILE-DEF                                            14
010400  01  SORTFILE-STATUS         PIC XX  VALUE SPACES.       50
010500  01  SORTFILE-NAME.                                      19
010600      10  FILLER              PIC X(8)  VALUE "SORTFILE". 56
010700      10  SORTFILE-LINE-NO PIC 99.                        32
010800                                                           01
010900 01 PASS-FLAG   PIC 9  VALUE 1.                           30
011000 $-SORTFILE-DEF                                            14
011100                                                           01
011200     COPY "PROXI$CF01.WS".                                25
011300     COPY "PROXI$CF04.WS".                                25
011400                                                           01
011500%01 APPLICATION-NAME  PIC X(30)                            30
011600             VALUE "#110#".                               26
011700%                                                          01
011800 Y,EQ,#210#!3                                              12
011900 $-KEY-SELECT                                              12
012000 01 STARTING-KEY  PIC X(#220#).                           30
012100 01 ENDING-KEY.                                           14
012200     10 FILLER                    PIC X(#220#).           45
012300     10 ENDING-KEY-HIGH-VALUE     PIC X.                  38
012400 01 PRINTOUT-SELECTION  PIC X(#220#)  VALUE SPACES.        50
012500 $-KEY-SELECT                                              12
012600                                                           01
012700 01 SPOOL-CODE  PIC X  VALUE "#400#".                     36
012800                                                           01
012900 #410#!7#1#!6                                              12
013000 8,LT,#1#!4                                                10
013100 $-SPOOL-FILE-NAME-LENGTH-9-OR-10                          32
013200 10#1#!6                                                   07
013300 $-SPOOL-FILE-NAME-LENGTH-9-OR-10                          32
```

```
013400%01 SPOOLER-FILE-NAME.                                          21
013500     10 FILLER             PIC X(#1#) VALUE "#410#".          51
013600     10 SPOOL-LINE-NUMBER  PIC 99.                            33
013700                                                              01
013800 01 PAGE-WIDTH  PIC 999  VALUE #420#.                         36
013900                                                              01
014000 01 PAGE-DEPTH   PIC 99  VALUE #430#.                         36
014100                                                              01
014200 #1000#!1                                                      08
014300 $-REP-TITLE                                                   11
014400                                                              01
014500 #1000#!7#1#!6                                                 13
014600 #1010#!1                                                      08
014700 $-01                                                          04
014800 #1010#!7,+,30#!5#1#!6                                         21
014900 $-01                                                          04
015000 #1020#!1                                                      08
015100 $-02                                                          04
015200 #1020#!7,+,60#!5#1#!6                                         21
015300 $-02                                                          04
015400 #420#,-,#1#!5,/,2#!5#2#!6                                     25
015500%01 REPORT-TITLE.                                              16
015600     10 FILLER  PIC X(#2#) VALUE SPACES.                       39
015700 0#3#!6                                                        06
015800 60,LT,#1#!4                                                   11
015900 $-03                                                          04
016000     10 FILLER  PIC X(30) VALUE                                30
016100      "#1000#".                                               14
016200 1#3#!6                                                        06
016300 #1#,-,30#!5#1#!6                                              16
016400 $-03                                                          04
016500 30,LT,#1#!4                                                   11
016600 $-04                                                          04
016700     10 FILLER  PIC X(30) VALUE                                30
016800      "#10(#3#)0#".                                           18
016900 #3#!A                                                         05
017000 #1#,-,30#!5#1#!6                                              16
017100 $-04                                                          04
017200     10 FILLER  PIC X(#1#)  VALUE                              32
017300      "#10(#3#)0#".                                           18
017400 $-REP-TITLE                                                   11
017500                                                              01
017600 Y,EQ,#2000#!3                                                 13
017700 $-LEGENDS                                                     09
```

```
017800                                                                  01
017900%01 LEGENDS.                                                      11
018000 1#5#!6                                                           06
018100 #6#!8                                                            05
018200     10 LEGEND-#5#.                                               18
018300 0#7#!6                                                           06
018400 #8#!8                                                            05
018500         20 FILLER  PIC X(33)  VALUE                              35
018600 #2(#5#)(#7#)0##3#!6                                              19
018700  ,NE,#3#!3                                                       10
018800 $-LEG-NOT-SPACE                                                  15
018900                              "#3#".                              31
019000 $-LEG-NOT-SPACE                                                  15
019100  ,EQ,#3#!3                                                       10
019200 $-LEG-SPACE                                                      11
019300                              SPACE.                              31
019400 $-LEG-SPACE                                                      11
019500 #7#!A                                                            05
019600 #7#,LE,3#!4                                                      11
019700 $-LEG-01                                                         08
019800 #8#!9                                                            05
019900 $-LEG-01                                                         08
020000 #5#!A                                                            05
020100 #2(#5#)00#!1                                                     12
020200 $-LEG-02                                                         08
020300 #6#!9                                                            05
020400 $-LEG-02                                                         08
020500 #2(#5#)10#!1                                                     12
020600 $-LEG-03                                                         08
020700 #6#!9                                                            05
020800 $-LEG-03                                                         08
020900 #2(#5#)20#!1                                                     12
021000 $-LEG-04                                                         08
021100 #6#!9                                                            05
021200 $-LEG-04                                                         08
021300 #2(#5#)30#!1                                                     12
021400 $-LEG-05                                                         08
021500 #6#!9                                                            05
021600 $-LEG-05                                                         08
021700                                                                  01
021800 #5#,-,1#!5#5#!6                                                  15
```

```
021900 01 LEGEND-TABLE REDEFINES LEGENDS.                          34
022000     10 LEGEND-LINE  OCCURS #5# TIMES                       36
022100                 INDEXED BY LEGEND-INDEX                    39
022200                            PIC X(132).                     38
022300 01 LEGENDS-TO-PRINT   PIC 9 VALUE #5#.                      38
022400 #2010#,LT,#5#!4                                            15
022500 $-LEG-06                                                   08
022600 #2010##5#!6                                                11
022700 $-LEG-06                                                   08
022800 01 LEGENDS-FROM-PAGE-2-ONWARD  PIC 9 VALUE #5#.             47
022900                                                            01
023000 $-LEGENDS                                                  09
023100 Y,NE,#2000#!3                                              13
023200 $-NO-LEGENDS                                               12
023300                                                            01
023400 01 LEGEND-TABLE.                                          16
023500     10 LEGEND-LINE  OCCURS 1 TIMES                         34
023600                 INDEXED BY LEGEND-INDEX                    39
023700                            PIC X.                          33
023800 01 LEGENDS-TO-PRINT   PIC 9 VALUE ZERO.                    39
023900 01 LEGENDS-FROM-PAGE-2-ONWARD  PIC 9 VALUE ZERO.           48
024000                                                            01
024100 $-NO-LEGENDS                                               12
024200                                                            01
024300 Y,EQ,#3000#!3                                              13
024400 $-HEADERS                                                  09
024500                                                            01
024600%01 HEADERS.                                                11
024700 1#5#!6                                                     06
024800 #6#!8                                                      05
024900     10 HEADER-#5#.                                         18
025000 0#7#!6                                                     06
025100 #8#!8                                                      05
025200         20 FILLER  PIC X(33)  VALUE                       35
025300 #3(#5#)(#7#)0##3#!6                                        19
025400  ,NE,#3#!3                                                10
025500 $-HED-NOT-SPACE                                            15
025600                            "#3#".                          31
025700 $-HED-NOT-SPACE                                            15
025800  ,EQ,#3#!3                                                10
025900 $-HED-SPACE                                                11
026000                            SPACE.                          31
026100 $-HED-SPACE                                                11
```

```
026200 #7#!A                                                    05
026300 #7#,LE,3#!4                                              11
026400 $-HED-01                                                 08
026500 #8#!9                                                    05
026600 $-HED-01                                                 08
026700 #5#!A                                                    05
026800 #3(#5#)00#!1                                             12
026900 $-HED-02                                                 08
027000 #6#!9                                                    05
027100 $-HED-02                                                 08
027200 #3(#5#)10#!1                                             12
027300 $-HED-03                                                 08
027400 #6#!9                                                    05
027500 $-HED-03                                                 08
027600 #3(#5#)20#!1                                             12
027700 $-HED-04                                                 08
027800 #6#!9                                                    05
027900 $-HED-04                                                 08
028000 #3(#5#)30#!1                                             12
028100 $-HED-05                                                 08
028200 #6#!9                                                    05
028300 $-HED-05                                                 08
028400                                                         01
028500 #5#,-,1#!5#5#!6                                          15
028600 01 HEADER-TABLE REDEFINES HEADERS.                       34
028700     10 HEADER-LINE OCCURS #5# TIMES                      35
028800             INDEXED BY HEADER-INDEX                     35
028900                        PIC X(132).                      34
029000 01 HEADERS-TO-PRINT  PIC 9 VALUE #5#.                    37
029100                                                         01
029200 $-HEADERS                                                09
029300 Y,NE,#3000#!3                                            13
029400 $-NO-HEADERS                                             12
029500                                                         01
029600 01 HEADER-TABLE.                                        16
029700     10 HEADER-LINE OCCURS 1 TIMES                        33
029800             INDEXED BY HEADER-INDEX                     35
029900                        PIC X.                           30
030000 01 HEADERS-TO-PRINT  PIC 9 VALUE ZERO.                   38
030100                                                         01
030200 $-NO-HEADERS                                             12
030300                                                         01
030400 Y,EQ,#100000#!3                                          15
030500 $-RECORD-SELECTION                                       18
030600 01 RECORD-SELECTION       PIC X   VALUE SPACE.          46
030700 $-RECORD-SELECTION                                       18
```

```
030800                                                                  01
030900     COPY "PROXI$CF03.WS".                                        25
031000                                                                  01
031100 0#8#!6                                                           06
031200 1#1#!6                                                           06
031300 200#10#!6                                                        09
031400 DETAIL#9#!6                                                      11
031500 #7#!8                                                            05
031600 #10#,+,#1#!5#3#!6                                                17
031700 #(#3#)000#!1                                                     12
031800 $-LINE-DEF                                                       10
031900 #1#01,+,#10#00#!5#3#!6                                           22
032000 #(#3#)0#!1                                                       10
032100 $-LINE-FIELDS                                                    13
032200%01 #9#-LINE-#1#                                                  15
032300                     REDEFINES PRINT-LINE.                        41
032400 1#2#!6                                                           06
032500 1#4#!6                                                           06
032600 #5#!8                                                            05
032700 #2#,+,#1#00#!5,+,#10#00#!5#3#!6                                  31
032800 #(#3#)0#!1                                                       10
032900 $-FIELD-DEF                                                      11
033000 #!BFIELD                                                         08
033100 999,NE,#'1#!3                                                    13
033200 $-PRINT-FIELD                                                    13
033300 #4#,LT,#'1#!4                                                    13
033400 $-01                                                             04
033500 #'1#,-,#4#!5#6#!6                                                17
033600     05 FILLER  PIC X(#6#).                                       26
033700 $-01                                                             04
033800     05 #9#-#1#-FIELD-#2#  PIC #'3#.                              35
033900 T,EQ,#'5#!3                                                      11
034000 $-TOTAL-REDEF                                                    13
034100 #8#!A                                                            05
034200     05 PRINT-TOTAL-#8#  REDEFINES #9#-#1#-FIELD-#2#              51
034300                              PIC #'3#.                          39
034400 $-TOTAL-REDEF                                                    13
034500 #'1#,+,#'4#!5#4#!6                                               18
034600 $-PRINT-FIELD                                                    13
034700 #2#!A                                                            05
034800 #5#!9                                                            05
034900 $-FIELD-DEF                                                      11
035000 1,EQ,#4#!3                                                       10
035100 $-NO-FIELDS                                                      11
035200     05 FILLER    PIC X.                                         23
035300 $-NO-FIELDS                                                      11
```

```
035400 #1#!A                                                          05
035500 #7#!9                                                          05
035600 $-LINE-FIELDS                                                  13
035700 $-LINE-DEF                                                     10
035800 200,EQ,#10#!4                                                  13
035900 $-TOTAL-DEF                                                    11
036000 1#1#!6                                                         06
036100 500#10#!6                                                      09
036200 TOTAL#9#!6                                                     10
036300 #7#!9                                                          05
036400 $-TOTAL-DEF                                                    11
036500                                                                01
036600 40100#1#!6                                                     10
036700 0#2#!6                                                         06
036800 0#4#!6                                                         06
036900 #3#!8                                                          05
037000 #(#1#)0#!1                                                     10
037100 $-CB-COUNT                                                     10
037200 #2#!A                                                          05
037300 EOF,NE,#(#1#)2#!3                                              17
037400 $-CB-KEY                                                       08
037500 0,EQ,#4#!3                                                     10
037600 $-CB-1                                                         06
037700 01 TOTAL-KEYS.                                                 14
037800 1#4#!6                                                         06
037900 $-CB-1                                                         06
038000     10 TOTAL-KEY-#2#           VALUE LOW-VALUES.              48
038100         20 FILLER    PIC #(#1#)6#.                            34
038200 $-CB-KEY                                                       08
038300 100,+,#1#!5#1#!6                                               16
038400 #3#!9                                                          05
038500 $-CB-COUNT                                                     10
038600 #2##9200#!6                                                    11
038700                                                                01
038800 0,LT,#2#!4                                                     10
038900 $-TOTAL-DEFINE                                                 14
039000 01 TOTAL-SUB  PIC 99.                                         21
039100 01 TOTAL-MAX  PIC 99  VALUE #2#.                              32
039200 01 TOTALS    VALUE ZERO.                                       24
039300     10 TOTALS-LEVEL  OCCURS #2# TIMES.                        38
039400 1#1#!6                                                         06
039500 #7#!8                                                          05
039600 9100,+,#1#!5#3#!6                                              17
039700 #(#3#)#!1                                                      09
039800 $-TOTAL                                                        07
039900         20 TOTAL-#1#  PIC #(#3#)#.                            34
040000 #1#!A                                                          05
040100 #7#!9                                                          05
040200 $-TOTAL                                                        07
```

```
040300 1,EQ,#1#!3                                                      10
040400 $-DUMMY-TOTAL-DEFINE                                            20
040500         20 TOTAL-1  PIC 9.                                      26
040600 $-DUMMY-TOTAL-DEFINE                                            20
040700 $-TOTAL-DEFINE                                                  14
040800                                                                 01
040900 0,LT,#8100#!4                                                   13
041000 $-DEFINE-ACCUMULATORS                                           21
041100 #8100##2#!6                                                     11
041200 1#1#!6                                                          06
041300 #5#!8                                                           05
041400 8100,+,#1#!5#3#!6                                               17
041500 #(#3#)##3#!6                                                    12
041600 8000,+,#3#!5#4#!6                                               17
041700 01 A#3#  PIC #(#4#)#   VALUE ZERO.                              34
041800 #1#!A                                                           05
041900 #1#,LE,#2#!4                                                    12
042000 $-MORE                                                          06
042100 #5#!9                                                           05
042200 $-MORE                                                          06
042300 $-DEFINE-ACCUMULATORS                                           21
042400/                                                                01
042500$SCREEN SECTION.                                                 15
042600%                                                                01
042700     COPY "PROXI$CF01.SD".                                        25
042800     COPY "PROXI$CF03.SD".                                        25
042900                                                                 01
043000 Y,EQ,#210#!3                                                    12
043100 $-KEY-SELECT                                                    12
043200 01 START-END-SCREEN.                                           20
043300     03 BLANK SCREEN.                                            20
043400     03  LINE 1  COL 1  PIC X(30)                                32
043500                        FROM APPLICATION-NAME.                   45
043600     03  LINE 10 COL 20     "PLEASE ENTER".                      42
043700     03  LINE 12 COL 25     "STARTING KEY".                      42
043800     03  START-ENTRY  LINE 12 COL 39 PIC X(#220#)                48
043900                              TO STARTING-KEY.                   45
044000     03  LINE 14 COL 25     "ENDING KEY".                        40
044100     03  END-ENTRY LINE 14 COL 39 PIC X(#220#)                   45
044200                              TO ENDING-KEY.                     43
044300                                                                 01
044400 01 START-END-DEFAULT-SCREEN.                                    28
044500     03 LINE 12 COL 39  "ALL"  BLANK LINE.                        41
044600                                                                 01
044700 01 START-END-SCREEN-END.                                        24
044800     03 LINE 12 COL 39  "END"  BLANK LINE.                        41
044900 $-KEY-SELECT                                                    12
```

```
045000/                                                          01
045100$PROCEDURE DIVISION.                                       19
045200%DECLARATIVES.                                             13
045300                                                           01
045400     COPY "PROXI$CF03.DC".                                 25
045500     COPY "PROXI$CF04.DC".                                 25
045600                                                           01
045700     COPY "#200#.DC".                                      20
045800                                                           01
045900 Y,EQ,#300#!3                                               12
046000 $-FILE-DEF                                                10
046100 1#1#!6                                                    06
046200 #2#!8                                                     05
046300 #3(#1#)0#!1                                               11
046400 $-FILE-DEF-A                                              12
046500     COPY "#3(#1#)0#.DC".                                  24
046600 #1#!A                                                     05
046700 #2#!9                                                     05
046800 $-FILE-DEF-A                                              12
046900 $-FILE-DEF                                                10
047000                                                           01
047100 Y,EQ,#600#!3                                               12
047200 $-SORTFILE-DEF                                            14
047300  SORTFILE-ERROR SECTION.                                  24
047400                  USE AFTER ERROR PROCEDURE ON SORTFILE.   55
047500  PROCESS-SORTFILE-ERROR.                                  24
047600      IF SORTFILE-STATUS = HARDWARE-ERROR OR               43
047800         SORTFILE-STATUS = DISK-FULL OR                    38
047900         SORTFILE-STATUS = OVER-LOCK-LIMIT                 41
048000         MOVE SORTFILE-STATUS TO FILE-ERROR-STATUS         49
048100         MOVE "SORTFILE" TO FILE-ERROR-NAME                42
048200         DISPLAY FILE-ACCESS-ERROR-SCREEN                  40
048300         STOP RUN.                                         17
048400 $-SORTFILE-DEF                                            14
048500                                                           01
048600 END DECLARATIVES.                                         17
```

```
048700/                                                          01
048800* **********    LEVEL 1    **********                       36
048900                                                           01
049000%MAIN-LOGIC SECTION.                                       19
049100 BEGIN.                                                    06
049200     PERFORM OPEN-FILES.                                   23
049300 PRINT-RECORDS.                                            14
049400 Y,EQ,#210#!3                                              12
049500 $-KEY-SELECT                                              12
049600     PERFORM SELECT-RANGE.                                 25
049700     IF ESCAPE-CODE = END-KEY                              28
049800             GO TO END-OF-REPORT.                          32
049900 $-KEY-SELECT                                              12
050000 Y,EQ,#600#!3                                              12
050100 $-SORTING                                                 09
050200     DISPLAY WAIT-PROCESSING.                              28
050300     PERFORM OPEN-SORTFILE.                                26
050400     IF SORTFILE-STATUS IS NOT = I-O-OK                    38
050500         PERFORM CALL-ERROR-PROGRAM.                       35
050600 $-SORTING                                                 09
050700 N,EQ,##!3                                                 09
050800 $-NO-SORTING                                              12
050900     DISPLAY WAIT-PRINTING.                                26
051000 $-NO-SORTING                                              12
051100     PERFORM PRINT-THE-LINES.                              28
051200 Y,EQ,#600#!3                                              12
051300 $-SORTFILE-DEF                                            14
051400     PERFORM CLOSE-SORTFILE.                               27
051500 $-SORTFILE-DEF                                            14
051600 Y,EQ,#210#!3                                              12
051700 $-KEY-SELECT                                              12
051800     IF PRINTOUT-SELECTION IS NOT = "ALL"                  40
051900         PERFORM LINE-FEED 4 TIMES                         33
052000 Y,EQ,#600#!3                                              12
052100 $-SORTING                                                 09
052200         MOVE 1 TO PASS-FLAG                               27
052300 $-SORTING                                                 09
052400 #401000#!1                                                10
052500 $-CONTROL-BREAK                                           15
052600 EOF,NE,#401002#!3                                         17
052700 $-NOT-EOF-ONLY                                            14
052800         MOVE LOW-VALUES TO TOTAL-KEYS                     37
052900 $-NOT-EOF-ONLY                                            14
053000 $-CONTROL-BREAK                                           15
053100         GO TO PRINT-RECORDS.                              28
053200 $-KEY-SELECT                                              12
053300     PERFORM LINE-FEED 2 TIMES.                            30
053400 END-OF-REPORT.                                            14
053500     PERFORM TOP-OF-FORM.                                  24
053600     DISPLAY WAIT-PROCESSING.                              28
053700     PERFORM CLOSE-FILES.                                  24
053800     PERFORM CALL-NEXT-PROGRAM.                            30
053900     STOP RUN.                                             13
```

```
054000/                                                          01
054100* **********    LEVEL 2     **********                     37
054200                                                           01
054300%OPEN-FILES.                                               11
054400     PERFORM PRINT-SYSTEM-DATE.                            30
054500 Y,EQ,#440#!3                                              12
054600 $-RUN-TIME                                                10
054700     PERFORM PRINT-SYSTEM-TIME.                            30
054800 $-RUN-TIME                                                10
054900     PERFORM OPEN-#200#.                                   23
055000     IF #207# IS NOT = I-O-OK                              28
055100         PERFORM CALL-ERROR-PROGRAM.                       35
055200                                                           01
055300 Y,EQ,#300#!3                                              12
055400 $-FILE-DEF                                                10
055500 1#1#!6                                                    06
055600 #2#!8                                                     05
055700 #3(#1#)0#!1                                               11
055800 $-FILE-DEF-A                                              12
055900     PERFORM OPEN-#3(#1#)0#.                               27
056000     IF #3(#1#)7# IS NOT = I-O-OK                          32
056100         PERFORM CALL-ERROR-PROGRAM.                       35
056200 #1#!A                                                     05
056300 #2#!9                                                     05
056400 $-FILE-DEF-A                                              12
056500 $-FILE-DEF                                                10
056600                                                           01
056700     PERFORM PRINTER-OPEN.                                 25
056800     IF PRINTER-STATUS IS NOT = I-O-OK                     37
056900         IF ESCAPE-CODE = END-KEY                          32
057000             PERFORM CALL-NEXT-PROGRAM                     37
057100         ELSE                                              12
057200             PERFORM CALL-ERROR-PROGRAM.                   39
057300 Y,EQ,#210#!3                                              12
057400 $-KEY-SELECT                                              12
057500                                                           01
057600%SELECT-RANGE.                                             13
057700     PERFORM START-END-KEY-SELECTION.                      36
057800     IF ESCAPE-CODE IS NOT = END-KEY                       35
057900         PERFORM CHECK-FOR-ITEMS-IN-RANGE                  40
058000         IF #207# = AT-END OR                              28
058100                    #207# = RECORD-NOT-FOUND OR            46
058200                            #206# > ENDING-KEY             45
058300             PERFORM NONE-WITHIN-RANGE                     37
058400             GO TO SELECT-RANGE.                           31
058500     IF ESCAPE-CODE NOT = END-KEY                          32
058600         MOVE STARTING-KEY TO #206#                        34
058700         PERFORM POSITION-#200#-TO-KEY.                    38
058800 $-KEY-SELECT                                              12
```

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058900                                                          01
059000%PRINT-THE-LINES.                                         16
059100 Y,NE,#600#!3                                             12
059200 $-NO-SORTING                                             12
059300     PERFORM READ-NEXT-#200#-RECORD.                      35
059400 $-NO-SORTING                                             12
059500 Y,EQ,##!3                                                09
059600 $-SORTING                                                09
059700     IF PASS-FLAG = 1                                     20
059800         PERFORM READ-NEXT-#200#-RECORD                   38
059900         IF #207# = AT-END                                25
060000 Y,EQ,#210#!3                                             12
060100 $-KEY-SELECT                                             12
060200                 OR #206# > ENDING-KEY                    37
060300 $-KEY-SELECT                                             12
060310             CLOSE SORTFILE                               26
060320             OPEN INPUT SORTFILE                          31
060400             MOVE LOW-VALUES TO SORTFILE-KEY              43
060500             START SORTFILE KEY NOT < SORTFILE-KEY        49
060600             MOVE 2 TO PASS-FLAG                          31
060700             DISPLAY WAIT-PRINTING                        33
060800         ELSE                                             12
060900             PERFORM WRITE-SORTFILE                       34
061000             GO TO PRINT-THE-LINES.                       34
061100     PERFORM READ-NEXT-SORTFILE-RECORD.                   38
061200 $-SORTING                                                09
061300 0,EQ,#9200#!4                                            13
061400 $-NO-CONTROL-BREAK                                       18
061500     IF #207# NOT = AT-END                                25
061600 $-NO-CONTROL-BREAK                                       18
061700 0,LT,#9200#!4                                            13
061800 $-CONTROL-BREAK                                          15
061900 N,EQ,#100000#!3                                          15
062000 $-NO-RECORD-SELECTION                                    21
062100     PERFORM CHECK-FOR-CONTROL-BREAK.                     36
062200     IF #207# NOT = AT-END                                25
062300 $-NO-RECORD-SELECTION                                    21
062400 Y,EQ,#100000#!3                                          15
062500 $-RECORD-SELECTION                                       18
062600     IF #207# = AT-END                                    21
062700 Y,EQ,#210#!3                                             12
062800 $-KEY-SELECT                                             12
062900             OR #206# > ENDING-KEY                        33
063000 $-KEY-SELECT                                             12
063100         PERFORM CHECK-FOR-CONTROL-BREAK.                 40
063200     IF #207# NOT = AT-END                                25
063300 $-RECORD-SELECTION                                       18
063400 $-CONTROL-BREAK                                          15
063500 Y,EQ,#210#!3                                             12
063600 $-KEY-SELECT                                             12
063700             AND #206# NOT > ENDING-KEY                   38
063800 $-KEY-SELECT                                             12
```

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063900 Y,EQ,#300#!3                                                    12
064000 $-REF-FILE-LOOK-UP                                              18
064100         PERFORM REFERENCE-FILE-LOOK-UP                          38
064200 $-REF-FILE-LOOK-UP                                              18
064300 1#1#!6                                                          06
064400 #7#!8                                                           05
064500 200,+,#1#!5#3#!6                                                16
064600 #(#3#)000#!1                                                    12
064700 $-LINE-PRINT                                                    12
064800         PERFORM PRINT-DETAIL-LINE-#1#                           37
064900 #1#!A                                                           05
065000 #7#!9                                                           05
065100 $-LINE-PRINT                                                    12
065200         GO TO PRINT-THE-LINES.                                  30
065300/                                                                01
065400* **********    LEVEL 3    **********                            36
065500                                                                 01
065600 Y,EQ,#210#!3                                                    12
065700 $-KEY-SELECT                                                    12
065800%CHECK-FOR-ITEMS-IN-RANGE.                                       25
065900     MOVE STARTING-KEY TO #206#.                                 31
066000     PERFORM POSITION-#200#-TO-KEY.                              34
066100     IF #207# = I-O-OK                                           21
066200         PERFORM READ-NEXT-#200#-RECORD.                         39
066300 $-KEY-SELECT                                                    12
066400                                                                 01
066500 CALL-NEXT-PROGRAM.                                              18
066600     DISPLAY WAIT-LINE-24.                                       25
066700     CALL PROGRAM "#120#".                                      25
066800     STOP RUN.                                                   13
066900                                                                 01
067000 CALL-ERROR-PROGRAM.                                             19
067100     DISPLAY WAIT-LINE-24.                                       25
067200     CALL PROGRAM "#130#".                                      25
067300     STOP RUN.                                                   13
067400                                                                 01
067500 Y,EQ,#600#!3                                                    12
067600 $-SORTING                                                       09
067700%WRITE-SORTFILE.                                                 15
067800 Y,EQ,#100000#!3                                                 15
067900 $-RECORD-SELECTION                                              18
068000     MOVE "N" TO RECORD-SELECTION.                               33
068100 1#8#!6                                                          06
068200 #7#!8                                                           05
068300 100,+,#8#!5#3#!6                                                16
068400 #(#3#)000#!1                                                    12
068500 $-RECORD-SEL-DEF                                                16
068600     PERFORM TEST-RECORD-SELECTION-#8#.                          38
068700 #8#!A                                                           05
068800 #7#!9                                                           05
068900 $-RECORD-SEL-DEF                                                16
069000     IF RECORD-SELECTION = "Y"                                   29
069100 $-RECORD-SELECTION                                              18
```

```
069200 1#1#!6                                                          06
069300 #7#!8                                                           05
069400 600,+,#1#!5#3#!6                                                16
069500 #(#3#)#!1                                                       09
069600 $-SORT-KEY-DEF                                                  14
069700 #!BSORT-KEY                                                     11
069800         MOVE #'1# TO SORTFILE-KEY-#1#                           37
069900 #1#!A                                                           05
070000 #7#!9                                                           05
070100 $-SORT-KEY-DEF                                                  14
070200         MOVE #206# TO SORTFILE-KEY-KEY                          38
070300         PERFORM WRITE-SORTFILE-RECORD.                          38
070400 $-SORTING                                                       09
070500                                                                 01
070600 Y,EQ,#300#!3                                                    12
070700 $-REF-FILE-LOOK-UP                                              18
070800%REFERENCE-FILE-LOOK-UP.                                         23
070900 1#1#!6                                                          06
071000 #2#!8                                                           05
071100 #3(#1#)0#!1                                                     11
071200 $-REF-FILE-ACCESS                                               17
071300     IF #3(#1#)6# NOT = #3(#1#)2#                                32
071400         MOVE #3(#1#)2# TO                                       25
071500             #3(#1#)6#                                           21
071600         PERFORM READ-#3(#1#)0#.                                 31
071700 #1#!A                                                           05
071800 #2#!9                                                           05
071900 $-REF-FILE-ACCESS                                               17
072000 $-REF-FILE-LOOK-UP                                              18
072100                                                                 01
072200 0#8#!6                                                          06
072300 1#1#!6                                                          06
072400 #7#!8                                                           05
072500 200,+,#1#!5#3#!6                                                16
072600 #(#3#)000#!1                                                    12
072700 $-LINE-MOVE-PRINT                                               17
072800%PRINT-DETAIL-LINE-#1#.                                          22
072900 Y,EQ,#100000#!3                                                 15
073000 $-RECORD-SELECTION                                              18
073100 #8##5#!6                                                        08
073200 101,+,#8#!5#3#!6                                                16
073300 #(#3#)000#,EQ,#1#!4                                             19
073400 $-RECORD-SEL-DEF                                                16
073500 #8#!A                                                           05
073600     MOVE "N" TO RECORD-SELECTION.                               33
073700     PERFORM TEST-RECORD-SELECTION-#8#.                          38
073800 $-RECORD-SEL-DEF                                                16
073900     IF RECORD-SELECTION = "Y"                                   29
074000 #5#,NE,#8#!3                                                    12
074100 $-RECORD-SEL-DEFINED                                            20
074200 0,LT,#9200#!4                                                   13
074300 $-CONTROL-BREAK                                                 15
074400         PERFORM CHECK-FOR-CONTROL-BREAK                         39
074500 $-CONTROL-BREAK                                                 15
```

```
074600 $-RECORD-SEL-DEFINED                                          20
074700 $-RECORD-SELECTION                                            18
074800 #1#,+,200#!5#3#!6                                             17
074900 #(#3#)004#,EQ,Y#!3                                            18
075000 $-SELECT-LINE                                                 13
075100 #1#00,+,30001#!5#3#!6                                         21
075200 #(#3#)0#!BSELECT                                              16
075300     IF #'2# #'3#                                              16
075400             #(#3#)2#                                          20
075500 #5#!8                                                         05
075600 #3#!A                                                         05
075700 #(#3#)0#!1                                                    10
075800 $-01                                                          04
075900 #!BSELECT                                                     09
076000         #'1# #'2# #'3#                                       22
076100             #(#3#)2#                                         20
076200 #5#!9                                                         05
076300 $-01                                                          04
076400 $-SELECT-LINE                                                 13
076500 200,+,#1#!5#3#!6                                              16
076600 0,NE,#(#3#)000#!3                                             17
076700 $-BLB-0                                                       07
076800 P,EQ,#(#3#)000#!3                                             17
076900 $-BLB-P                                                       07
077000         MOVE ZERO TO PAGE-NUMBER                              32
077100 $-BLB-P                                                       07
077200 9,LT,#(#3#)000#!3                                             17
077300 $-BLB-P-OR-T                                                  12
077400         ADD 1, PAGE-DEPTH GIVING LINE-COUNT                   43
077500 $-BLB-P-OR-T                                                  12
077600 9,GE,#(#3#)000#!3                                             17
077700 $-BLB-1-9                                                     09
077800         PERFORM LINE-FEED #(#3#)000# TIMES                    42
077900 $-BLB-1-9                                                     09
078000 $-BLB-0                                                       07
078100 200,+,#1#!5#3#!6                                              16
078200 0,GE,#(#3#)002#!3                                             17
078300 $-BLA-0-OR-*                                                  12
078400         PERFORM DETAIL-LINE-#1#-LOGIC.                        38
078500 $-BLA-0-OR-*                                                  12
078600 0,LT,#(#3#)002#!3                                             17
078700 $-BLA-NOT-0-OR-*                                              16
078800         PERFORM DETAIL-LINE-#1#-LOGIC                         37
078900 P,EQ,#(#3#)002#!3                                             17
079000 $-BLA-P                                                       07
079100         MOVE ZERO TO PAGE-NUMBER                              32
079200 $-BLA-P                                                       07
079300 9,LT,#(#3#)002#!3                                             17
079400 $-BLA-P-OR-T                                                  12
079500         ADD 1, PAGE-DEPTH GIVING LINE-COUNT.                  44
079600 $-BLA-P-OR-T                                                  12
079700 9,GE,#(#3#)002#!3                                             17
079800 $-BLA-1-9                                                     09
079900         PERFORM LINE-FEED #(#3#)002# TIMES.                   43
```

```
080000 $-BLA-1-9                                                        09
080100 $-BLA-NOT-0-OR-*                                                 16
080200 #1#!A                                                            05
080300 #7#!9                                                            05
080400 $-LINE-MOVE-PRINT                                                17
080500/                                                                 01
080600* **********    LEVEL 4    **********                             36
080700                                                                  01
080800 Y,EQ,#100000#!3                                                  15
080900 $-RECORD-SELECTION                                               18
081000 1#8#!6                                                           06
081100 #7#!8                                                            05
081200 100,+,#8#!5#3#!6                                                 16
081300 #(#3#)000#!1                                                     12
081400 $-RECORD-SEL-DEF                                                 16
081500%TEST-RECORD-SELECTION-#8#.                                       26
081600 #3#01#3#!6                                                       10
081700 #(#3#)0#!BSELECT                                                 16
081800     IF #'2# #'3#                                                16
081900             #(#3#)2#                                            20
082000 #5#!8                                                            05
082100 #3#!A                                                            05
082200 #(#3#)0#!1                                                       10
082300 $-01                                                             04
082400 #!BSELECT                                                        09
082500         #'1# #'2# #'3#                                          22
082600             #(#3#)2#                                            20
082700 #5#!9                                                            05
082800 $-01                                                             04
082900         MOVE "Y" TO RECORD-SELECTION.                            37
083000                                                                  01
083100 #8#!A                                                            05
083200 #7#!9                                                            05
083300 $-RECORD-SEL-DEF                                                 16
083400 $-RECORD-SELECTION                                               18
083500                                                                  01
083600 #401000#!1                                                       10
083700 $-CONTROL-BREAK-CHECK                                            21
083800%CHECK-FOR-CONTROL-BREAK.                                         24
083900 1#1#!6                                                           06
084000 #7#!8                                                            05
084100 401,+,#1#!5#3#!6                                                 16
084200 #(#3#)000#!1                                                     12
084300 $-CB-COUNT                                                       10
084400 #1#!A                                                            05
084500 #7#!9                                                            05
084600 $-CB-COUNT                                                       10
084700     IF #207# = AT-END                                           21
084800 Y,EQ,#210#!3                                                     12
084900 $-KEY-SELECT                                                     12
085000             OR #206# > ENDING-KEY                               33
085100 $-KEY-SELECT                                                     12
085200         PERFORM CONTROL-BREAK-1 THRU CONTROL-BREAK-#1#.          55
```

```
085300 #7#!8                                                          05
085400 40000,+,#1#00#!5#3#!6                                          21
085500 EOF,NE,#(#3#)2#!3                                              17
085600 $-NOT-EOF-CB                                                   12
085700     IF #(#3#)2# NOT = TOTAL-KEY-#1#                            35
085800         IF TOTAL-KEY-#1# = LOW-VALUES                          37
085900             MOVE #(#3#)2#                                      25
086000                     TO TOTAL-KEY-#1#                           36
086100         ELSE                                                   12
086200             PERFORM CONTROL-BREAK-1 THRU CONTROL-BREAK-#1#.    59
086300 $-NOT-EOF-CB                                                   12
086400 #1#,-,1#!5#1#!6                                                15
086500 0,LT,#1#!4                                                     10
086600 $-NEXT-CB                                                      09
086700 #7#!9                                                          05
086800 $-NEXT-CB                                                      09
086900 $-CONTROL-BREAK-CHECK                                          21
087000/                                                               01
087100* **********    LEVEL 5    **********                           36
087200                                                                01
087300 #401000#!1                                                     10
087400 $-CONTROL-BREAK-LOGIC                                          21
087500 1#1#!6                                                         06
087600 1#2#!6                                                         06
087700 #7#!8                                                          05
087800 #1#,LE,#9200#!4                                                15
087900 $-CONTROL-BREAK-N                                              17
088000%CONTROL-BREAK-#1#.                                             18
088100     MOVE #1# TO TOTAL-SUB.                                     26
088200 1#4#!6                                                         06
088300 #8#!8                                                          05
088400 #1#,LT,#9200#!4                                                15
088500 $-01                                                           04
088600 401,+,#1#!5#3#!6                                               16
088700 #2#,LT,#(#3#)000#!4                                            19
088800 $-02                                                           04
088900 $-01                                                           04
089000 500,+,#2#!5#3#!6                                               16
089100 #(#3#)000#!1                                                   12
089200 $-03                                                           04
089300 0,NE,#(#3#)000#!3                                              17
089400 $-BLB-0                                                        07
089500 P,EQ,#(#3#)000#!3                                              17
089600 $-BLB-P                                                        07
089700     MOVE ZERO TO PAGE-NUMBER.                                  29
089800 $-BLB-P                                                        07
089900 9,LT,#(#3#)000#!3                                              17
090000 $-BLB-P-OR-T                                                   12
090100     ADD 1, PAGE-DEPTH GIVING LINE-COUNT.                       40
090200 $-BLB-P-OR-T                                                   12
090300 9,GE,#(#3#)000#!3                                              17
090400 $-BLB-1-9                                                      09
090500     PERFORM LINE-FEED #(#3#)000# TIMES.                        39
090600 $-BLB-1-9                                                      09
```

```
090700 $-BLB-0                                                    07
090800 $-03                                                       04
090900 $-02                                                       04
091000 0#5#!6                                                     06
091100 9000,+,#4#!5#3#!6                                          17
091200 #(#3#)#!1                                                  09
091300 $-MOVE-TOTALS                                              13
091400     PERFORM MOVE-TOTALS-#4#.                               28
091500 1#5#!6                                                     06
091600 $-MOVE-TOTALS                                              13
091700 #1#,LT,#9200#!4                                            15
091800 $-01                                                       04
091900 401,+,#1#!5#3#!6                                           16
092000 #2#,LT,#(#3#)000#!4                                        19
092100 $-02                                                       04
092200 $-01                                                       04
092300 500,+,#2#!5#3#!6                                           16
092400 #(#3#)010#!1                                               12
092500 $-03                                                       04
092600     PERFORM TOTAL-LINE-#2#-LOGIC.                          33
092700 #2#!A                                                      05
092800 2#5#!6                                                     06
092900 $-03                                                       04
093000 $-02                                                       04
093100 1,EQ,#5#!3                                                 10
093200 $-05                                                       04
093300     PERFORM PRINT.                                         18
093400 $-05                                                       04
093500 0,NE,##!3                                                  09
093600 $-06                                                       04
093700 #4#!A                                                      05
093800 #8#!9                                                      05
093900 $-06                                                       04
094000 400,+,#1#!5#10#!6                                          17
094100 0,NE,#(#10#)004#!3                                         18
094200 $-BLA-0                                                    07
094300 P,EQ,##!3                                                  09
094400 $-BLA-P                                                    07
094500     MOVE ZERO TO PAGE-NUMBER.                              29
094600 $-BLA-P                                                    07
094700 9,LT,##!3                                                  09
094800 $-BLA-P-OR-T                                               12
094900     ADD 1, PAGE-DEPTH GIVING LINE-COUNT.                   40
095000 $-BLA-P-OR-T                                               12
095100 9,GE,##!3                                                  09
095200 $-BLA-1-9                                                  09
095300     PERFORM LINE-FEED ## TIMES.                            31
095400 $-BLA-1-9                                                  09
095500 $-BLA-0                                                    07
095600 400002,+,#1#000#!5#3#!6                                    23
095700 #(#3#)##3#!6                                               12
095800 EOF,NE,#3#!3                                               12
095900 $-NOT-EOF-CB                                               12
096000     MOVE #3# TO TOTAL-KEY-#1#.                             30
096100 $-NOT-EOF-CB                                               12
```

```
096200     MOVE ZEROS TO TOTALS-LEVEL (#1#).                          37
096300 #1#!A                                                          05
096400 #7#!9                                                          05
096500 $-CONTROL-BREAK-N                                              17
096600 $-CONTROL-BREAK-LOGIC                                          21
096700/                                                               01
096800* **********    LEVEL 6    **********                           36
096900                                                                01
097000 1#1#!6                                                         06
097100 1#4#!6                                                         06
097200 #7#!8                                                          05
097300 9000,+,#1#!5#3#!6                                              17
097400 #(#3#)##3#!6                                                   12
097500 0,LT,#3#!4                                                     10
097600 $-MOVE-TOTALS                                                  13
097700%MOVE-TOTALS-#1#.                                               16
097800 1#2#!6                                                         06
097900 #8#!8                                                          05
098000 #2#,LE,#3#!4                                                   12
098100 $-01                                                           04
098200     MOVE TOTAL-#4# (TOTAL-SUB) TO PRINT-TOTAL-#4#.             50
098300 #4#!A                                                          05
098400 #2#!A                                                          05
098500 #8#!9                                                          05
098600 $-01                                                           04
098700     IF TOTAL-SUB < TOTAL-MAX                                   28
098800 #4#,-,#3#!5#4#!6                                               16
098900 1#2#!6                                                         06
099000 #8#!8                                                          05
099100 #2#,LT,#3#!4                                                   12
099200 $-02                                                           04
099300        ADD TOTAL-#4# (TOTAL-SUB) TO TOTAL-#4# (TOTAL-SUB + 1) 61
099400 #4#!A                                                          05
099500 #2#!A                                                          05
099600 #8#!9                                                          05
099700 $-02                                                           04
099800        ADD TOTAL-#4# (TOTAL-SUB) TO TOTAL-#4# (TOTAL-SUB + 1).62
099900 #4#!A                                                          05
100000 #1#!A                                                          05
100100 #7#!9                                                          05
100200 $-MOVE-TOTALS                                                  13
```

```
100300                                                          01
100400 0#8#!6                                                   06
100500 1#4#!6                                                   06
100600 1#1#!6                                                   06
100700 200#10#!6                                                09
100800 DETAIL#9#!6                                              11
100900 #7#!8                                                    05
101000 #10#,+,#1#!5#3#!6                                        17
101100 #(#3#)000#!1                                             12
101200 $-LINE-PARA                                              11
101300 #1#01,+,#10#00#!5#3#!6                                   22
101400 #(#3#)0#!1                                               10
101500 $-LINE-FIELDS                                            13
101600%#9#-LINE-#1#-LOGIC.                                      19
101700 0#6#!6                                                   06
101800 500,EQ,#10#!3                                            13
101900 $-TOTAL-LEVEL                                            13
102000 #4#!A                                                    05
102100 $-TOTAL-LEVEL                                            13
102200 0#2#!6                                                   06
102300 #5#!8                                                    05
102400 #2#!A                                                    05
102500 #2#,+,#1#00#!5,+,#10#00#!5#3#!6                          31
102600 #(#3#)0#!1                                               10
102700 $-FIELD-DEF                                              11
102800 #!BFIELD                                                 08
102900 999,NE,#'1#!3                                            13
103000 $-FIELD-MOVE                                             12
103100     MOVE #'2#                                            13
103200             TO #9#-#1#-FIELD-#2#.                        33
103300 1#6#!6                                                   06
103400 $-FIELD-MOVE                                             12
103500  ,EQ,#'5#!3                                              11
103600 $-NO-COMPUTE                                             12
103700 #5#!9                                                    05
103800 $-NO-COMPUTE                                             12
103900 T,EQ,#'5#!3                                              11
104000 $-TOTAL-ACCUM                                            13
104100 #8#!A                                                    05
104200     ADD #'2# TO TOTAL-#8# (#4#).                         32
104300 #5#!9                                                    05
104400 $-TOTAL-ACCUM                                            13
104500 =,EQ,##!3                                                09
104600 $-MOVE                                                   06
104700     MOVE #'2# TO #'6#.                                   22
104800 #5#!9                                                    05
104900 $-MOVE                                                   06
105000 +,EQ,##!3                                                09
105100 $-ADD                                                    05
105200     ADD #'2# TO #'6#.                                    21
105300 #5#!9                                                    05
105400 $-ADD                                                    05
```

```
105500 -,EQ,##!3                                                    09
105600 $-SUBTRACT                                                   10
105700     SUBTRACT #'2# FROM #'6#.                                 28
105800 #5#!9                                                        05
105900 $-SUBTRACT                                                   10
106000 *,EQ,##!3                                                    09
106100 $-MULTIPLY                                                   10
106200     MULTIPLY #'2# BY #'6#.                                   26
106300 #5#!9                                                        05
106400 $-MULTIPLY                                                   10
106500 /,EQ,##!3                                                    09
106600 $-DIVIDE                                                     08
106700     DIVIDE #'2# INTO #'6#.                                   26
106800 #5#!9                                                        05
106900 $-DIVIDE                                                     08
107000 %,EQ,##!3                                                    09
107100 $-PERCENT                                                    09
107200     MULTIPLY 100 BY #'6#.                                    25
107300     DIVIDE #'2# INTO #'6#.                                   26
107400 #5#!9                                                        05
107500 $-PERCENT                                                    09
107600 $-FIELD-DEF                                                  11
107700 1,EQ,#6#!3                                                   10
107800 $-PRINT-THE-LINE                                             16
107900 #1#,+,#10#!5#3#!6                                            17
108000 *,NE,#(#3#)002#!3                                            17
108100 $-PRINT-NOT-SUPPRESSED                                       22
108200     PERFORM PRINT.                                           18
108300 $-PRINT-NOT-SUPPRESSED                                       22
108400 $-PRINT-THE-LINE                                             16
108500 #1#!A                                                        05
108600 #7#!9                                                        05
108700 $-LINE-FIELDS                                                13
108800 $-LINE-PARA                                                  11
108900 200,EQ,#10#!3                                                13
109000 $-TOTAL-DEF                                                  11
109100 1#1#!6                                                       06
109200 500#10#!6                                                    09
109300 TOTAL#9#!6                                                   10
109400 #7#!9                                                        05
109500 $-TOTAL-DEF                                                  11
```

```
109600/                                                              01
109700* **********    INPUT/OUTPUT ROUTINES    **********            50
109800                                                               01
109900%I-O-SECTION SECTION.                                          20
110000 OPEN-#200#.                                                   11
110100     OPEN INPUT #204#.                                         21
110200     IF #207# = USE-ERROR                                      24
110300         PERFORM #200#-IN-USE.                                 29
110400 READ-NEXT-#200#-RECORD.                                       23
110500     READ #204# NEXT RECORD.                                   27
110510     IF #207# = RECORD-LOCKED                                  28
110520         PERFORM #200#-RECORD-IN-USE                           35
110530         GO TO READ-NEXT-#200#-RECORD.                         37
110540 READ-#200#-RECORD.                                            18
110550     READ #204# RECORD.                                        22
110560     IF #207# = RECORD-LOCKED                                  28
110570         PERFORM #200#-RECORD-IN-USE                           35
110580         GO TO READ-#200#-RECORD.                              32
110600 #200#-IN-USE.                                                 13
110700     MOVE "#200# FILE IN USE  -  TRY AGAIN LATER" TO           51
110800                                              MESSAGE-FIELD.62
110900     PERFORM DISPLAY-MESSAGE.                                  28
110910 #200#-RECORD-IN-USE.                                          20
110920     MOVE "#200# RECORD IN USE" TO                             33
110930                                              MESSAGE-FIELD.62
110940     DISPLAY ERROR-MESSAGE-LINE.                               31
110950     CALL PROGRAM HASH-W.                                      24
110955     CALL PROGRAM HASH-W.                                      24
110960     DISPLAY CLEAR-MESSAGE.                                    26
111000 Y,EQ,#210#!3                                                  12
111100 $-KEY-SELECT                                                  12
111200 POSITION-#200#-TO-KEY.                                        22
111300     START #204# KEY IS NOT LESS THAN #206#.                   43
111400 NONE-WITHIN-RANGE.                                            18
111500     MOVE "NO RECORDS WITHIN RANGE SELECTED" TO                46
111600                                            MESSAGE-FIELD.    59
111700     PERFORM DISPLAY-MESSAGE.                                  28
111800 $-KEY-SELECT                                                  12
111900                                                               01
112000 Y,EQ,#300#!3                                                  12
112100 $-FILE-DEF                                                    10
112200 1#1#!6                                                        06
112300 #2#!8                                                         05
112400 #3(#1#)0#!1                                                   11
112500 $-FILE-DEF-A                                                  12
112600 OPEN-#3(#1#)0#.                                               15
112700     OPEN INPUT #3(#1#)4#.                                     25
112800     IF #3(#1#)7# = USE-ERROR                                  28
112900         PERFORM #3(#1#)0#-IN-USE.                             33
```

```
113000 READ-#3(#1#)0#.                                                  15
113100     READ #3(#1#)4#                                               18
113200         INVALID KEY                                              19
113300             MOVE SPACE TO #3(#1#)5#.                             36
113310     IF #3(#1#)7# = RECORD-LOCKED                                 32
113320         PERFORM #3(#1#)0#-RECORD-IN-USE                          39
113330         GO TO READ-#3(#1#)0#.                                    29
113400 #3(#1#)0#-IN-USE.                                                17
113500     MOVE "#3(#1#)0# FILE IN USE  -  TRY AGAIN LATER" TO           55
113600                                              MESSAGE-FIELD.62
113700     PERFORM DISPLAY-MESSAGE.                                     28
113710 #3(#1#)0#-RECORD-IN-USE.                                         24
113720     MOVE "#3(#1#)0# RECORD IN USE" TO                            37
113730                                              MESSAGE-FIELD.62
113740     DISPLAY ERROR-MESSAGE-LINE.                                  31
113750     CALL PROGRAM HASH-W.                                         24
113755     CALL PROGRAM HASH-W.                                         24
113760     DISPLAY CLEAR-MESSAGE.                                       26
113800 #1#!A                                                            05
113900 #2#!9                                                            05
114000 $-FILE-DEF-A                                                     12
114100 $-FILE-DEF                                                       10
114200                                                                  01
114300%CLOSE-FILES.                                                     12
114400     PERFORM CLOSE-PRINTER-FILE.                                  31
114500     CLOSE #204#.                                                 16
114600                                                                  01
114700 Y,EQ,#300#!3                                                     12
114800 $-FILE-DEF                                                       10
114900 1#1#!6                                                           06
115000 #2#!8                                                            05
115100 #3(#1#)0#!1                                                      11
115200 $-FILE-DEF-A                                                     12
115300     CLOSE #3(#1#)4#.                                             20
115400 #1#!A                                                            05
115500 #2#!9                                                            05
115600 $-FILE-DEF-A                                                     12
115700 $-FILE-DEF                                                       10
115800                                                                  01
115900 Y,EQ,#600#!3                                                     12
116000 $-SORTFILE-DEF                                                   14
116100 OPEN-SORTFILE.                                                   14
116200     ACCEPT SORTFILE-LINE-NO FROM LINE NUMBER.                    45
116300     DELETE FILE SORTFILE.                                        25
116400     OPEN OUTPUT SORTFILE.                                        25
116500     IF SORTFILE-STATUS NOT = I-O-OK                              35
116600         PERFORM SORTFILE-IN-USE.                                 32
116700 WRITE-SORTFILE-RECORD.                                           22
116800     WRITE SORTFILE-RECORD.                                       26
```

```
116900 READ-NEXT-SORTFILE-RECORD.                                      26
117000     READ SORTFILE NEXT.                                         23
117100     MOVE SORTFILE-STATUS TO #207#                               33
117200     IF SORTFILE-STATUS NOT = AT-END                             35
117300         MOVE SORTFILE-KEY-KEY TO #206#                          38
117400         PERFORM READ-#200#-RECORD                               33
117500         IF #207# = RECORD-NOT-FOUND                             35
117600             GO TO READ-NEXT-SORTFILE-RECORD.                    44
117700 CLOSE-SORTFILE.                                                 15
117800     CLOSE SORTFILE.                                             19
117900     DELETE FILE SORTFILE.                                       25
118000 SORTFILE-IN-USE.                                                16
118100     MOVE "SORTFILE FILE IN USE  -  TRY AGAIN LATER" TO          54
118200                                              MESSAGE-FIELD.62
118300     PERFORM DISPLAY-MESSAGE.                                    28
118400 $-SORTFILE-DEF                                                  14
118500                                                                01
118600     COPY "PROXI$CF03.PL".                                       25
118700                                                                01
118800 Y,EQ,#210#!3                                                    12
118900 $-KEY-SELECT                                                    12
119000     COPY "PROXI$CF05.PL".                                       25
119100 $-KEY-SELECT                                                    12
119200/                                                               01
119300* **********    UTILITY ROUTINES    **********                  45
119400                                                                01
119500%UTILITIES SECTION.                                              18
119600     COPY "PROXI$CF01.PL".                                       25
```

End of Chapter

Chapter 7
The Form Printing Program

This chapter describes the form printing program parameter file and skeleton file.

The Form Printing Program Parameter File

The parameter file for the form program is created in PROXI$01, and updated in PROXI$40, PROXI$03, PROXI$33, PROXI$41 through PROXI$44, and PROXI$02.

Table 7-1 lists the line number groups for the form printing program parameter file. The pages that follow give specific information about each group. (For general information about parameters files, see Chapter 3.)

Table 7-1. Line Number Groups for a Form Printing Program

Line Number Group	Contains
100	General program parameters
200	Form printing program parameters
300	Reference file parameters
400	Printing procedure parameters
8000	Accumulator parameters
9000	Totaling parameters
100000	Record selection parameters
200000	Detail line parameters
300000	Conditional detail line printing parameters
400000	Control break and total line parameters
500000	Conditional total line printing parameters
600000	Top-of-form line parameters
700000	Conditional top-of-form line printing parameters
800000	Page break line parameters
900000	Conditional page break line printing parameters

The 100 Group
General program parameters

This group contains general information about the program.

Source menu: PG-2

Line #	Contents
000100	Name of the form printing program
000101	FORM
000110	Application name
000120	Name of the next program on normal exit
000130	Name of the next program on error exit

Example

```
000100  LISTFORMS
000101  FORM
000110  Print Listing Forms
000120  LOGON
000130  LOGON
```

The 200 Group

Form printing program parameters

This group contains information about the principal data file and range selection.

Source menu: PG-25

Line #	Contents
000200	Name of the principal data file (datafile)
000204	datafile
000205	datafile-RECORD
000206	datafile-KEY
000207	datafile-STATUS
000210	Key range selection flag: Y (operator can specify a range of records) N (no key range selection)
000220	Length of the key field (if line 000210 is Y): 01 to 99

Comments

If the user specified a variable other than datafile-RECORD as the first entry in datafile.FD, that variable name appears in line 000205. If datafile.FD does not exist, the default value for line 000205 is datafile-RECORD.

Example

```
000200  LISTDATA
000204  LISTDATA
000205  LISTDATA-RECORD
000206  LISTDATA-KEY
000207  LISTDATA-STATUS
000210  Y
000220  05
```

The 300 Group
Reference file parameters

This group contains reference file information.

Source menus: PG-25 and PG-26

Line #	Contents
000300	Reference file flag: Y (program uses one or more reference files) N (program does not use any reference files)

If line 000300 is Y, the following group appears for each reference file.

0003n0	Name of *n*th reference file (ref-file-n)
0003n2	Field used to access ref-file-n
0003n4	ref-file-n
0003n5	ref-file-n-RECORD
0003n6	ref-file-n-KEY
0003n7	ref-file-n-STATUS

Comments

The program can use up to nine reference files. Lines 000310 through 000317 refer to the first file, lines 000320 through 000327 refer to the second, and so on.

Normally, the record key field is taken from the principal data file. It can, however, be an accumulator or a field from a previously read reference file.

Example

```
000300  Y
000310  REFA
000312  LIST-NO
000314  REFA
000315  REFA-RECORD
000316  REFA-KEY
000317  REFA-STATUS
000320  REFB
000322  TOWN
000324  REFB
000325  REFB-RECORD
000326  REFB-KEY
000327  REFB-STATUS
```

The 400 Group
Printing procedure parameters

This group describes the printing procedures for the form printing program.

Source menu: PG-27

Line #	Contents
000400	Print or spool option: P (direct output to printer) S (direct output to spool file) O (request operator decision)
000410	Spool file name
000420	Page width (number of print columns per page): 080 or 132
000430	Number of print lines per page: 00 to 99
000440	Runtime information flag: Y (print runtime information on each page) N (do not print runtime information)

Example

```
000400  S
000410  SPOOLIT
000420  080
000430  42
000440  N
```

The 8000 Group

Accumulator parameters

This group contains information about the accumulators used for computation.

Source menus: PG-30, PG-35, PG-39, and PG-43

Line #	Contents
0080xx	Picture for accumulator Axx (A01 to A99): S9(11)V9(6)
008100	Number of accumulators used in the program: 01 to 09
00810n	Number of *n*th accumulator: 01 to 99

Comments

The program can use up to nine accumulators. Line 008101 specifies the first accumulator used, line 008102 specifies the second, and so on.

Example

```
008003   S9(11)V9(6)    (Picture for accumulator A03)
008005   S9(11)V9(6)    (Picture for accumulator A05)
008100   02             (Program uses two accumulators)
008101   05             (First accumulator used is A05)
008102   03             (Second accumulator used is A03)
```

The 9000 Group
Totaling parameters

This group provides information about totaling and total fields.

Source menu: PG-43

Line #	Contents
009000	Level where totaling starts: 0 (start at detail line) 01 to 99 (start at the specified control break)
0090xx	Number of fields to be printed in total line xx: 01 to 99
0091yy	Print format for total field number yy

Comments

The program can print up to 99 total lines with a maximum of 99 total fields for the form. Line 009001 specifies the number of fields in the first total line, line 009002 specifies the number of fields in the second, and so on.

Line number 009101 reports the print format for the first total field, line number 009102 reports the print format for the second field (regardless of line number), and so on.

The number of the total line bears no relation to the number of the detail line. If, for example, detail lines 01, 03, and 05 contain total fields, they generate total lines 01, 02, and 03, respectively.

Example

```
009000  0
009001  01
009101  ZZ,ZZZ,ZZ9.99-
```

Start totaling at the detail line level. Print one field, using ZZ,ZZZ,ZZ9.99- as the picture.

The 100000 Group
Record selection parameters

This group describes conditions for record selection.

Source menu: PG-32

Line #	Contents
100000	Record selection flag: Y (record selection used) N (record selection not used)
1xx000	Number of the first detail line controlled by record selection group xx: 001 to 099

The following pair of lines describes test yy within record selection group xx:

1xxyy0	Logical operator, field-1, conditional operator
1xxyy2	Field-2

Comments

The program can include up to 99 groups of record selection criteria. Each group can contain up to 99 logical tests. Lines 101010 and 101012, for example, define the first logical test in the first record selection group; lines 101020 and 101022 define the second test in that group, and so on.

Lines 199010 and 199012 define the first test in the 99th record selection group.

Chapter 3 describes the format used to specify the first three elements of a logical test.

Example

```
100000  Y
101000  001
101010  IF PART-NUMBER              =
101012  A-3000
101020  ANDCLASS                    NOT =
101022  OLDPART
102000  002
102010  IF ON-ORDER-FLAG            =
102012  Y
```

The 200000 Group
Detail line parameters

This group describes the detail lines and their print fields.

Source menus: PG-33 and PG-35

Line #	Contents
2xx000	Number of blank lines before detail line xx: 0 to 9, P, or T
2xx002	Number of blank lines after detail line xx: 0 to 9, P, T, or *
2xx004	Conditional printing flag for detail line xx: Y (print this line only on certain conditions) N (no printing conditions)
2xxyy0	Specification for field yy in detail line xx

Comments

The program can print up to 99 detail lines. Each detail line can contain up to 99 print fields. In the line number formats, xx represents the detail line number (01 to 99). And yy represents the field number (01 to 99) within the specified line.

The field specification includes the field's starting column number, the field name or constant, the print format, and print length. For numeric fields, a computation symbol and an accumulator name may appear.

(Chapter 3 describes the field specification format.)

Example

```
201000  1
201002  1
201004  N
201010  005ITEM-NUMBER              9(5)        005
201020  025ITEM-DESCRIPTION         X(15)       015
201030  050ITEM-COST-EACH           999.99      006+A02
201040  060QTY-SHIPPED              999         003*A02
202000  2
202002  2
202004  Y
202010  005"SURCHARGE"              X(9)        009
202020  050ITEM-SURCHARGE           999.99      006+A03
```

The 300000 Group

Conditional detail line printing parameters

This group describes conditions for printing detail lines.

Source menu: PG-34

Line #	Contents
3xx000	Number of the detail line controlled by condition xx: 001 to 099

The following pair of lines describes test yy within condition xx:

3xxyy0	Logical operator, field-1, conditional operator
3xxyy2	Field-2

Comments

The program can include up to 99 groups of conditions for printing detail lines. Each group can contain up to 99 logical tests. Lines 301010 and 301012, for example, define the first logical test in the first conditional group; lines 301020 and 301022 define the second logical test in that group, and so on. Lines 399010 and 399012 define the first logical test in the 99th conditional group.

Chapter 3 describes the format used to specify the first three elements of a logical test.

Example

```
301000   001
301010   IF PRODUCT-CODE              >
301012   500
303000   003
303010   IF REGION                    =
303012   LAST-NO
```

The 400000 Group
Control break and total line parameters

This group describes the control break and its total lines.

Source menus: PG-40, PG-41, and PG-43

Line #	Contents
400000	Control break field
400002	Print format for the control break field
4xx000	Number of blank lines before total line xx: 0 to 9
4xx002	Number of blank lines after total line xx: 0 to 9, or *
4xx004	Condition printing flag for total line xx: Y (print this line only on certain conditions) N (no printing conditions)
4xxyy0	Specification for field yy in total line xx

Comments

The field specification includes the field's starting column number, the field name or constant, the print format, and the print length. For numeric fields, a computation symbol and an accumulator name may appear.

(Chapter 3 describes the field specification format.)

Example

```
400000  CUSTOMER-NAME
400002  X(20)
401000  2
401002  1
401004  N
401010  045ITEM-SUBTOTAL              $ZZ,ZZ9.99      010=A05
402000  0
402002  0
402004  Y
402010  045STATE-TAX                  $ZZ,ZZ9.99      010=A07
```

The 500000 Group

Conditional total line printing parameters

This group describes the conditions for printing total lines.

Source menu: PG-42

Line #	Contents
5xx000	Number of the total line controlled by condition xx: 01 to 99

The following pair of lines describes logical test yy within condition group xx:

5xxyy0	Logical operator, field-1, conditional operator
5xxyy2	Field-2

Comments

The program can include up to 99 conditional groups for printing total lines. Each group can contain up to 99 logical tests. Lines 501010 and 501012, for example, define the first logical test in the first conditional group for total lines; lines 501020 and 501022 define the second test in that group, and so on. Lines 599010 and 599012 define the first logical test in the 99th conditional group.

Chapter 3 describes the format used to specify the first three elements of a logical test.

Example

```
502000   001
502010   IF STATE-CODE                =
502012   "VT"
```

The 600000 Group

Top-of-form line parameters

This group describes the top-of-form lines and their fields.

Source menus: PG-28 and PG-30

Line #	Contents
6xx000	Number of blank lines before top-of-form line xx: 0 to 9, or *
6xx002	Number of blank lines after top-of-form line xx: 0 to 9, or *
6xx004	Conditional printing flag for top-of-form line xx: Y (print this line only on certain conditions) N (no printing conditions)
6xxyy0	Specification for field yy in top-of-form line xx

Comments

The field specification includes the field's starting column number, the field name or constant, the print format, and the print length. For numeric fields, a computation symbol and an accumulator name may appear.

(Chapter 3 describes the field specification format.)

Example

```
601000  5
601002  0
601004  N
601010  005CUSTOMER-NUMBER          X(6)        006
601020  045ORDER-NUMBER             9(5)        005
602000  0
602002  0
602004  N
602010  005CUSTOMER-NAME            X(30)       030
602020  045ORDER-DATE               X(12)       012
```

The 700000 Group

Conditional top-of-form line printing parameters

This group describes conditions for printing top-of-form lines.

Source menu: PG-29

Line #	Contents
7xx000	Number of the top-of-form line controlled by condition xx: 001 to 099

The following pair of lines describes test yy within conditional group xx:

7xxyy0	Logical operator, field-1, conditional operator
7xxyy2	Field-2

Comments

The program can include up to 99 condition groups for printing top-of-form lines. Each group can contain up to 99 logical tests. Lines 701010 and 701012, for example, define the first logical test in the first top-of-form condition group; lines 701020 and 701022 define the second test in that group, and so on. Lines 799010 and 799012 define the first logical test in the 99th conditional group.

Chapter 3 describes the format used to specify the first three elements of a logical test.

Example

```
701000   003
701010   IF REGION-CODE              =
701012   "12"
```

The 800000 Group

Page break line parameters

This group provides information about page break lines and their fields.

Source menus: PG-37 and PG-39

Line #	Contents
8xx000	Number of blank lines before page break line xx: 0 to 9
8xx002	Number of blank lines after page break line xx: 0 to 9, or *
8xx004	Conditional printing flag for page break line xx: Y (print this line only on certain conditions) N (no printing conditions)
8xxyy0	Specification for field yy in page break line xx

Comments

The program can print up to 99 page break lines. Line 801000 refers to the first page break line, line 802000 refers to the second, and so on.

The field specification includes the field's starting column number, the field name or constant, the print format, and the print length. For numeric fields, a computation symbol and an accumulator name may appear.

(Chapter 3 describes the field specification format.)

Example

```
801000  5
801002  1
801004  N
801010  005CUSTOMER-NUMBER          X(6)        006
801020  015CUSTOMER-NAME            X(30)       030
801030  050ORDER-DATE               X(9)        009
```

The 900000 Group

Conditional page break line printing parameters

This group describes conditions for printing page break lines.

Source menu: PG-38

Line #	Contents
9xx000	Number of the page break line controlled by condition xx: 001 to 099

The following pair of lines describes test yy within condition xx:

9xxyy0	Logical operator, field-1, conditional operator
9xxyy2	Field-2

Comments

The program can include up to 99 condition groups for printing page break lines. Each group can contain up to 99 logical tests. Lines 901010 and 901012, for example, define the first logical test in the first conditional group; lines 901020 and 901022 define the second test in that group, and so on. Lines 999010 and 999012 define the first logical test in the 99th page break condition group.

Chapter 3 describes the format used to specify the first three elements of a logical test.

Example

```
901000   002
901010   IF ITEM-COUNT                >
901012   "10"
```

The Form Printing Program Skeleton File

The following is a listing of the contents of the skeleton file for a form printing program.

```
000100$IDENTIFICATION DIVISION.                                          24
000200%PROGRAM-ID.      #100#.                                           23
000300 AUTHOR.   AOS/VS PROXI FILE FORM PRINT GENERATOR.                  60
000400                                                                   01
000500$ENVIRONMENT DIVISION.                                             21
000600 CONFIGURATION SECTION.                                            22
000700 SOURCE-COMPUTER. ECLIPSE.                                         23
000800*                                                                  23
000900*                                                                  23
001000*                                                                  23
001100 OBJECT-COMPUTER. ECLIPSE.                                         33
001200*                                                                  23
001300*                                                                  23
001400*                                                                  23
001500%INPUT-OUTPUT SECTION.                                             21
001600                                                                   01
001700 FILE-CONTROL.                                                     13
001800                                                                   01
001900     COPY "PROXI$CF03.SL".                                         25
002000                                                                   01
002100     COPY "#200#.SL".                                              20
002200                                                                   01
002300 Y,EQ,#300#!3                                                      12
002400 $-FILE-DEF                                                        10
002500 1#1#!6                                                            06
002600 #2#!8                                                             05
002700 #3(#1#)0#!1                                                       11
002800 $-FILE-DEF-A                                                      12
002900     COPY "#3(#1#)0#.SL".                                          24
003000 #1#!A                                                             05
003100 #2#!9                                                             05
003200 $-FILE-DEF-A                                                      12
003300 $-FILE-DEF                                                        10
003400                                                                   01
003500/                                                                  01
003600$DATA DIVISION.                                                    14
003700%FILE SECTION.                                                     13
003800     COPY "PROXI$CF03.FD".                                         25
003900                                                                   01
004000     COPY "#200#.FD".                                              20
004100                                                                   01
004200 Y,EQ,#300#!3                                                      12
004300 $-FILE-DEF                                                        10
004400 1#1#!6                                                            06
004500 #2#!8                                                             05
004600 #3(#1#)0#!1                                                       11
004700 $-FILE-DEF-A                                                      12
004800     COPY "#3(#1#)0#.FD".                                          24
004900 #1#!A                                                             05
005000 #2#!9                                                             05
```

```
005100 $-FILE-DEF-A                                                    12
005200 $-FILE-DEF                                                      10
005300/                                                                01
005400$WORKING-STORAGE SECTION.                                         24
005500%                                                                01
005600     COPY "#200#.WS".                                            20
005700                                                                 01
005800 Y,EQ,#300#!3                                                    12
005900 $-FILE-DEF                                                      10
006000 1#1#!6                                                          06
006100 #2#!8                                                           05
006200 #3(#1#)0#!1                                                     11
006300 $-FILE-DEF-A                                                    12
006400     COPY "#3(#1#)0#.WS".                                        24
006500 #1#!A                                                           05
006600 #2#!9                                                           05
006700 $-FILE-DEF-A                                                    12
006800 $-FILE-DEF                                                      10
006900                                                                 01
007000                                                                 01
007100     COPY "PROXI$CF01.WS".                                       25
007200                                                                 01
007300%01 APPLICATION-NAME  PIC X(30)                                   30
007400             VALUE "#110#".                                      26
007500%                                                                01
007600 Y,EQ,#210#!3                                                    12
007700 $-KEY-SELECT                                                    12
007800 01 STARTING-KEY  PIC X(#220#).                                  30
007900 01 ENDING-KEY.                                                  14
008000     10 FILLER                    PIC X(#220#).                 45
008100     10 ENDING-KEY-HIGH-VALUE     PIC X.                        38
008200 01 PRINTOUT-SELECTION  PIC X(#220#)  VALUE SPACES.              50
008300 $-KEY-SELECT                                                    12
008400                                                                 01
008500 01 SPOOL-CODE  PIC X  VALUE "#400#".                            36
008600                                                                 01
008700 #410#!7#1#!6                                                    12
008800 8,LT,#1#!4                                                      10
008900 $-SPOOL-FILE-NAME-LENGTH-9-OR-10                                32
009000 10#1#!6                                                         07
009100 $-SPOOL-FILE-NAME-LENGTH-9-OR-10                                32
009200%01 SPOOLER-FILE-NAME.                                           21
009300     10 FILLER            PIC X(#1#) VALUE "#410#".             51
009400     10 SPOOL-LINE-NUMBER  PIC 99.                              33
009500                                                                 01
009600 01 FIRST-DETAIL-LINE-NUMBER  PIC 99  VALUE #420#.               49
009700                                                                 01
009800 #420#,+,#430#!5,-,1#!5#3#!6                                     27
009900 01 LAST-DETAIL-LINE-NUMBER  PIC 99  VALUE #3#.                  46
010000                                                                 01
010100 01 BOTTOM-PAGE-LINE-NUMBER  PIC 99  VALUE #440#.                48
```

```
010200                                                                  01
010300                                                                  01
010400 Y,EQ,#100000#!3                                                  15
010500 $-RECORD-SELECTION                                               18
010600 01 RECORD-SELECTION       PIC X   VALUE SPACE.                  46
010700 $-RECORD-SELECTION                                               18
010800                                                                  01
010900     COPY "PROXI$CF03.WS".                                        25
011000                                                                  01
011100 0#8#!6                                                           06
011200 1#1#!6                                                           06
011300 200#10#!6                                                        09
011400 DETAIL#9#!6                                                      11
011500 #7#!8                                                            05
011600 #10#,+,#1#!5#3#!6                                                17
011700 #(#3#)000#!1                                                     12
011800 $-LINE-DEF                                                       10
011900 #1#01,+,#10#00#!5#3#!6                                           22
012000 #(#3#)0#!1                                                       10
012100 $-LINE-FIELDS                                                    13
012200%01 #9#-LINE-#1#                                                  15
012300                     REDEFINES PRINT-LINE.                        41
012400 1#2#!6                                                           06
012500 1#4#!6                                                           06
012600 #5#!8                                                            05
012700 #2#,+,#1#00#!5,+,#10#00#!5#3#!6                                  31
012800 #(#3#)0#!1                                                       10
012900 $-FIELD-DEF                                                      11
013000 #!BFIELD                                                         08
013100 999,NE,#'1#!3                                                    13
013200 $-PRINT-FIELD                                                    13
013300 #4#,LT,#'1#!4                                                    13
013400 $-01                                                             04
013500 #'1#,-,#4#!5#6#!6                                                17
013600     05 FILLER  PIC X(#6#).                                       26
013700 $-01                                                             04
013800     05 #9#-#1#-FIELD-#2#  PIC #'3#.                              35
013900 T,EQ,#'5#!3                                                      11
014000 $-TOTAL-REDEF                                                    13
014100 #8#!A                                                            05
014200     05 PRINT-TOTAL-#8#  REDEFINES #9#-#1#-FIELD-#2#              51
014300                              PIC #'3#.                          39
014400 $-TOTAL-REDEF                                                    13
014500 #'1#,+,#'4#!5#4#!6                                               18
014600 $-PRINT-FIELD                                                    13
014700 #2#!A                                                            05
014800 #5#!9                                                            05
014900 $-FIELD-DEF                                                      11
015000 1,EQ,#4#!3                                                       10
015100 $-NO-FIELDS                                                      11
015200     05 FILLER    PIC X.                                         23
015300 $-NO-FIELDS                                                      11
```

```
015400 #1#!A                                                          05
015500 #7#!9                                                          05
015600 $-LINE-FIELDS                                                  13
015700 $-LINE-DEF                                                     10
015800 200,EQ,#10#!4                                                  13
015900 $-TOTAL-DEF                                                    11
016000 1#1#!6                                                         06
016100 400#10#!6                                                      09
016200 TOTAL#9#!6                                                     10
016300 #7#!9                                                          05
016400 $-TOTAL-DEF                                                    11
016500 400,EQ,#10#!4                                                  13
016600 $-TOF-DEF                                                      09
016700 1#1#!6                                                         06
016800 600#10#!6                                                      09
016900 TOP-OF-FORM#9#!6                                               16
017000 #7#!9                                                          05
017100 $-TOF-DEF                                                      09
017200 600,EQ,#10#!4                                                  13
017300 $-PBK-DEF                                                      09
017400 1#1#!6                                                         06
017500 800#10#!6                                                      09
017600 PAGE-BREAK#9#!6                                                15
017700 #7#!9                                                          05
017800 $-PBK-DEF                                                      09
017900                                                                01
018000 400000#!1                                                      09
018100 $-CONTROL-BREAK-KEY-DEFINE                                     26
018200 01 TOTAL-KEY-1     VALUE LOW-VALUES.                          36
018300     10 FILLER    PIC #400002#.                                30
018400 $-CONTROL-BREAK-KEY-DEFINE                                     26
018500 1#9200#!6                                                      09
018600                                                                01
018700 01 TOTALS    VALUE ZERO.                                       24
018800 1#1#!6                                                         06
018900 #7#!8                                                          05
019000 9100,+,#1#!5#3#!6                                              17
019100 #(#3#)#!1                                                      09
019200 $-TOTAL                                                        07
019300         20 TOTAL-#1#  PIC #(#3#)#.                            34
019400 #1#!A                                                          05
019500 #7#!9                                                          05
019600 $-TOTAL                                                        07
019700 1,EQ,#1#!3                                                     10
019800 $-DUMMY-TOTAL-DEFINE                                           20
019900         20 TOTAL-1  PIC 9.                                    26
020000 $-DUMMY-TOTAL-DEFINE                                           20
```

```
020100                                                                  01
020200 0,LT,#8100#!4                                                    13
020300 $-DEFINE-ACCUMULATORS                                            21
020400 #8100##2#!6                                                      11
020500 1#1#!6                                                           06
020600 #5#!8                                                            05
020700 8100,+,#1#!5#3#!6                                                17
020800 #(#3#)##3#!6                                                     12
020900 8000,+,#3#!5#4#!6                                                17
021000 01 A#3#  PIC #(#4#)#   VALUE ZERO.                               34
021100 #1#!A                                                            05
021200 #1#,LE,#2#!4                                                     12
021300 $-MORE                                                           06
021400 #5#!9                                                            05
021500 $-MORE                                                           06
021600 $-DEFINE-ACCUMULATORS                                            21
021700/                                                                 01
021800$SCREEN SECTION.                                                  15
021900%                                                                 01
022000     COPY "PROXI$CF01.SD".                                        25
022100     COPY "PROXI$CF03.SD".                                        25
022200                                                                  01
022300 Y,EQ,#210#!3                                                     12
022400 $-KEY-SELECT                                                     12
022500 01 START-END-SCREEN.                                            20
022600     03 BLANK SCREEN.                                             20
022700     03  LINE 1  COL 1  PIC X(30)                                 32
022800                        FROM APPLICATION-NAME.                   45
022900     03  LINE 10 COL 20     "PLEASE ENTER".                       42
023000     03  LINE 12 COL 25     "STARTING KEY".                       42
023100     03  START-ENTRY  LINE 12 COL 39 PIC X(#220#)                 48
023200                              TO STARTING-KEY.                    45
023300     03  LINE 14 COL 25     "ENDING KEY".                         40
023400     03  END-ENTRY LINE 14 COL 39 PIC X(#220#)                    45
023500                              TO ENDING-KEY.                      43
023600                                                                  01
023700 01 START-END-DEFAULT-SCREEN.                                     28
023800     03 LINE 12 COL 39  "ALL"  BLANK LINE.                        41
023900                                                                  01
024000 01 START-END-SCREEN-END.                                         24
024100     03 LINE 12 COL 39  "END"  BLANK LINE.                        41
024200 $-KEY-SELECT                                                     12
```

```
024300/                                                          01
024400$PROCEDURE DIVISION.                                       19
024500%DECLARATIVES.                                             13
024600                                                           01
024700     COPY "PROXI$CF03.DC".                                 25
024800                                                           01
024900     COPY "#200#.DC".                                      20
025000                                                           01
025100 Y,EQ,#300#!3                                               12
025200 $-FILE-DEF                                                 10
025300 1#1#!6                                                     06
025400 #2#!8                                                      05
025500 #3(#1#)0#!1                                                11
025600 $-FILE-DEF-A                                               12
025700     COPY "#3(#1#)0#.DC".                                  24
025800 #1#!A                                                      05
025900 #2#!9                                                      05
026000 $-FILE-DEF-A                                               12
026100 $-FILE-DEF                                                 10
026200                                                           01
026300                                                           01
026400 END DECLARATIVES.                                          17
026500/                                                          01
026600* **********    LEVEL 1    **********                      36
026700                                                           01
026800%MAIN-LOGIC SECTION.                                       19
026900 BEGIN.                                                     06
027000     PERFORM OPEN-FILES.                                   23
027100 PRINT-RECORDS.                                             14
027200 Y,EQ,#210#!3                                               12
027300 $-KEY-SELECT                                               12
027400     PERFORM SELECT-RANGE.                                 25
027500     IF ESCAPE-CODE = END-KEY                              28
027600             GO TO END-OF-FORM.                            30
027700 $-KEY-SELECT                                               12
027800     DISPLAY WAIT-PRINTING.                                26
027900     MOVE ZERO TO LINE-COUNT.                              28
028000     PERFORM PRINT-THE-LINES.                              28
028100 Y,EQ,#210#!3                                               12
028200 $-KEY-SELECT                                               12
028300     IF PRINTOUT-SELECTION IS NOT = "ALL",                 41
028400 #401000#!1                                                 10
028500 $-CONTROL-BREAK                                            15
028600         MOVE LOW-VALUES TO TOTAL-KEY-1                    38
028700 $-CONTROL-BREAK                                            15
028800         GO TO PRINT-RECORDS.                              28
028900 $-KEY-SELECT                                               12
029000 END-OF-FORM.                                               12
029100     PERFORM TOP-OF-FORM.                                  24
029200     DISPLAY WAIT-PROCESSING.                              28
029300     PERFORM CLOSE-FILES.                                  24
029400     PERFORM CALL-NEXT-PROGRAM.                            30
029500     STOP RUN.                                             13
```

```
029600/                                                          01
029700* **********    LEVEL 2    **********                       36
029800                                                           01
029900%OPEN-FILES.                                               11
030000     PERFORM GET-DATES.                                    22
030100     PERFORM OPEN-#200#.                                   23
030200     IF #207# IS NOT = I-O-OK                              28
030300         PERFORM CALL-ERROR-PROGRAM.                       35
030400                                                           01
030500 Y,EQ,#300#!3                                              12
030600 $-FILE-DEF                                                10
030700 1#1#!6                                                    06
030800 #2#!8                                                     05
030900 #3(#1#)0#!1                                               11
031000 $-FILE-DEF-A                                              12
031100     PERFORM OPEN-#3(#1#)0#.                               27
031200     IF #3(#1#)7# IS NOT = I-O-OK                          32
031300         PERFORM CALL-ERROR-PROGRAM.                       35
031400 #1#!A                                                     05
031500 #2#!9                                                     05
031600 $-FILE-DEF-A                                              12
031700 $-FILE-DEF                                                10
031800                                                           01
031900                                                           01
032000     PERFORM PRINTER-OPEN.                                 25
032100     IF PRINTER-STATUS IS NOT = I-O-OK                     37
032200         IF ESCAPE-CODE = END-KEY                          32
032300             PERFORM CALL-NEXT-PROGRAM                     37
032400         ELSE                                              12
032500             PERFORM CALL-ERROR-PROGRAM.                   39
032600                                                           01
032700 Y,EQ,#210#!3                                              12
032800 $-KEY-SELECT                                              12
032900%SELECT-RANGE.                                             13
033000     PERFORM START-END-KEY-SELECTION.                      36
033100     IF ESCAPE-CODE IS NOT = END-KEY                       35
033200         PERFORM CHECK-FOR-ITEMS-IN-RANGE                  40
033300         IF #207# = AT-END OR                              28
033400                    #207# = RECORD-NOT-FOUND OR            46
033500                            #206# > ENDING-KEY             45
033600             PERFORM NONE-WITHIN-RANGE                     37
033700             GO TO SELECT-RANGE.                           31
033800     IF ESCAPE-CODE NOT = END-KEY                          32
033900         MOVE STARTING-KEY TO #206#                        34
034000         PERFORM POSITION-#200#-TO-KEY.                    38
034100 $-KEY-SELECT                                              12
```

```
034200                                                          01
034300%PRINT-THE-LINES.                                         16
034400     PERFORM READ-NEXT-#200#-RECORD.                      35
034500 0,EQ,#9200#!4                                            13
034600 $-NO-CONTROL-BREAK                                       18
034700     IF #207# NOT = AT-END                                25
034800 $-NO-CONTROL-BREAK                                       18
034900 0,LT,#9200#!4                                            13
035000 $-CONTROL-BREAK                                          15
035100 N,EQ,#100000#!3                                          15
035200 $-NO-RECORD-SELECTION                                    21
035300     PERFORM CHECK-FOR-CONTROL-BREAK.                     36
035400     IF #207# NOT = AT-END                                25
035500 $-NO-RECORD-SELECTION                                    21
035600 Y,EQ,#100000#!3                                          15
035700 $-RECORD-SELECTION                                       18
035800     IF #207# = AT-END                                    21
035810 Y,EQ,#210#!3                                             12
035820 $-KEY-SELECT                                             12
035830             OR #206# > ENDING-KEY                        33
035840 $-KEY-SELECT                                             12
035900         PERFORM CHECK-FOR-CONTROL-BREAK.                 40
036000     IF #207# NOT = AT-END                                25
036100 $-RECORD-SELECTION                                       18
036200 $-CONTROL-BREAK                                          15
036300 Y,EQ,#210#!3                                             12
036400 $-KEY-SELECT                                             12
036500             AND #206# NOT > ENDING-KEY                   38
036600 $-KEY-SELECT                                             12
036700 Y,EQ,#300#!3                                             12
036800 $-REF-FILE-LOOK-UP                                       18
036900         PERFORM REFERENCE-FILE-LOOK-UP                   38
037000 $-REF-FILE-LOOK-UP                                       18
037100 1#1#!6                                                   06
037200 #7#!8                                                    05
037300 200,+,#1#!5#3#!6                                         16
037400 #(#3#)000#!1                                             12
037500 $-LINE-PRINT                                             12
037600         PERFORM PRINT-DETAIL-LINE-#1#                    37
037700 #1#!A                                                    05
037800 #7#!9                                                    05
037900 $-LINE-PRINT                                             12
038000         GO TO PRINT-THE-LINES.                           30
```

```
038100                                                          01
038200%PRINT-TOP-OF-FORM.                                       18
038300 #601000#!1                                               10
038400 $-TOP-OF-FORM                                            13
038500 1#1#!6                                                   06
038600 #7#!8                                                    05
038700 600,+,#1#!5#3#!6                                         16
038800 #(#3#)000#!1                                             12
038900 $-LINE-PRINT                                             12
039000     PERFORM PRINT-TOP-OF-FORM-LINE-#1#.                  39
039100 #1#!A                                                    05
039200 #7#!9                                                    05
039300 $-LINE-PRINT                                             12
039400 $-TOP-OF-FORM                                            13
039500 #601000#!2                                               10
039600 $-NO-TOP-OF-FORM                                         16
039700     EXIT.                                                09
039800 $-NO-TOP-OF-FORM                                         16
039900                                                          01
040000%PRINT-PAGE-BREAK.                                        17
040100 #801000#!1                                               10
040200 $-PAGE-BREAK                                             12
040300 1#1#!6                                                   06
040400 #7#!8                                                    05
040500 800,+,#1#!5#3#!6                                         16
040600 #(#3#)000#!1                                             12
040700 $-LINE-PRINT                                             12
040800     PERFORM PRINT-PAGE-BREAK-LINE-#1#.                   38
040900 #1#!A                                                    05
041000 #7#!9                                                    05
041100 $-LINE-PRINT                                             12
041200 $-PAGE-BREAK                                             12
041300 #801000#!2                                               10
041400 $-NO-PAGE-BREAK                                          15
041500     EXIT.                                                09
041600 $-NO-PAGE-BREAK                                          15
```

```
041700/                                                          01
041800* **********    LEVEL 3    **********                      36
041900                                                           01
042000 Y,EQ,#300#!3                                              12
042100 $-REF-FILE-LOOK-UP                                        18
042200 REFERENCE-FILE-LOOK-UP.                                   23
042300 1#1#!6                                                    06
042400 #2#!8                                                     05
042500 #3(#1#)0#!1                                               11
042600 $-REF-FILE-ACCESS                                         17
042700     IF #3(#1#)6# NOT = #3(#1#)2#                          32
042800         MOVE #3(#1#)2# TO                                25
042900             #3(#1#)6#                                    21
043000         PERFORM READ-#3(#1#)0#.                          31
043100 #1#!A                                                     05
043200 #2#!9                                                     05
043300 $-REF-FILE-ACCESS                                         17
043400 $-REF-FILE-LOOK-UP                                        18
043500                                                           01
043600 CALL-NEXT-PROGRAM.                                        18
043700     DISPLAY WAIT-LINE-24.                                25
043800     CALL PROGRAM "#120#".                                25
043900     STOP RUN.                                            13
044000                                                           01
044100 CALL-ERROR-%PROGRAM.                                      19
044200     DISPLAY WAIT-LINE-24.                                25
044300     CALL PROGRAM "#130#".                                25
044400     STOP RUN.                                            13
044500                                                           01
044600 Y,EQ,#210#!3                                              12
044700 $-KEY-SELECT                                              12
044800%CHECK-FOR-ITEMS-IN-RANGE.                                 25
044900     MOVE STARTING-KEY TO #206#.                          31
045000     PERFORM POSITION-#200#-TO-KEY.                       34
045100     IF #207# = I-O-OK                                    21
045200         PERFORM READ-NEXT-#200#-RECORD.                  39
045300 $-KEY-SELECT                                              12
```

```
045400                                                          01
045500 0#8#!6                                                   06
045600 1#1#!6                                                   06
045700 200#10#!6                                                09
045800 DETAIL#9#!6                                              11
045900 #7#!8                                                    05
046000 400,EQ,#10#!3                                            13
046100 $-TOTAL-ONLY                                             12
046200 9000,+,#1#!5#2#!6                                        17
046300 #(#2#)#!2                                                09
046400 $-DO-TOTALS                                              11
046500 $-TOTAL-ONLY                                             12
046600 #10#,+,#1#!5#3#!6                                        17
046700 #(#3#)000#!1                                             12
046800 $-LINE-MOVE-PRINT                                        17
046900 $-DO-TOTALS                                              11
047000%PRINT-#9#-LINE-#1#.                                      19
047100 200,EQ,#10#!3                                            13
047200 $-DETAIL-LINE-ONLY                                       18
047300 Y,EQ,#100000#!3                                          15
047400 $-RECORD-SELECTION                                       18
047500 #8##5#!6                                                 08
047600 101,+,#8#!5#3#!6                                         16
047700 #(#3#)000#,EQ,#1#!4                                      19
047800 $-RECORD-SEL-DEF                                         16
047900 #8#!A                                                    05
048000     MOVE "N" TO RECORD-SELECTION.                        33
048100     PERFORM TEST-RECORD-SELECTION-#8#.                   38
048200 $-RECORD-SEL-DEF                                         16
048300     IF RECORD-SELECTION = "Y"                            29
048400 #5#,NE,#8#!3                                             12
048500 $-RECORD-SEL-DEFINED                                     20
048600 0,LT,#9200#!4                                            13
048700 $-CONTROL-BREAK                                          15
048800         PERFORM CHECK-FOR-CONTROL-BREAK                  39
048900 $-CONTROL-BREAK                                          15
049000 $-RECORD-SEL-DEFINED                                     20
049100 $-RECORD-SELECTION                                       18
049200 $-DETAIL-LINE-ONLY                                       18
049300 #1#,+,#10#!5#3#!6                                        17
049400 #(#3#)004#,EQ,Y#!3                                       18
049500 $-SELECT-LINE                                            13
049600 100,+,#10#!501,+,#1#00#!5#3#!6                           30
049700 #(#3#)0#!BSELECT                                         16
049800     IF #'2# #'3#                                        16
049900             #(#3#)2#                                    20
050000 #5#!8                                                    05
050100 #3#!A                                                    05
050200 #(#3#)0#!1                                               10
050300 $-01                                                     04
```

```
050400 #!BSELECT                                                        09
050500         #'1# #'2# #'3#                                           22
050600             #(#3#)2#                                             20
050700 #5#!9                                                            05
050800 $-01                                                             04
050900 $-SELECT-LINE                                                    13
051000 #10#,+,#1#!5#3#!6                                                17
051100 0,NE,#(#3#)000#!3                                                17
051200 $-BLB-0                                                          07
051300 P,EQ,#(#3#)000#!3                                                17
051400 $-BLB-P                                                          07
051500         MOVE ZERO TO PAGE-NUMBER                                 32
051600 $-BLB-P                                                          07
051700 9,LT,#(#3#)000#!3                                                17
051800 $-BLB-P-OR-T                                                     12
051900         MOVE ZERO TO LINE-COUNT                                  31
052000 $-BLB-P-OR-T                                                     12
052100 9,GE,#(#3#)000#!3                                                17
052200 $-BLB-1-9                                                        09
052300         PERFORM LINE-FEED #(#3#)000# TIMES                       42
052400 $-BLB-1-9                                                        09
052500 $-BLB-0                                                          07
052600 #10#,+,#1#!5#3#!6                                                17
052700 0,GE,#(#3#)002#!3                                                17
052800 $-BLA-0-OR-*                                                     12
052900 400,EQ,#10#!3                                                    13
053000 $-TOTAL-ONLY                                                     12
053100 9000,+,#1#!5#2#!6                                                17
053200 #(#2#)#!1                                                        09
053300 $-MOVE-TOTALS                                                    13
053400         PERFORM MOVE-TOTALS-#1#                                  31
053500 $-MOVE-TOTALS                                                    13
053600 $-TOTAL-ONLY                                                     12
053700         PERFORM #9#-LINE-#1#-LOGIC.                              35
053800 $-BLA-0-OR-*                                                     12
053900 0,LT,#(#3#)002#!3                                                17
054000 $-BLA-NOT-0-OR-*                                                 16
054100 400,EQ,#10#!3                                                    13
054200 $-TOTAL-ONLY                                                     12
054300 9000,+,#1#!5#2#!6                                                17
054400 #(#2#)#!1                                                        09
054500 $-MOVE-TOTALS                                                    13
054600         PERFORM MOVE-TOTALS-#1#                                  31
054700 $-MOVE-TOTALS                                                    13
054800 $-TOTAL-ONLY                                                     12
054900         PERFORM #9#-LINE-#1#-LOGIC                               34
055000 P,EQ,#(#3#)002#!3                                                17
055100 $-BLA-P                                                          07
055200         MOVE ZERO TO PAGE-NUMBER                                 32
055300 $-BLA-P                                                          07
```

```
055400 9,LT,#(#3#)002#!3                                    17
055500 $-BLA-P-OR-T                                         12
055600         MOVE ZERO TO LINE-COUNT.                     32
055700 $-BLA-P-OR-T                                         12
055800 9,GE,#(#3#)002#!3                                    17
055900 $-BLA-1-9                                            09
056000         PERFORM LINE-FEED #(#3#)002# TIMES.          43
056100 $-BLA-1-9                                            09
056200 $-BLA-NOT-0-OR-*                                     16
056300 #1#!A                                                05
056400 #7#!9                                                05
056500 $-LINE-MOVE-PRINT                                    17
056600 200,EQ,#10#!3                                        13
056700 $-TOTAL-DEF                                          11
056800 1#1#!6                                               06
056900 400#10#!6                                            09
057000 TOTAL#9#!6                                           10
057100 #7#!9                                                05
057200 $-TOTAL-DEF                                          11
057300 400,EQ,#10#!3                                        13
057400 $-TOF-DEF                                            09
057500 1#1#!6                                               06
057600 600#10#!6                                            09
057700 TOP-OF-FORM#9#!6                                     16
057800 #7#!9                                                05
057900 $-TOF-DEF                                            09
058000 600,EQ,#10#!3                                        13
058100 $-PBK-DEF                                            09
058200 1#1#!6                                               06
058300 800#10#!6                                            09
058400 PAGE-BREAK#9#!6                                      15
058500 #7#!9                                                05
058600 $-PBK-DEF                                            09
058700/                                                     01
058800* **********    LEVEL 4    **********                 36
058900                                                      01
059000 Y,EQ,#100000#!3                                      15
059100 $-RECORD-SELECTION                                   18
059200 1#8#!6                                               06
059300 #7#!8                                                05
059400 100,+,#8#!5#3#!6                                     16
059500 #(#3#)000#!1                                         12
059600 $-RECORD-SEL-DEF                                     16
```

```
059700%TEST-RECORD-SELECTION-#8#.                                    26
059800 #3#01#3#!6                                                    10
059900 #(#3#)0#!BSELECT                                              16
060000     IF #'2# #'3#                                              16
060100             #(#3#)2#                                          20
060200 #5#!8                                                         05
060300 #3#!A                                                         05
060400 #(#3#)0#!1                                                    10
060500 $-01                                                          04
060600 #!BSELECT                                                     09
060700         #'1# #'2# #'3#                                        22
060800             #(#3#)2#                                          20
060900 #5#!9                                                         05
061000 $-01                                                          04
061100         MOVE "Y" TO RECORD-SELECTION.                         37
061200                                                              01
061300 #8#!A                                                         05
061400 #7#!9                                                         05
061500 $-RECORD-SEL-DEF                                              16
061600 $-RECORD-SELECTION                                            18
061700                                                              01
061800 #400000#!1                                                    10
061900 $-CONTROL-BREAK-CHECK                                         21
062000%CHECK-FOR-CONTROL-BREAK.                                      24
062100     IF #207# = AT-END                                         21
062200 Y,EQ,#210#!3                                                  12
062300 $-KEY-SELECT                                                  12
062400             OR #206# > ENDING-KEY                             33
062500 $-KEY-SELECT                                                  12
062600         PERFORM CONTROL-BREAK.                                30
062700     IF #400000# NOT = TOTAL-KEY-1                             33
062800         IF TOTAL-KEY-1 = LOW-VALUES                           35
062900             MOVE #400000#                                     25
063000                     TO TOTAL-KEY-1                            34
063100         ELSE                                                  12
063200             PERFORM CONTROL-BREAK.                            34
063300 $-CONTROL-BREAK-CHECK                                         21
```

```
063400/                                                          01
063500* **********    LEVEL 5    **********                       36
063600                                                           01
063700%CONTROL-BREAK.                                            14
063800 #401000#!1                                                10
063900 $-CONTROL-BREAK                                           15
064000     IF LINE-COUNT > ZERO                                  24
064100         PERFORM TOP-OF-BOTTOM                             29
064200 1#1#!6                                                    06
064300 #7#!8                                                     05
064400 400,+,#1#!5#3#!6                                          16
064500 #(#3#)000#!1                                              12
064600 $-LINE-PRINT                                              12
064700         PERFORM PRINT-TOTAL-LINE-#1#                      36
064800 #1#!A                                                     05
064900 #7#!9                                                     05
065000 $-LINE-PRINT                                              12
065100         MOVE ZERO TO LINE-COUNT, PAGE-NUMBER, DETAIL-PRINT. 59
065200     MOVE #400000# TO TOTAL-KEY-1.                         33
065300     MOVE ZEROS TO TOTALS.                                 25
065400 $-CONTROL-BREAK                                           15
065500 #401000#!2                                                10
065600 $-NO-CONTROL-BREAK                                        18
065700     EXIT.                                                 09
065800 $-NO-CONTROL-BREAK                                        18
065900/                                                          01
066000* **********    LEVEL 6    **********                       36
066100                                                           01
066200 1#1#!6                                                    06
066300 1#4#!6                                                    06
066400 #7#!8                                                     05
066500 9000,+,#1#!5#3#!6                                         17
066600 #(#3#)##3#!6                                              12
066700 0,LT,#3#!4                                                10
066800 $-MOVE-TOTALS                                             13
066900%MOVE-TOTALS-#1#.                                          16
067000 1#2#!6                                                    06
067100 #8#!8                                                     05
067200 #2#,LE,#3#!4                                              12
067300 $-01                                                      04
067400     MOVE TOTAL-#4# TO PRINT-TOTAL-#4#.                    38
067500 #4#!A                                                     05
067600 #2#!A                                                     05
067700 #8#!9                                                     05
067800 $-01                                                      04
067900 #1#!A                                                     05
068000 #7#!9                                                     05
068100 $-MOVE-TOTALS                                             13
```

```
068200                                                          01
068300 0#8#!6                                                   06
068400 1#4#!6                                                   06
068500 1#1#!6                                                   06
068600 200#10#!6                                                09
068700 DETAIL#9#!6                                              11
068800 #7#!8                                                    05
068900 400,EQ,#10#!3                                            13
069000 $-TOTAL-ONLY                                             12
069100 9000,+,#1#!5#3#!6                                        17
069200 #(#3#)#!2                                                09
069300 $-DO-TOTALS                                              11
069400 $-TOTAL-ONLY                                             12
069500 #10#,+,#1#!5#3#!6                                        17
069600 #(#3#)000#!1                                             12
069700 $-LINE-PARA                                              11
069800 #1#01,+,#10#00#!5#3#!6                                   22
069900 #(#3#)0#!1                                               10
070000 $-LINE-FIELDS                                            13
070100 $-DO-TOTALS                                              11
070200%#9#-LINE-#1#-LOGIC.                                      19
070300 0#6#!6                                                   06
070400 400,EQ,#10#!3                                            13
070500 $-TOTAL-LEVEL                                            13
070600 #4#!A                                                    05
070700 $-TOTAL-LEVEL                                            13
070800 0#2#!6                                                   06
070900 #5#!8                                                    05
071000 #2#!A                                                    05
071100 #2#,+,#1#00#!5,+,#10#00#!5#3#!6                          31
071200 #(#3#)0#!1                                               10
071300 $-FIELD-DEF                                              11
071400 #!BFIELD                                                 08
071500 999,NE,#'1#!3                                            13
071600 $-FIELD-MOVE                                             12
071700     MOVE #'2#                                            13
071800         TO #9#-#1#-FIELD-#2#.                            29
071900 1#6#!6                                                   06
072000 $-FIELD-MOVE                                             12
072100  ,EQ,#'5#!3                                             11
072200 $-NO-COMPUTE                                             12
072300 #5#!9                                                    05
072400 $-NO-COMPUTE                                             12
072500 T,EQ,#'5#!3                                              11
072600 $-TOTAL-ACCUM                                            13
072700 #8#!A                                                    05
072800     ADD #'2# TO TOTAL-#8#.                               26
072900 #5#!9                                                    05
073000 $-TOTAL-ACCUM                                            13
```

```
073100 =,EQ,##!3                                                09
073200 $-MOVE                                                   06
073300     MOVE #'2# TO #'6#.                                   22
073400 #5#!9                                                    05
073500 $-MOVE                                                   06
073600 +,EQ,##!3                                                09
073700 $-ADD                                                    05
073800     ADD #'2# TO #'6#.                                    21
073900 #5#!9                                                    05
074000 $-ADD                                                    05
074100 -,EQ,##!3                                                09
074200 $-SUBTRACT                                               10
074300     SUBTRACT #'2# FROM #'6#.                             28
074400 #5#!9                                                    05
074500 $-SUBTRACT                                               10
074600 *,EQ,##!3                                                09
074700 $-MULTIPLY                                               10
074800     MULTIPLY #'2# BY #'6#.                               26
074900 #5#!9                                                    05
075000 $-MULTIPLY                                               10
075100 /,EQ,##!3                                                09
075200 $-DIVIDE                                                 08
075300     DIVIDE #'2# INTO #'6#.                               26
075400 #5#!9                                                    05
075500 $-DIVIDE                                                 08
075600 %,EQ,##!3                                                09
075700 $-PERCENT                                                09
075800     MULTIPLY 100 BY #'6#.                                25
075900     DIVIDE #'2# INTO #'6#.                               26
076000 #5#!9                                                    05
076100 $-PERCENT                                                09
076200 $-FIELD-DEF                                              11
076300 400,EQ,#10#!3                                            13
076400 $-%TOTAL-ONLY                                            12
076500 9000,+,#1#!5#3#!6                                        17
076600 #3#!2                                                    05
076700 $-NO-TOTAL-MOVE                                          15
076800 $-TOTAL-ONLY                                             12
076900 1,EQ,#6#!3                                               10
077000 $-PRINT-THE-LINE                                         16
077100 $-NO-TOTAL-MOVE                                          15
077200 #1#,+,#10#!5#3#!6                                        17
077300 *,NE,#(#3#)002#!3                                        17
077400 $-PRINT-NOT-SUPPRESSED                                   22
077500     PERFORM PRINT.                                       18
077600 $-PRINT-NOT-SUPPRESSED                                   22
077700 $-PRINT-THE-LINE                                         16
077800 #1#!A                                                    05
077900 #7#!9                                                    05
078000 $-LINE-FIELDS                                            13
078100 $-LINE-PARA                                              11
```

```
078200 200,EQ,#10#!3                                                    13
078300 $-TOTAL-DEF                                                      11
078400 1#1#!6                                                           06
078500 400#10#!6                                                        09
078600 TOTAL#9#!6                                                       10
078700 #7#!9                                                            05
078800 $-TOTAL-DEF                                                      11
078900 400,EQ,#10#!3                                                    13
079000 $-TOF-DEF                                                        09
079100 1#1#!6                                                           06
079200 600#10#!6                                                        09
079300 TOP-OF-FORM#9#!6                                                 16
079400 #7#!9                                                            05
079500 $-TOF-DEF                                                        09
079600 600,EQ,#10#!3                                                    13
079700 $-PBK-DEF                                                        09
079800 1#1#!6                                                           06
079900 800#10#!6                                                        09
080000 PAGE-BREAK#9#!6                                                  15
080100 #7#!9                                                            05
080200 $-PBK-DEF                                                        09
080300/                                                                 01
080400* **********    INPUT/OUTPUT ROUTINES    **********               50
080500                                                                  01
080600%I-O-SECTION SECTION.                                             20
080700 OPEN-#200#.                                                      11
080800     OPEN INPUT #204#.                                           21
080900     IF #207# = USE-ERROR                                        24
081000         PERFORM #200#-IN-USE.                                   29
081100 READ-NEXT-#200#-RECORD.                                          23
081200     READ #204# NEXT RECORD.                                     27
081210     IF #207# = RECORD-LOCKED                                    28
081220         PERFORM #200#-RECORD-IN-USE                             35
081230         GO TO READ-NEXT-#200#-RECORD.                           37
081300 #200#-IN-USE.                                                    13
081400     MOVE "#200# FILE IN USE  -  TRY AGAIN LATER" TO             51
081500                                                 MESSAGE-FIELD.62
081600     PERFORM DISPLAY-MESSAGE.                                    28
081610 #200#-RECORD-IN-USE.                                             20
081620     MOVE "#200# RECORD IN USE" TO                               33
081630                                                 MESSAGE-FIELD.62
081640     DISPLAY ERROR-MESSAGE-LINE.                                 31
081650     CALL PROGRAM HASH-W.                                        24
081655     CALL PROGRAM HASH-W.                                        24
081660     DISPLAY CLEAR-MESSAGE.                                      26
081700 Y,EQ,#210#!3                                                     12
081800 $-KEY-SELECT                                                     12
081900 POSITION-#200#-TO-KEY.                                           22
082000     START #204# KEY IS NOT LESS THAN #206#.                     43
082100 NONE-WITHIN-RANGE.                                               18
082200     MOVE "NO RECORDS WITHIN RANGE SELECTED" TO                  46
082300                                               MESSAGE-FIELD.    59
082400     PERFORM DISPLAY-MESSAGE.                                    28
082500 $-KEY-SELECT                                                     12
```

```
082600                                                                  01
082700 Y,EQ,#300#!3                                                     12
082800 $-FILE-DEF                                                       10
082900 1#1#!6                                                           06
083000 #2#!8                                                            05
083100 #3(#1#)0#!1                                                      11
083200 $-FILE-DEF-A                                                     12
083300 OPEN-#3(#1#)0#.                                                  15
083400     OPEN INPUT #3(#1#)4#.                                        25
083500     IF #3(#1#)7# = USE-ERROR                                     28
083600         PERFORM #3(#1#)0#-IN-USE.                                33
083700 READ-#3(#1#)0#.                                                  15
083800     READ #3(#1#)4#                                               18
083900         INVALID KEY                                              19
084000             MOVE SPACE TO #3(#1#)5#.                             36
084010     IF #3(#1#)7# = RECORD-LOCKED                                 32
084020         PERFORM #3(#1#)0#-RECORD-IN-USE                          39
084030         GO TO READ-#3(#1#)0#.                                    29
084100 #3(#1#)0#-IN-USE.                                                17
084200     MOVE "#3(#1#)0# FILE IN USE  -  TRY AGAIN LATER" TO          55
084300                                              MESSAGE-FIELD.      62
084400     PERFORM DISPLAY-MESSAGE.                                     28
084410 #3(#1#)0#-RECORD-IN-USE.                                         24
084420     MOVE "#3(#1#)0# RECORD IN USE" TO                            37
084430                                              MESSAGE-FIELD.      62
084440     DISPLAY ERROR-MESSAGE-LINE.                                  31
084450     CALL PROGRAM HASH-W.                                         24
084455     CALL PROGRAM HASH-W.                                         24
084460     DISPLAY CLEAR-MESSAGE.                                       26
084500 #1#!A                                                            05
084600 #2#!9                                                            05
084700 $-FILE-DEF-A                                                     12
084800 $-FILE-DEF                                                       10
084900                                                                  01
085000%CLOSE-FILES.                                                     12
085100     PERFORM CLOSE-PRINTER-FILE.                                  31
085200     CLOSE #204#.                                                 16
085300                                                                  01
085400 Y,EQ,#300#!3                                                     12
085500 $-FILE-DEF                                                       10
085600 1#1#!6                                                           06
085700 #2#!8                                                            05
085800 #3(#1#)0#!1                                                      11
085900 $-FILE-DEF-A                                                     12
086000     CLOSE #3(#1#)4#.                                             20
086100 #1#!A                                                            05
086200 #2#!9                                                            05
086300 $-FILE-DEF-A                                                     12
086400 $-FILE-DEF                                                       10
```

```
086500                                                          01
086600                                                          01
086700     COPY "PROXI$CF06.PL".                                25
086800                                                          01
086900 Y,EQ,#210#!3                                             12
087000 $-KEY-SELECT                                             12
087100     COPY "PROXI$CF05.PL".                                25
087200 $-KEY-SELECT                                             12
087300/                                                         01
087400* **********    UTILITY ROUTINES    **********            45
087500                                                          01
087600%UTILITIES SECTION.                                       18
087700     COPY "PROXI$CF01.PL".                                25
```

End of Chapter

Index

Within this index, the letter "f" following a page entry means "and the following page"; "ff" means "and the following pages". Primary references, if any, are given first.

DataGeneral

users group

Installation Membership Form

Name _____ Position _____ Date _____

Company, Organization or School _____

Address _____ City _____ State _____ Zip _____

Telephone: Area Code _____ No. _____ Ext. _____

1. Account Category

- ☐ OEM
- ☐ End User
- ☐ System House
- ☐ Government

2. Hardware

	Qty. Installed	Qty. On Order
M/600		
MV/Series ECLIPSE®		
Commercial ECLIPSE		
Scientific ECLIPSE		
Array Processors		
CS Series		
NOVA® 4 Family		
Other NOVAs		
microNOVA® Family		
MPT Family		

Other _____
(Specify) _____

3. Software

- ☐ AOS
- ☐ AOS/VS
- ☐ AOS/RT32
- ☐ MP/OS
- ☐ MP/AOS
- ☐ RDOS
- ☐ DOS
- ☐ RTOS
- ☐ Other

Specify _____

4. Languages

- ☐ ALGOL
- ☐ DG/L
- ☐ COBOL
- ☐ Interactive COBOL
- ☐ PASCAL
- ☐ Business BASIC
- ☐ BASIC
- ☐ Assembler
- ☐ FORTRAN 77
- ☐ FORTRAN 5
- ☐ RPG II
- ☐ PL/1
- ☐ APL
- ☐ Other

Specify _____

5. Mode of Operation

- ☐ Batch (Central)
- ☐ Batch (Via RJE)
- ☐ On-Line Interactive

6. Communication

- ☐ HASP
- ☐ HASP II
- ☐ RJE80
- ☐ RCX 70
- ☐ RSTCP
- ☐ 4025
- ☐ X.25
- ☐ SAM
- ☐ CAM
- ☐ XODIAC™
- ☐ DG/SNA
- ☐ 3270
- ☐ Other

Specify _____

7. Application Description

○ _____

8. Purchase

From whom was your machine(s) purchased?

- ☐ **Data General Corp.**
- ☐ Other

Specify _____

9. Users Group

Are you interested in joining a special interest or regional Data General Users Group?

○ _____

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DataGeneral

Data General Corporation, Westboro, Massachusetts 01580, (617) 366-8911

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FOLD

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Westboro, MA 01581

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TP_____

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Technical Information & Publications Service

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CITY _____
STATE_____ ZIP _____
ATTN: _____

SHIP TO: (if different)
COMPANY NAME_____
ADDRESS _____
CITY _____
STATE_____ ZIP _____
ATTN: _____

QTY	MODEL #	DESCRIPTION	UNIT PRICE	LINE DISC	TOTAL PRICE

(Additional items can be included on second order form)

[Minimum order is $50.00]

Tax Exempt #_____
or Sales Tax (if applicable)

TOTAL	
Sales Tax	
Shipping	
TOTAL	

METHOD OF PAYMENT

☐ Check or money order enclosed
For orders less than $100.00

☐ Charge my ☐ Visa ☐ MasterCard
Acc't No._____ Expiration Date_____

☐ Purchase Order Number:_____

SHIP VIA

☐ DGC will select best way (U.P.S or Postal)

☐ Other:
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☐ Air Freight
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Person to contact about this order _____ Phone _____ Extension _____

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Attn: Educational Services/TIPS F019
4400 Computer Drive
Westboro, MA 01580
Tel. (617) 366-8911 ext. 4032

_____
Buyer's Authorized Signature Date
(agrees to terms & conditions on reverse side)

_____
Title

_____
DGC Sales Representative (If Known) Badge #

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6. Read carefully the terms and conditions of the TIPS program on the reverse side of the Order Form.
7. Sign on the line provided on the form and enclose with payment. Mail to:

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   Educational Services – M.S. F019
   Data General Corporation
   4400 Computer Drive
   Westboro, MA 01580
8. We'll take care of the rest!

educational services

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Your Name _____ Your Title _____

Company _____

Street _____

City _____ State _____ Zip _____

We wrote this book for you, and we made certain assumptions about who you are and how you would use it. Your comments will help us correct our assumptions and improve the manual. Please take a few minutes to respond. Thank you.

Manual Title _____ Manual No. _____

Who are you? ☐EDP Manager ☐Analyst/Programmer ☐Other _____
☐Senior Systems Analyst ☐Operator _____

What programming language(s) do you use? _____

How do you use this manual? *(List in order: 1 = Primary Use)* _____

___ Introduction to the product ___ Tutorial Text ___ Other
___ Reference ___ Operating Guide _____

About the manual:	Yes	Somewhat	No
Is it easy to read?	☐	☐	☐
Is it easy to understand?	☐	☐	☐
Are the topics logically organized?	☐	☐	☐
Is the technical information accurate?	☐	☐	☐
Can you easily find what you want?	☐	☐	☐
Does it tell you everything you need to know	☐	☐	☐
Do the illustrations help you?	☐	☐	☐

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