

REPORTSTAR™ USER REFERENCE MANUAL



REPORTSTAR™
USER REFERENCE
MANUAL

ReportStar™

User Reference Manual

For ReportStar Release 1.0

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MicroPro International Corporation
33 San Pablo Avenue
San Rafael, California 94903 USA**

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INTRODUCTION

This manual contains detailed instructions that will enable you to prepare a report with ReportStar. The information in this publication supplements the ReportStar General Information Manual. If you have not yet studied the general information, please do so before continuing.

We recommend you skim the entire User Reference Manual before you start to work. Acquainting yourself with the organization and contents can save you time and effort. If you find yourself a little intimidated by the size of this manual, bear in mind that ReportStar offers a wide range of features which are all documented here. Depending on your requirements, you may not use all of these features.

This introductory section explains how to use the manual. As you work with ReportStar, indexes and display reference numbers help you find information quickly.

Organization of Your ReportStar User Reference Manual

The basic unit of information in this manual is a *procedure*. A procedure is any action you perform, from typing a report name to entering a logical expression. All ReportStar procedures are explained in this manual. Eventually, as you design your own reports, you will vary the basic procedures to fit your own needs.

Procedure Numbers

Every ReportStar procedure has been assigned a unique number so that you can find it easily in this manual. Procedure numbers run consecutively and appear in the upper corner of each page.

There are four separate programs in your ReportStar system, the Quick Report program (which is named "RGEN"), the Report Edit program (named "REDIT"), the

Report Print program (named "REPORT"), and the sorting program (named "FORMSORT"). All procedure numbers associated with the Quick Report begin with the digit 1; those associated with the Report Edit program begin with the digit 2; those associated with the Report Print program begin with the digit 3; and those associated with FORMSORT begin with the digit 4.

Within the Report Edit program are three major divisions, File Description, Report Layout Design, and Report Field Definition. All File Description procedures begin with the digits 21; all Report Layout Design procedures begin with the digits 22; and all Report Field Definition procedures begin with the digits 23.

Note that some numbers in the procedural sequence seem to be missing. The gaps make future additions a simple matter. Your Procedure Maps and Procedure Indexes (explained in this section) show you which procedures are present in your manual.

<u>Program/Division</u>	<u>Procedure Numbers</u>
Quick Report	1nnn
Report Edit	2nnn
File Description	21nn
Report Layout Design	22nn
Report Field Definition	23nn
Report Print	3nnn
Form Sorting	4nnn

Display Screen Reference Numbers

Display screen reference numbers are identical to procedure numbers, except that procedure numbers appear in your User Reference Manual and display screen reference numbers appear on your terminal. Display screen reference numbers refer you to the pages of this manual where a specific procedure is explained.

Help Messages

Each prompt has a help message which explains how to respond. To see the help message, simply enter ^J while the prompt is on your screen. When the help message appears, you will see the display screen reference number in the upper right hand corner. If you still need more information, turn to the corresponding procedure in this manual.

After you read the help message, press any key to return to the program.

Procedure Maps

Procedure maps illustrate how certain procedures are related and show the paths you take as you respond to various prompts. These maps are printed on fold-out pages for availability while you are reading associated materials.

Procedure Documentation

Every effort has been made to standardize the way procedures are documented in this manual. Each section shows the displayed prompt and a general description of how the procedure functions, followed by a detailed description of your possible responses to the prompt.

Each prompt requires that you take some specific action, such as entering a file name or answering a question. Other actions may be optional (indicated in brackets).

Optional action: {REPLACE DATA FIELD CHOICES}
Mandatory action: SELECT DATA FIELDS

Indexing

This manual contains a Table of Contents and two cross-referenced indexes.

Table of Contents

The Table of Contents lists the contents of your manual by procedure number.

Indexes

This manual contains two separate indexes: a *procedure action index* and a *subject index*. Use the procedure action index when you need to look up a specific action; e.g., **Start Quick Report Program**. Use the subject index to look up information about specific subjects; e.g., **Status Line** or **Intermediate Fields**.

Your display screen reference numbers are another form of indexing.

Command Menus

Command menus appear at the top of your display screen and contain most, though not necessarily all, of the control commands for a particular program or screen. These commands are further summarized on your ReportStar Command Summary Card.

Prerequisites

Before you use the ReportStar User Reference Manual, you must know your computer and your operating system. Then, after you read the ReportStar General Information Manual and complete the exercises in the Training Guide, this manual will serve you well.

The Quick Report program (RGEN), ordinarily your starting point, reads the form definition file (created by DataStar) and produces a report specification file from information you provide. From Quick Report, you can go either to the Report Edit program or directly to the Report Print program. (See Illustration 1 on page 6.)

In the Report Edit program (REDIT), you can create a report or change it after it is created. This program also reads form definition files and can read or write a report specification file. When your report design is complete, you can go directly to the Report Print program or save your report specification file and print the report later.

Use the Report Print program (REPORT) when you are ready to produce your report. As the map shows, report input can come from a datafile, from the computer operator, or be calculated by the program itself. The program can also create datafiles, and the final report can be sent directly to the printer or written on a disk.

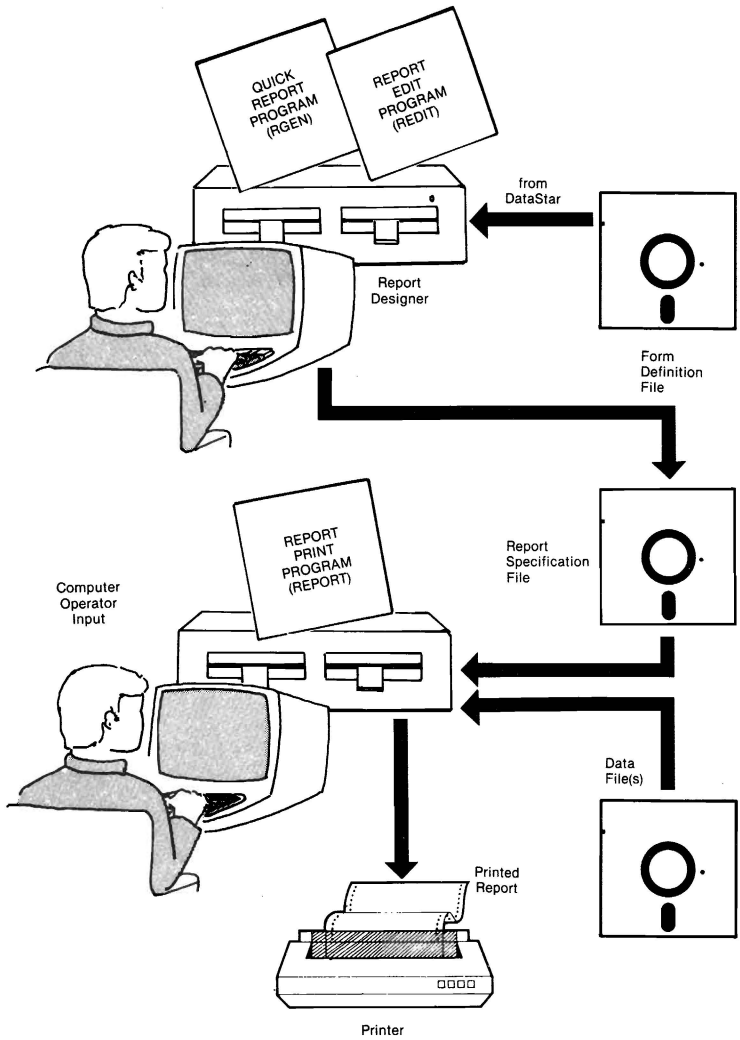


Illustration 1
ReportStar System Map

SECTION 1. QUICK REPORT

The Quick Report program (RGEN) creates a detailed report in a simple, useful format. Use RGEN, for example, to print detailed lists or prepare summaries of your information.

When you start RGEN, a series of instructions (or prompts) appears on your screen. Your responses tell ReportStar what you want your report to show.

START QUICK REPORT PROGRAM

When you start the Quick Report program, your computer must be at the operating system prompt. First type **RGEN** and press **RETURN**. The Name Report Screen appears on your terminal. If you type the name of your report specification file on the same line as **RGEN** and then press **RETURN**, the Name Report Screen is bypassed and the File Selection Screen appears on your terminal. Remember:

RGEN (RETURN) displays the Name Report Screen.
RGEN filename (RETURN) displays the File Selection Screen.

Quick Report Display Screens

There are five different display screens that help you prepare a Quick Report. They are:

NAME REPORT SCREEN
FILE SELECTION SCREEN
FIELD SELECTION SCREEN
SUMMARY SELECTION SCREEN
REPORT COMPLETION SCREEN

The Quick Report Display Screens are shown on your Quick Report Procedure Map (page 1-3) and are explained on the following pages.

Name Report Screen

The Name Report Screen appears first when you start RGEN. In response to the prompt, you enter the name of the Quick Report you are going to create. This name also becomes the name of the report specification file you will create with RGEN procedures. (The report specification file is discussed in your General Information Manual under "ReportStar and Your Data Base.")

File Selection Screen

The File Selection Screen asks for the name of the form definition file you will use to create the Quick Report. The form definition file (.DEF) describes the format, structure, and content of the datafile being used for the report. You create a .DEF file using the FormGen program in the DataStar 1.4 issue.

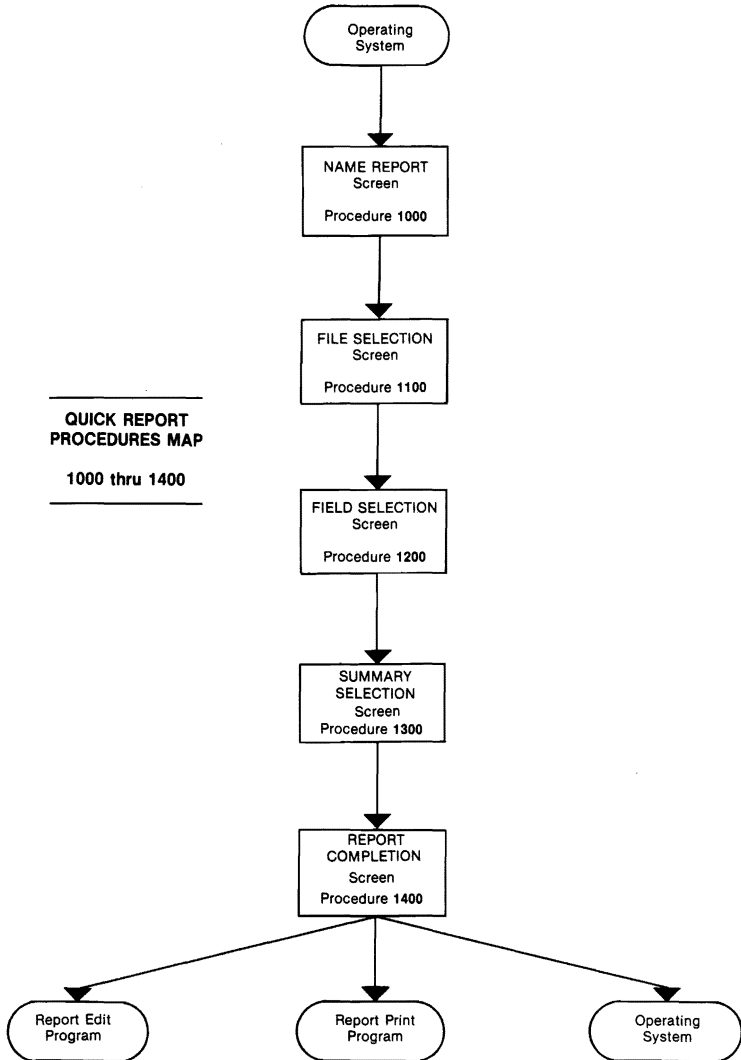
Field Selection Screen

The Field Selection Screen shows the data fields available in the file you have selected. At this screen, you indicate which data fields (from the datafile) you want to include in your Quick Report.

Summary Selection Screen

As part of the Quick Report process, you may instruct ReportStar to accumulate certain numeric summaries and print them on your report at specified times. At the Summary Selection Screen, you may choose which summaries you want computed.

Illustration 1-1: Quick Report Procedure Map



Report Completion Screen

Finally, the Report Completion Screen asks you how to proceed with your Quick Report. You may print the report (now or later), you may make changes to the format of the report, or you may choose to abandon the work you have done.

Additional Comments

You will usually complete the procedures associated with one display screen before moving on to the next. But at times you may want to move from screen to screen. There are several control commands you can use to go back and change something without leaving ReportStar and having to start over. These control commands and any restrictions on their use are explained in this manual.

RGEN helps you create a simple listing of information in a datafile. The program serves a second, equally important function by providing a quick way to start a report which you can expand using the Report Edit program (REDIT). In other words, begin your design with RGEN and elaborate on it with REDIT.

Error Conditions

As you work through the various procedures to prepare your Quick Report, you may encounter error messages. If you do, ReportStar helps you correct the situation by displaying a message on your terminal to explain the error. Descriptions of all the Quick Report messages and possible solutions are listed in a section starting on page 1-31.

Name Report/1000



Please enter your report name here
(or press RETURN):

Name Report Screen

The Name Report Screen asks you to name your Quick Report. The name you enter here has two uses. First, it becomes the title of your report (although you can change this title before printing the report if you wish). Second, it becomes the name of the report specification file you build as you define your report. (This file is explained in your General Information Manual under "ReportStar and Your Data Base.") When ReportStar writes the report specification file on your designated disk, it adds the extension **.RPT** to it.

ReportStar and your operating system will not allow you to have two separate reports (or files) with the same name on the same disk. If the name you enter matches the name of a file already on your logged disk, a message gives you two options:

1. To examine and make changes to the report specification file you have named.
2. To enter a different name for your report and file.

1000 *Name Report*

Once you make your selection ReportStar leads you through the appropriate procedures.

You can store your report specification file on a disk other than your current logged disk or retrieve it from another disk. Simply prefix the file name with the letter of the desired disk drive. This procedure is discussed more fully in this section under "Enter Disk Drive Letter."

VERIFY INSTALLATION OF YOUR REPORTSTAR PROGRAMS

Also displayed on the Name Report Screen are the program release number, serial number, and copyright information. If ReportStar has been properly installed on your computer, another brief message names your terminal. If this information does not match your equipment, *stop now* and run the installation program, or your computer may behave unpredictably. Refer to Appendix B in this manual for information on the Installation program.

ENTER REPORT SPECIFICATION FILE NAME

Because the report specification is a disk file, its name must conform to the rules for naming disk files. The name must not be more than eight characters long. You may use the letters A through Z (upper or lowercase) and numbers 0 through 9 in any combination. Do *not* type the .RPT extension when entering the report specification file name.

Press **RETURN** to enter the file name you have typed.

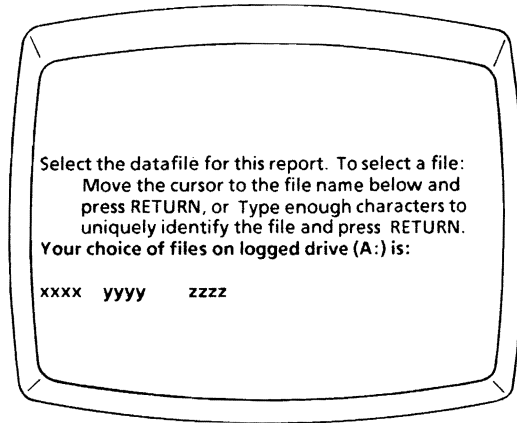
{ENTER DISK DRIVE LETTER}

You can create your report specification file on a disk drive other than your current logged drive. If you are logged on disk drive A, for example, you can build your file on drive B. You simply precede the file name with the letter of the disk drive you want, followed by a colon (:). For example, if you want to create the report specification file named "REPORT5" on drive B, you would enter **B:REPORT5** or **b:report5**. (Upper or lowercase and drives A through P are accepted.)

{END NAME REPORT PROCEDURE}

Enter **^C** if you want to stop here and return to your operating system prompt.

1100/File Selection



File Selection Screen

The File Selection Screen lists the form definition files on your logged disk and asks you to select one for your report. You *must* have a form definition file to describe your datafile.

The DataStar 1.4 program called FormGen was used to create the form definition file, which describes how the information contained in your datafile is organized and what names you may use to reference data fields in the datafile. Please refer to your DataStar manuals for a complete description.

Contents of the File Selection Screen

The File Selection Screen contains a status line, Command Menu, prompt message, and file directory.

Status Line

The status line is the first line of the File Selection Screen. It shows the **Report name** (which is also the name of your report specification file). Once you select the form definition file, its name is inserted in the status line following the words **File name**.

Command Menu

The Command Menu appears on the next seven lines of the File Selection Screen. It shows the various commands you may use to make your file selection. Use the ^J command to remove this menu if you don't want it displayed or to restore it when you do. Removing the menu provides additional lines on the screen for your file directory.

Prompt Message

Below the Command Menu is the prompt message which tells you how to select the form definition file. This message, like the Command Menu, may be removed and restored to give you additional lines for your directory. Use the ^K command.

File Directory

In the middle of the File Selection Screen is the message, "**Your choice of files on logged drive (x:) is:**". (In place of "x" you see the letter of the currently logged disk.) Immediately below this message is the file directory for your logged disk with the names of form definition files listed in alphabetical order. If the form definition file you want is not listed in the directory, log to another disk and display that directory. (See "Log to different disk /display new directory" in this section.)

If you are operating under the MP/M operating system, the file directory for your logged user area is displayed at the top of the directory area. Below this file directory (separated by two blank lines) is the directory for User 0. You can select files from either directory.

File Selection Screen Procedures

SELECT FORM DEFINITION FILE

There are two ways to select a form definition file from the file directory. You can either enter the name of the form definition file by typing its name, or you can move the cursor into the name in the file directory and press **RETURN**.

ENTER FORM DEFINITION FILE NAME

Because the form definition is a file, its name must conform to the rules for file names. The name must not be more than eight characters. You can use the letters A through Z (upper or lowercase) and numbers 0 through 9 in any combination. Do *not* type the .DEF extension when entering the form definition file name.

You only need to type enough characters of the file name to distinguish it from others in the displayed directory. For example, if one of the displayed file names is "DATA01" and another is "DATAFILE," the first file may be selected by typing "DATA0" or the second by typing "DATAF" After you type the characters, press **RETURN**.

You cannot select a form definition file unless its name is displayed in the directory on your screen. If you attempt to type a name which is not in your directory, an error message appears and you cannot continue until you enter an acceptable name.

SELECT FORM DEFINITION FILE BY CURSOR POSITIONING

When the File Selection Screen appears on your terminal, the cursor moves back and forth between the file name portion of the status line and one of the file names in the directory. You can use the cursor commands shown in the Command Menu to move the cursor within the directory. Once the cursor is placed directly on the name of the file you want to select, press **RETURN** and the selection is completed automatically.

{LOG TO DIFFERENT DISK DRIVE / DISPLAY NEW DIRECTORY}

If the form definition file you want to use does not appear in the directory on your screen, you can log to another drive and view the directory of that disk. To log to another disk drive, enter **^L**. You will see the following message:

The current logged disk is **x**:
To change the logged disk, enter the new drive name
(**A-P**) here:

(In place of **x** you see the letter of your current logged drive.) As soon as you type the letter of the next logged drive, ReportStar displays the directory for that disk on your screen.

{RETURN TO OPERATING SYSTEM PROMPT}

Enter **^C** if you want to stop here and return to your operating system prompt.

{SCROLL FILE DIRECTORY}

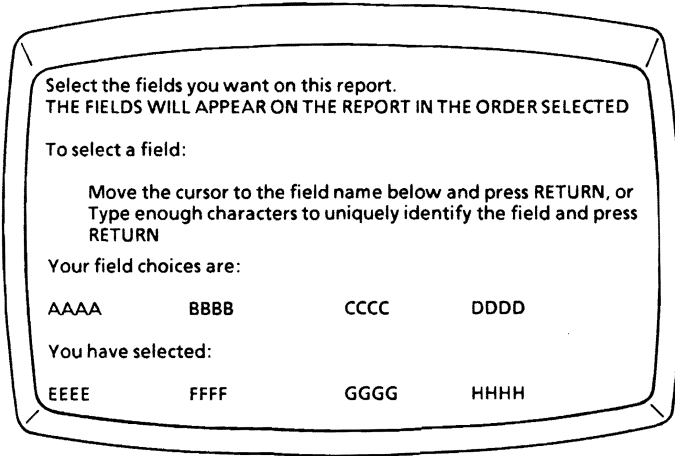
To scroll the file directory *upward* one line at a time, enter **^Z**. To scroll the file directory *downward* one line at a time, enter **^W**.

1100 *File Selection*

{TOGGLE COMMAND MENU OR PROMPT MESSAGE}

To remove or restore the Command Menu, enter ^J. To remove or restore the Prompt Message, enter ^K.

Field Selection/1200



Field Selection Screen

The Field Selection Screen displays the data fields in your datafile. From this list you select fields in the order you want them to appear on your report. As you select a data field, the name (or number) of that field moves from the "selection" list to the "selected" list so that you can keep track of your selections. The Field Selection Screen contains a status line, Command Menu, prompt message, and data field selection list.

Contents of the Field Selection Screen

Status Line

The status line is the first line of the Field Selection Screen. It shows the **Report name** (which is also the name of your report specification file), the **File name** (which is the name of your form definition file), and the **Number of columns used**. Each time you select a data field for your report, ReportStar computes the number of print columns required to place the field on the report by adding two to the length of the data field or the data field name, whichever is greater. ReportStar remembers this total for you and displays it in the status line next to **Number of columns used**. If you delete selections, ReportStar decreases the total accordingly.

Note that the maximum number of columns ReportStar can accommodate is 255. If you exceed this limit, you will see an error message. You won't be able to select additional data fields for your report unless you first remove some fields. Watch this number to make sure you do not exceed the limits of your paper or your printer. If you are going to write the report into a disk file rather than to your printer, the **Number of columns used** still cannot exceed the maximum line length of 255 columns.

Command Menu

The Command Menu appears on the next seven lines of the Field Selection Screen. It shows the various control commands you can use to make your field selection. Use the **^J** command to remove this menu if you don't want it displayed or to restore it when you do. Removing the menu provides additional lines on the screen for your data field selection lists.

Prompt Message

Below the Command Menu is the prompt message which tells you how to select your data fields. This message, like the Command Menu, can be removed and restored to give you additional lines on your screen. Use the ^K command.

Data Field Selection Lists

Below the prompt message is the statement "**Your field choices are.**" Displayed below this line is a list of the data fields you can select for your report. If your form definition file contains names for the data fields, they are listed here. Otherwise, only the numbers of the data fields are listed. (If data field names are not shown and you want to include them in your form definition file, you will have to return to the FormGen program in DataStar to add them. Your DataStar manuals contain the necessary instructions.)

Because the original display may not show you all of the data fields in your datafile, you may want to remove the Command Menu and prompt message.

Immediately below your list of data field choices is a message reading, "**You have selected.**" As you select a data field, its name or number disappears from the list of data field choices and reappears below this message.

You can alternate between a two and a four column display of your data field selection lists by using the ^L command. The two column display accommodates data field names up to 32 characters. The four column display accommodates names up to 16 characters.

Intermediate Fields

You can set up intermediate fields in DataStar. These are fields which are derived as the result of a calculation or from a reference file and are not written in the new data record. The names you assign to intermediate fields won't show up in your data field selection list. The word **INTERMEDIATE** appears where a place is reserved for this field. You cannot select these fields for your report. If you attempt to move the cursor into the word **INTERMEDIATE**, it automatically moves to the name of the next non-intermediate field.

The data fields you select will appear on your report in the order selected. For example, if you want the last data field in the data record to appear as the first field in the report, you should select that field first.

Field Selection Screen Procedures

SELECT DATA FIELDS

There are two ways to select data fields from the list of choices, by cursor positioning or by typing the name of the data field.

1. Cursor Positioning. Select a data field by placing the cursor directly into the name or number of the desired data field and pressing the **RETURN** key.
2. Typing Data Field Names. Type the name of each data field you wish to select and then press **RETURN**. You need only type enough characters of the name to distinguish it from others on the list of data field choices.

COMPLETE DATA FIELD CHOICES

Once you have selected the data fields for your report, remove the Field Selection Screen by entering **^N**. You will then see the Summary Selection Screen. If you do not want to select summary totals for your report, you can bypass the Summary Selection Screen and go directly to the Report Completion Screen by entering **^C**. In order to leave this screen and continue work on your report, you must select at least one data field before entering either **^N** or **^C**.

{REMOVE DATA FIELD SELECTION}

If you wish to remove a data field you have previously selected for your report, place the cursor in the name of that data field and enter **^T**. Your remaining selections move up to fill the gap left by the deleted field. The cursor then moves to the end of the "selected" list, giving you the option of choosing another field.

{REPLACE DATA FIELD SELECTION}

To replace one of your selected data fields with a different field, place the cursor in the name of the data field to be deleted and enter **^V**. The name is removed from the "selected" list and a blank line is left in its place. Move the cursor to the field you now want in the same position and press **RETURN**. The field you select replaces the field you just removed.

{RETURN TO FILE SELECTION PROCEDURE}

Enter **^P** to return to the file selection procedure (number **1100**). If you have not yet selected any data fields for your Quick Report, the File Selection Screen appears immediately. If you *have* selected data fields, those selections are lost when you leave the Field Selection Screen. The next message you see prevents accidental loss by double checking your response:

The command just entered, ^P, will return you to the file selection step. This will erase all the field and summary selections that you have made.

Is it OK to proceed with this command? (Y/N)

Enter **Y** to proceed. Enter **N** to go back to the Field Selection Screen.

{RETURN TO OPERATING SYSTEM PROMPT}

If you have not yet selected any data fields for your report, enter **^C** to return to your operating system prompt.

If you *have* selected data fields, entering **^C** takes you to the Report Completion Screen, bypassing the Summary Selection Screen. Follow the exit procedure (**1400**) to abandon your Quick Report.

{SCROLL FIELD CHOICES AND SELECTION LIST}

To scroll your list of field choices and selections upward one line at a time, enter **^Z**. To scroll the lists downward one line at a time, enter **^W**.

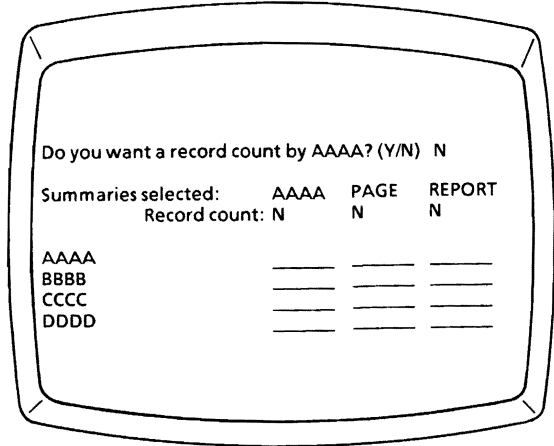
{TOGGLE COMMAND MENU or PROMPT MESSAGE}

To remove or restore the prompt message on your screen, enter ^K. To remove or restore the Command Menu on your screen, enter ^J.

{TOGGLE DATA FIELD SELECTION LISTS}

To change the format of your data field selection lists from two to four columns, enter ^L.

1300/Summary Selection



Summary Selection Screen

The Summary Selection Screen provides an easy way to set up special data fields that show record counts and numeric summaries of your datafile. Summaries can be printed at various stages of the report process,

- at any control break
- at the end of each page
- at the end of the report.

There are five types of summaries that may be printed:

1. A count of records processed so far (i.e. up to the specified control break, on each page, or for the entire report).
2. The total of data in a specific file field (i.e. adding up the amounts in one field across all records in the file).

3. The average value of a specific data field (across all the records).
4. The largest value of a specific data field.
5. The smallest value of a specific data field.

The four main parts of the Summary Selection Screen are the status line, the Command Menu, the message area, and the summary selection table.

Status Line

The status line is the first line of the Summary Selection Screen. It shows the **Report name** (which is also the name of your report specification file), the **File name** (which is the name of your form definition file), and the **Number of columns used** (which indicates the number of print columns you have used in your Quick Report layout). Note that as you select summaries, the number of columns used changes. Space is allocated for a summary field by adding five spaces to the length of the data field. The maximum number of columns ReportStar can accommodate is 255.

Command Menu

The Command Menu appears on the next seven lines of the Summary Selection Screen. It shows the various commands you can use to make your selections. Use the ^J command to remove this menu if you don't want it displayed or to restore it when you do. Removing the menu provides additional lines on the screen for your summary selection table.

Message Area

The message area is directly below the Command Menu. The message displayed here tells you which kind of summaries you can select with a given response, followed by the default response. The message can be toggled on and off with the ^K command. When the message is not displayed, the default response is still displayed in the upper left hand corner of the message area.

Summary Selection Table

Below the message area is the summary selection table. By filling in the blank spaces on this table, you tell ReportStar which summaries you want computed on the report. The line across the top of the table lists the Key fields from the datafile, plus the words **PAGE** and **REPORT**. Down the lefthand side of the table are all the fields you selected for inclusion on your report.

Use this table to select the various summaries you want computed for your Quick Report. You can perform two separate functions while at the Summary Selection Screen. First, select record counts for the report. Second, select data fields summary types, and print times.

Key Fields, Control Breaks and Summaries

A control break occurs in your report whenever the value in a Key field in one file record is different from the value of the same field in the next record. ReportStar asks if you want a summary (record count, etc.) by a certain Key field when the value of that Key field changes (i.e., at that control break). Refer to the glossary entry on sort order and control breaks in the General Information Manual.

Summary Selection Screen Procedures

{SELECT RECORD COUNTS FOR THE QUICK REPORT}

The following prompt message appears in the message area of the Summary Selection Screen:

Do you want a record count by xxxxxxxxxxxxxx? (Y/N)

In place of the x's in the message you see the name of a Key field specified in the form definition file. The cursor flashes back and forth between the first Key field and the default. If you want ReportStar to print the record count any time the value in this Key field changes, enter **Y** (for Yes). Otherwise, enter **N** (for No). The default changes to correspond with your entry.

If the selected form definition file indicates that the datafile has multiple Key fields, each Key field name will, in turn, replace the x's in the prompt message. Each time this replacement takes place, reply by entering **Y** or **N** or by pressing **RETURN** (to enter the indicated default).

Example: If your datafile has three Key fields named CUSTOMER NUMBER, INVOICE DATE, and INVOICE NUMBER, ReportStar first asks if you want to include a record count by CUSTOMER NUMBER. After you respond **Y** or **N**, you are asked if you want to include a record count by INVOICE DATE. And, finally, you will be asked if you want a record count by INVOICE NUMBER.

After you respond to the record count prompt for each Key field, you are asked if you want a record count printed for each page of the report. This count tells you how many data records were used on a specific report page. Enter **Y** if you want the record count printed at the bottom of each page in the Quick Report; otherwise enter **N**.

Finally, you are asked if you want a grand total of the number of data records used in the report. If you reply **Y**, the total will be printed on the last page of your report. If you do not want this total printed, reply **N**.

{SELECT DATA FIELDS, SUMMARY TYPES, AND PRINT TIMES}

After you finish selecting record counts, you will see the following prompt:

To select summaries by xxxxxxxxxxxx:
Enter any/none of the following letters and press
RETURN:
T(Total), **A**(Average), **L**(Largest value), **S**(Smallest value).

Listed vertically on the left side of the summary selection table are the names of the data fields you selected at the Field Selection Screen (listed in the order of selection). Across the top of the table are the names of the Key fields defined for the datafile (as specified in the form definition file) and the words **PAGE** and **REPORT**.

Use the cursor on this table to indicate for which data fields you want summaries. Select your summaries by moving the cursor to the same line as your data field name and in the column under the desired Key field. Note that when you position the cursor, the name of the Key field for that column appears in the prompt.

Once the cursor is properly placed, enter one or more of the letters to indicate the summaries you want. When you select a summary (Total, Average, Largest, Smallest), the letter (**T,A,L,S**) appears both in the table and in the default spaces of the message area. By pressing **RETURN**, you can insert all the characters from the default spaces into any line in the table. The letter you choose instructs ReportStar to compute and print a summary when there is a change in the value in the Key field named at the top of the column.

T = Total

Enter **T** if you want a total of the values contained in the data field.

A = Average

Enter **A** if you want to know the average value of the data field. ReportStar adds the values in the data field and then divides that total by the number of records used in the computation to produce the average.

L = Largest

Enter **L** if you want to know the largest value contained in the data field.

S = Smallest

Enter **S** if you want to know the smallest value contained in the data field.

You can select any combination of summaries or select none. Use caution to make sure the data fields contain data which can be used to compute meaningful results. Do not attempt to total data fields which contain alphabetic information, such as a name or address field. If you attempt such a computation, ReportStar will not warn you of your mistake until you attempt to print the report. Although it is possible to add data fields containing such values as telephone numbers, the result serves no useful purpose. The basic rule of thumb is to know the content of your data fields.

The Quick Report will *not* indicate negative values in a summary by printing minus signs, brackets, or other indicative characters. In order to show negative values on your report in this manner, you must create an edit mask for the report field. Edit masks are created in the Report Edit program (see procedure **2353** and **2354**).

Across the top of the table (following the names of the Key fields) are the words **PAGE** and **REPORT**. These two categories function like Key fields. By entering **T, A, L, S**, or a combination, you can instruct ReportStar to print the summaries at the end of each report page or at the end of the report.

Summary Selections Complete

When you have made your summary selections, enter **^C** to move to the Report Completion Screen.

{REMOVE SUMMARY SELECTIONS OR RECORD COUNTS}

If you decide to remove selected summaries from the body of the table, place the cursor over the item to be deleted and enter **^G**.

To remove or change selected record counts, move the cursor into the record count line of the Summary Selection Table and enter **Y** or **N** as previously explained under "Select Record Counts for the Quick Report".

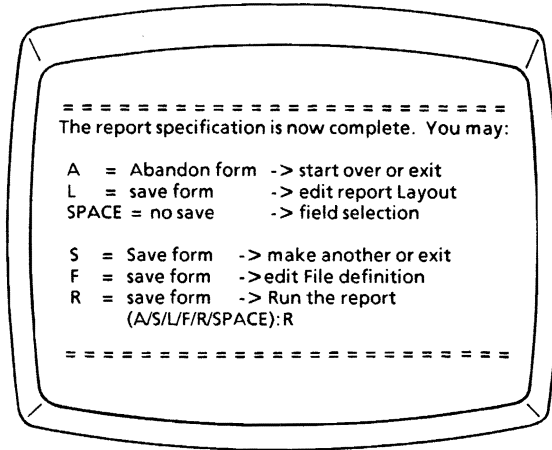
{RETURN TO FIELD SELECTION SCREEN}

If you want to select additional data fields for your report, or remove or replace any you have previously selected, return to the Field Selection Screen (procedure **1200**) by entering **^P**. You will not lose the summary selections you have already made.

{END SUMMARY SELECTION PROCEDURE}

Enter **^C** at this screen, and the Report Completion Screen will appear.

Report Completion/1400



Report Completion Screen

With this procedure you indicate what to do with the report specification file created for your Quick Report. The menu at the top of the Report Completion Screen lists the options available for completing the Quick Report. These options are explained in this section.

Caution: Several of these options end the Quick Report program (indicated when the next Procedure Number goes beyond the 1000 series). The only way to make changes to your report specification file once you have left the Quick Report program is by using the Report Edit program.

Quick Report Completion Options

A Abandon Form/Start Over or Exit

Enter **A** if you do not want to save the report specification file created in this Quick Report. ReportStar will ask you to confirm your choice with this message:

Abandon report generation without saving form? (Y/N)

You can still save your work in case you selected the "A" option by mistake or change your mind about abandoning the file. If you reply with **N**, the Summary Selection Screen (procedure **1300**) returns to your terminal. If you reply with **Y**, the Name Report Screen (procedure **1000**) returns.

L Save Form/Edit Report Layout

Enter **L** to save your report specification file and review the present format of your report. While reviewing the format, you can make whatever changes you wish.

When you select the **L** option, the Quick Report program stops and the Report Edit program starts automatically. Because ReportStar has this ability to link one program to another, you can create your basic report layout with the Quick Report and then elaborate on the design with the Report Edit program.

<p>NEXT PROCEDURE NO. 2200</p>

Space **Don't Save Form/Go To Field Selection**

Press the **SPACE** bar to return to the field selection procedure *without* saving your report specification file. Use this option to add, remove, or replace data fields in your report or to change your summary selections.

NEXT PROCEDURE
NO. 1200

S **Save Form/Make Another or Exit**

Enter **S** to save your report specification file and either create another file or return to your operating system.

NEXT PROCEDURE
NO. 1000

F **Save Form/Go To File Description**

Enter **F** to save your report specification file and then go on to the first prompt in the file description procedures (**2100**).

Like the **L** option explained above, typing **F** provides another link to the Report Edit program. It enables you to develop a simple report into a more complicated one.

NEXT PROCEDURE
NO. 2100

1400 *Report Completion*

R

⌘

Save Form/Run The Report

Enter **R** or press **RETURN** (default), if you want your report specification file written on the designated disk. You will leave the Quick Report program and start the Report Print program.

Note that your report does not begin printing immediately. You must respond to the prompts displayed by the Report Print program before printing starts.

**NEXT PROCEDURE
NO. 3100**

Quick Report Messages

When a problem arises, ReportStar displays an error message on your terminal. This section describes the probable cause and a recommended solution for each error.

**** ERROR 01 ****

**Can't read form definition file.
Press ESCAPE KEY.**

Problem. ReportStar cannot read the form definition file you selected. The problem may be that the file was not created with the FormGen program in DataStar.

Solution. You have two alternatives:

1. Assuming you have a backup version of your form definition file, put the disk with that file in an available drive and press ESCape. Processing will resume. Then log to the drive with the backup form definition file. If you see the error message again, try the next alternative.
2. Terminate ReportStar and use the FormGen program of DataStar to create the form definition file you need. Press ESCape, and then enter ^C.

**** ERROR 02 ****

**Fatal program error; please report occurrence.
Press RETURN.**

Problem. A major error has occurred in the ReportStar program. You must restart your Quick Report from the beginning.

Solution. Document what you were doing at the time the error occurred and report this matter to your dealer.

**** ERROR 03 ****

Insufficient memory.
Press RETURN.

Problem. There is not enough memory available on your computer to save the report the way you have designed it.

Solution. Reduce the size required for your report by simplifying it.

You could, for instance, reduce the size of the report layout by removing some of the report fields or by eliminating some summaries. Place your system boot disk back on the proper drive and press **RETURN**. You will return to your operating system to begin again.

**** ERROR 04 ****

Directory on disk y: full.
Press RETURN.

Problem. There is no more directory space on the disk in the drive indicated. (**Y** is replaced by the letter of the drive.) Your file cannot be written on that disk until you provide more space.

Solution. You have three alternatives:

1. Place a disk with adequate directory space for your file in the disk drive indicated and press **RETURN**. You will return to the operating system.
2. Transfer or erase enough files from the current disk to make room for the file you are attempting to write.
3. Enter **^L** to log to a different disk drive.

**** ERROR 05 ****

Disk y: full.
Press RETURN.

Problem. There is not enough space left on the disk to write the file you are now creating. (The disk drive letter replaces y.)

Solution. You have three alternatives:

1. Place a disk with adequate space for your file in the disk drive indicated and press **RETURN**. You will return to the operating system.
2. Transfer or erase enough files from the current disk to make room for the file you are attempting to write. To transfer or erase files, you must stop ReportStar and return to your operating system.
3. Enter **^L** to log to a different disk drive.

**** ERROR 06 ****

x - illegal character.
Press ESC key.

Problem. You have entered a character (x) which the program cannot recognize. Make certain the character you are trying to enter is one which can be used with the particular function you want to perform.

Solution. Press the **ESC**ape key, then enter a character which is acceptable to the program.

**** ERROR 07 ****

_____ is not present on drive y:
Specify which drive (A-P) to try next:

Problem. ReportStar cannot find the program it needs to edit or print your Quick Report. The name of the program appears in the first part of the prompt. (In place of *y* you see the letter of the disk drive where ReportStar looked for the program.)

Solution. Enter the letter of the disk drive that contains the program named in the message. Once you have entered this letter, the program will continue.

**** ERROR 08 ****

The report xxxxxxxx already exists. You may:

- E = Edit/examine that report, or
- G = Generate a new report (with a different name)

Press E or G:

Problem. A file with the name you provided already exists on the logged disk drive. (The *x*'s are replaced with the file name you entered.)

Solution. If you want to look through the report specification file you have named and possibly make changes, enter **E**. This will take you to the first procedure in file description (procedure **2100**).

If you want ReportStar to ignore the name you entered and create a new report, enter **G**. You may then enter a different name for your report specification file.

If you want to rename the existing report specification file so you can create a report with the name you entered, you must return to your operating system to do so. Enter **^C**.

**** ERROR 09 ****

"x" is not allowed in a report name.

Enter 1-8 letters and/or numbers. If you don't want the report stored on the logged drive, enter the new disk drive (A:-P:) before the report name.

Press ESC key to re-enter the report name.

Problem. You have used a character in the report specification file name which ReportStar cannot accept. Only letters A through Z (upper or lowercase) and numbers 0 through 9 may be used. The unacceptable character you entered replaces x at the beginning of the message.

Solution. Press the ESCape key. The original prompt will return to your display screen. Enter a correct file name.

**** ERROR 10 ****

"y:" is not a legal disk drive. To name a report:

Enter 1-8 letters and/or numbers. If you don't want the report stored on the logged drive, enter the new disk drive (A:-P:) before the report name.

Press ESC key to re-enter the report name.

Problem. You have entered a character to designate a disk drive which does not exist on your computer system. "Y" is replaced with the disk drive letter you entered. You may only enter letters from A through P (upper or lowercase), and the letter you enter *must* be that of a disk drive on your computer.

If you enter a disk drive letter between A and P, but the disk drive is not on your computer, ReportStar stops and you return to your operating system. You must then restart the ReportStar program.

Solution. Press the ESCape key, then re-enter the drive letter and file name correctly.

**** ERROR 11 ****

**There are no file descriptions on drive y:
Please enter the name (A-P) of an alternate drive to use:**

Problem. ReportStar cannot locate any form definition files on the currently logged drive.

Solution. Enter the letter of the disk drive where ReportStar can find the required file. Remember, you can use only the letters A through P (upper or lowercase). The letter you enter *must* be that of a disk drive which exists on your computer.

**** ERROR 12 ***

**The maximum report width is 255 columns.
The enter command is being ignored.
Press ESC key.**

Problem. The data fields you have selected for your Quick Report require more than 255 print columns. ReportStar has ignored the last data field you selected. All previous data field selections are retained.

Solution. Press the **ESCAPE** key. The original prompt returns to your display screen. You may remove or replace any data fields you have selected.

**** ERROR 13 ****

**The file selected has no fields.
Press ESC key to enter an alternate file name.**

Problem. The form definition file you selected does not contain necessary data field definitions. It cannot be used by ReportStar.

Solution. If you have an alternate form definition file on your disk, press the **ESCAPE** key and you may select that file. If, however, you do not have another file to use as an alternate, you must stop ReportStar and use the FormGen program in DataStar to create an appropriate form definition file.

**** ERROR 14 ****

The maximum number of fields (250) has been exceeded.
The enter command is being ignored.
Press ESC key.

Problem. The maximum number of data fields you may select for any given Quick Report is 250. When you selected your last data field or summary you exceeded this limit. Your selection has been ignored. However, all previous selections are retained.

Solution. Press the ESCape key. The original prompt returns to your display screen. You may remove or replace data fields previously selected.

**** ERROR 15 ****

You must select at least one field to create a report.
Press ESC key.

Problem. You pressed ^N at field selection before selecting any fields for your report. ReportStar cannot create your Quick Report unless you select at least one data field.

Solution. Press the ESCape key. The Field Selection Screen (procedure 1200) returns and you can select a data field.

**** WARNING 16 ****

The command just entered, ^P, will return you to the file selection step. This will erase all the field and summary selections that you have made.

Is it okay to proceed with this command? (Y/N)

Problem. This message warns you that by returning to the file selection step, you will lose the work done so far on this report. You will have to make another file selection.

Solution. Press Y or RETURN to continue with file selection procedures (1100).

Press N to remain at the field selection step (procedure 1200).

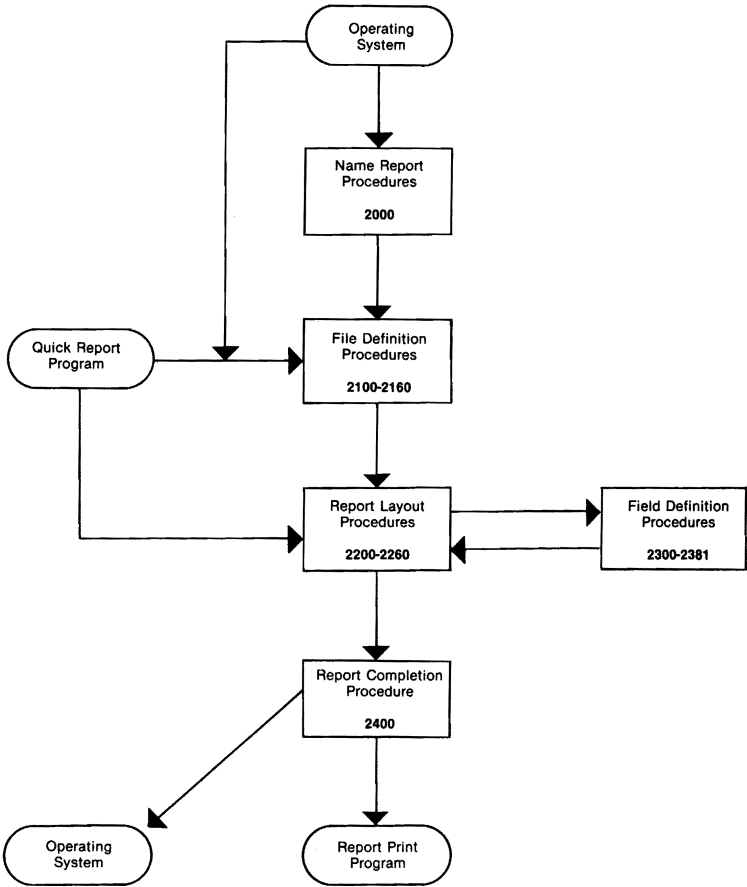
**** ERROR 17 ****

**The file selected has no Key fields.
Press ESC to enter an alternate file name.**

Problem. The form definition file you selected has no Key fields established. It cannot be used by ReportStar.

Solution. If you have an alternate form definition file on your disk, press the **ESC**ape key and you may select that file. If, however, you do not have another file to use as an alternate, you must stop ReportStar and use the FormGen program in DataStar to create an appropriate form definition file.

This concludes the Quick Report section of the ReportStar User Reference Manual.



**REPORT EDIT PROCEDURES MAP
PROCEDURES 2000 THROUGH 2400**

SECTION 2. REPORT EDIT

The Report Edit program (REDIT) enables you to customize a report. Although you will probably find it easier to use the basic layout of the Quick Report, you can create a report from scratch with REDIT.

REDIT has three major divisions:

File Description

File Description consists of a series of prompts asking you to provide information about the datafiles to be used for your report. These prompts are explained in procedures **2100** through **2160** of this section.

Report Layout Design

Report Layout Design consists of a series of actions you take to create a format for your report. These actions are explained in procedures **2200** through **2260**.

Report Field Definition

Report Field Definition consists of a series of prompts asking you for information about the data for the fields on your report (location, edit requirements, control break status, etc.). Every field in your report must be defined. Procedures **2300** through **2373** explain field definition.

The Name Report Screen and the Report Completion Screen (procedures **2000** and **2400**) display prompts that help you begin and end the Report Edit procedures.

2000/Name Report



To start the Report Edit program from your operating system prompt, type **REDIT** and press **RETURN**. The Name Report Screen appears, and you may begin the program.

You may bypass the Name Report Screen by typing the name of your report specification file on the same line as **REDIT** and then pressing **RETURN**. The first File Description Screen (**2100**) will appear on your terminal. Remember:

- | | |
|--------------------------------|---|
| REDIT (RETURN) | displays the screen illustrated above. (2000). |
| REDIT filename (RETURN) | displays either the first File DescriptionScreen (2100) or an introductory message (if you are creating a new report). |

Error Conditions

When you are ready to complete your report at procedure **2400**, ReportStar will check your definitions and specifications, then will notify you of any errors made during the Report Edit program.

At the end of the Report Edit section (following procedure **2400**) is a list of the messages and error conditions which may occur. A recommended course of action follows each.

The illustration 21-1, File Description 2100-2160, is located in the back of this manual.

File Description

The file description procedures explain each datafile in your report. One description can include:

- whether a datafile is input or output
- how data is to be retrieved, sequentially or by index
- on which disk drive the file is located
- whether files are contained on more than one disk
- which data records to use in your report.

During the description process, you see only the prompts needed by ReportStar to define a given datafile. Your File Description Procedure Map (Illustration 21-1) shows you the prompts you will see, and this manual fully explains them (procedures **2100-2160**).

As you perform the file description procedures, you work with the form definition file created in the FormGen module of DataStar.

Every datafile in your report must be defined, and there must be a separate file description for each one. If your report, for example, reads two datafiles as input and creates one output file, you need three file descriptions. When datafiles are contained in multiple volumes (i.e. on more than one disk or in more than one file on the same disk), then all volumes in the file can be represented by a single file description. Suppose you have multiple volumes of a sales transaction file, each created with the same form definition file. A single file description will cover all volumes in the file.

Cursor commands for file description appear in a Help Menu at the top of each screen.

Error Messages

If you make errors in describing your files, ReportStar advises you in the form of error messages displayed on your screen. Each error is listed and explained in the Run Time Error Message section of this manual.

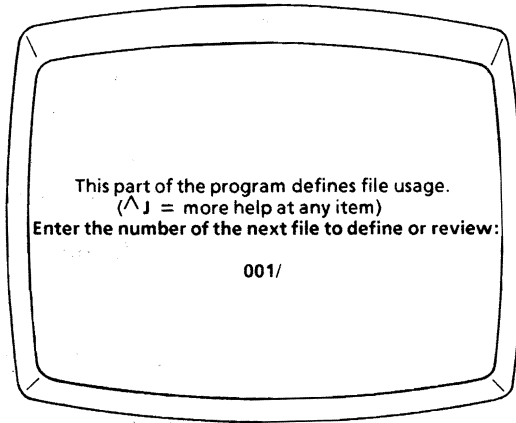
Caution: You must complete each entry and press **RETURN** before going to another function of the program. If you enter ^J to display help messages before completing an entry, any information already entered is lost and must be reentered.

START FILE DESCRIPTION PROCEDURES

First, start the Report Edit program (REDIT). The instructions are on page 2-2. If you are creating a report, rather than editing one, a help message explains the procedures. Otherwise, the first file description prompt appears when the program starts (see procedure **2100**).

Another way to start file description procedures is to select the **F** option at the Quick Report Completion Screen (see procedure **1400**).

File Number/2100



The first file description prompt asks for the number of the file you want to create, review, or remove.

Your report can have as many different file descriptions as your computer's memory allows. File descriptions are always numbered consecutively starting with 001 and increasing by one thereafter. If you have five file descriptions in your report, they are numbered 001 through 005. ReportStar assigns and keeps track of file description numbers for you.

Note: When entering a file description number, three digits are required. For example, enter 008 rather than 08 or 8.

When you first begin the file description procedures, the number of your report's first file description appears in the prompt. When a file name appears to the right of the slash (/) following the number, a file description has already been assigned to the number. If no name appears, you can create a new file description with the displayed number.

CREATE NEW FILE DESCRIPTION

To create a new file description, you must first find one not currently being used. The first available file description always follows the last one currently assigned. With the cursor positioned over the first digit of the file description number, enter successive ^F's or ^A's until you see a number without a name to the right of the slash. You can always find one by entering ^A at file description 001. The open name field means this file description is available.

Press **RETURN** and the cursor moves to the file name portion of the prompt.

<p style="text-align: center;">NEXT PROCEDURE NO. 2105</p>
--

**{REVIEW FILE DESCRIPTION / MAKE
CHANGES IF DESIRED}**

Once a file description is established in your report, you can look through that description any time. As you review, ReportStar displays each prompt originally used to create the file description and the current response to it. If you want to change a response, enter your new response when the prompt appears (just as if you were creating a new file description).

To review a specific file description, enter its number in response to the file number prompt. If you do not know the number, enter successive ^F's or ^A's until the name appears on your screen. Then press **RETURN** to review the current description and change responses as necessary.

NEXT PROCEDURE
NO. 2105

{REMOVE FILE DESCRIPTION}

To remove a file description from the report, first find the file description you want to remove. There are two ways to find a specific file description. Enter successive ^F's or ^A's until you see the number on your screen, or if you know the number of the file description you want to remove, type it as your answer to the file number prompt (followed by **RETURN**) and the file description is made available.

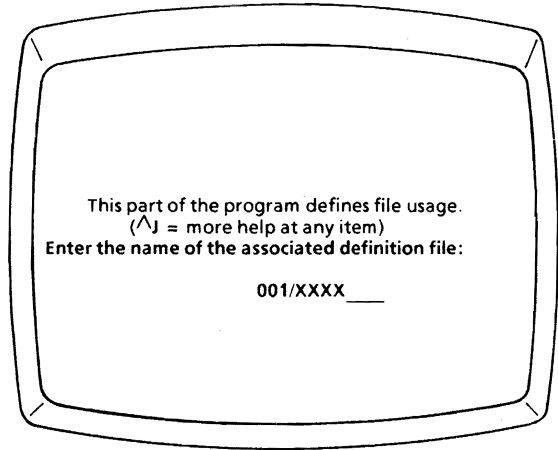
When your file description appears, press **RETURN** to position the cursor in the first character of the form definition file name and either use ^G's to delete the file name, or type spaces over it. When the form definition file name is removed, the file description no longer exists in your report. The file number prompt remains on the display screen.

NEXT PROCEDURE
NO. 2100

When you remove a file description, all remaining file descriptions are renumbered automatically. For instance, if you have five separate file descriptions and you remove number 003, the remaining file descriptions are renumbered 001 through 004. ReportStar also changes all references to file descriptions accordingly.

Once a file description is removed from the report, the only way to restore it is to recreate the description completely.

2105/File Name



The name prompt, which appears after you press **RETURN** in the file number procedure (**2100**), asks for the name of the form definition file associated with your datafile. If you do not have a form definition file for your datafile, *stop now*, and create one using the FormGen program in DataStar.

If no form definition file name appears in the prompt answer area to the right of the slash, there is no file description assigned to the number, and you may begin a new file description. If a name appears, the file description is already assigned, and you can review the named file.

Every form definition file name must be unique; you cannot use the same name in different file descriptions. If you enter a name already used, an error message appears. If you want to use the same form definition file in separate file descriptions, make copies of the original file and assign each copy a unique file name.

Caution: Form definition file names have the extension **.DEF**, but the extension is not displayed as part of this file description prompt. When entering the name, *do not* enter the extension.

ReportStar reads the form definition file when you enter the name and disk drive location (procedure **2110**) and stores the information in your report specification file. Consequently, if you change the form definition file *after* the file description is completed and the report specification file is saved, the new information *must be included in the report specification file*. For example, if you add or change field names for your datafile, you must reread the changed form definition file before you can use the new field names in your report (see procedure **2110**).

CREATE NEW FILE DESCRIPTION

After you press **RETURN** and the cursor moves to the right of the slash, enter the name of a form definition file for your file description. Type the name of the form definition file *without* the **.DEF** extension. If the name is less than eight characters, press **RETURN**.

NEXT PROCEDURE
NO. 2110

{REVIEW FILE DESCRIPTION / MAKE
CHANGES IF DESIRED}

If you want to review a specific file description and possibly make changes, refer to procedure **2100**.

NEXT PROCEDURE
NO. 2110

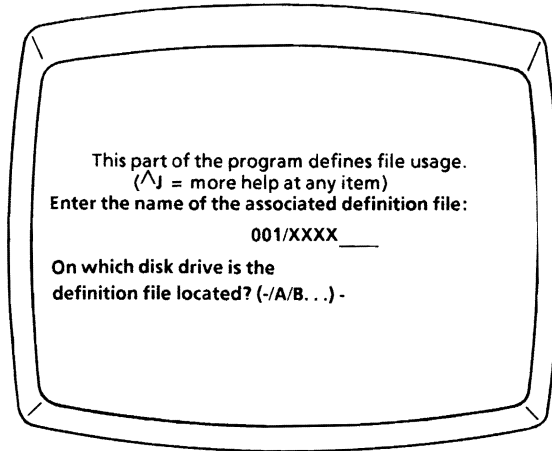
2105 *File Name*

{REMOVE FILE DESCRIPTION}

After you press **RETURN** and the cursor moves to the right of the slash, enter **^G**'s to delete the file name, or type spaces over it. Once the form definition file name is removed, the file description no longer exists in your report, and the only way to restore it is to re-create the description completely. The prompt remains on the display screen.

<p>NEXT PROCEDURE NO. 2100</p>
--

Disk Drive/2110



This part of the program defines file usage.
(^J = more help at any item)
Enter the name of the associated definition file:
001/XXXX ____
On which disk drive is the
definition file located? (-/A/B. . .) -

In the file description prompts (procedures **2100** and **2105**), you entered the name of a form definition file. Now you must indicate the disk drive where the file is located. As soon as you specify a disk drive, ReportStar reads the form definition file, and the information is recorded in your report specification file. If the form definition file is not on the specified disk drive, an error message appears.

{RECORD FORM DEFINITION FILE CHANGES}

If you make changes in the form definition file *after* it has been read in this step, you must include the new information in your report specification file.

2110 *Disk Drive*

To make ReportStar reread the named form definition file, enter a different disk drive letter (a valid disk drive on your computer). When your display states that the .DEF file is not on the drive you select, enter **A** and reenter the drive letter where the revised .DEF file is located. REDIT rereads the form definition file and places the new information in your report specification file.

INDICATE FORM DEFINITION FILE DISK DRIVE LOCATION

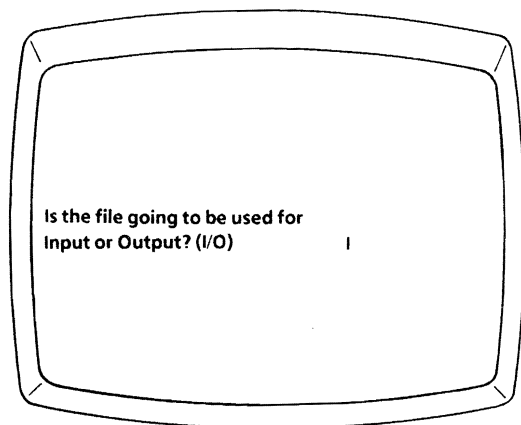
- Enter the dash or press **RETURN** (default) to tell ReportStar that the form definition file is on the current logged disk drive.

<p>NEXT PROCEDURE NO. 2120</p>

- A - P** Enter a disk drive letter (one which is on your computer) to tell ReportStar that the form definition file is on the disk drive indicated.

<p>NEXT PROCEDURE NO. 2120</p>

Input-Output/2120



A datafile can be used with your report in one of two ways. If you are going to *read* or *update* the file, it is considered input (to your computer's memory). On the other hand, if you are only going to *write* information into a new file, it is considered output (from the memory to a disk). Your reply indicates which type of datafile you are defining.

SPECIFY INPUT OR OUTPUT DATAFILE

- I Enter I (for Input) or press **RETURN** (default) to indicate that your datafile will be *read* as an input file.

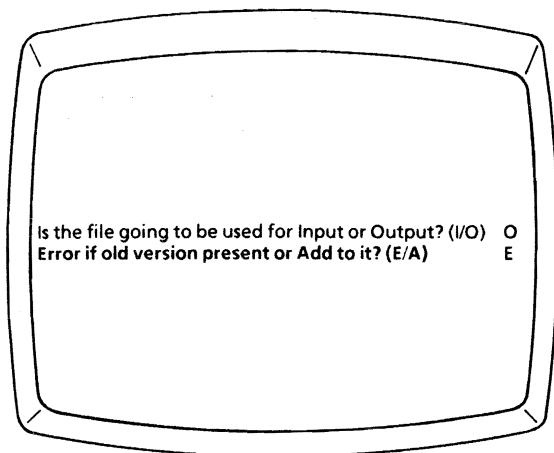
NEXT PROCEDURE
NO. 2130

2120 *Input-Output*

- Enter ○ (for Output) to indicate that your datafile will be *written* as an output file.

NEXT PROCEDURE NO. 2125

Error-Add/2125



The error/add prompt appears only if you define an *output* datafile. If a datafile already exists with the same name as the new file, you have two options. You can handle it as an error or you can add new data records to the existing datafile.

ENTER OUTPUT FILE OPTIONS

- A Enter **A** (for Add) if you want to add new data records to an existing datafile.

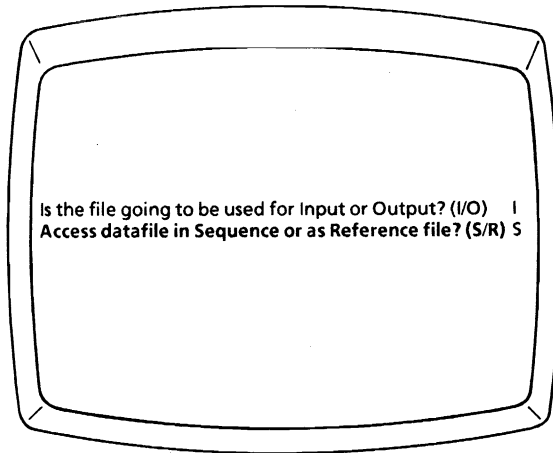
NEXT PROCEDURE
NO. 2133

2125 *Error-Add*

- E** Enter **E** (for Error) or press **RETURN** (default) if you want to treat this situation as an error. An alternate name will be requested when the report is run.

<p>NEXT PROCEDURE NO. 2133</p>
--

Sequential-Reference/2130



You can choose whether to access the information in your datafile as a *sequential* datafile or as a *reference* file. Accessing the records of a single file sequentially in file order is the fastest and simplest way to get data into a report. To keep your report simple, access other files needed as reference files. Although your report may run somewhat more slowly, this method demands much less exacting standards in report design than using several sequential files. In addition, accessing the datafile as a reference file allows you to update it.

Sequential Access

One or more files can be accessed sequentially in your report. Sequential access permits a serial reading of all records in your datafile, according to either the datafile's own file sequence or the sequence of a corresponding index file. Sequentially accessed files can be thought of as driving the report process. The report will continue to run as long as there is another record to be read in a sequential file.

Special Considerations in Accessing Two or More Files Sequentially

If your report uses more than one sequential file, some special conditions must be met. The discussion that follows details some very advanced uses of the ReportStar system; it is intended only for those who have had some prior experience in data processing. Beginning users can still create complete and detailed reports using one sequential file with additional reference files. Skip to the next section, "Reference File Access."

Be certain that the Key structure of all the sequential files is consistent; and that the sort order is the same. Assuming that one datafile may contain more records with a unique Key value than another sequential file, you must be careful to prevent confusion in your design for the printed report. On each pass, the REPORT program reads one record from each sequential file and evaluates the Key of each one. Only those records that have the same Key value will be merged and printed on the detail lines (see procedure 2220).

If detail lines contain fields derived from both of these files, only those records (one per file) whose Key is evaluated lowest will provide new data to be loaded into the fields. On each pass, all fields derived from files that do not have a record which is low in the sort order must be cleared (see procedure 2380). If Keys are of different lengths, the shorter Key will be evaluated as lower and that record will be printed first. Appendix E contains a table of hexadecimal equivalents of data values.

A good idea is to place fields that accept the Key data from a merged file on a non-printing line in your report. Then use the comparative condition of these fields (equal or not equal) to control printing of detail lines. Use the asterisk (*) print control command (see procedure 2240). To satisfy the need for a midpoint in the control break order, use a colon (:) rather than the space character to separate control break header and footer lines.

Reference File Access

Reference files do not drive the report process. Rather, these files supply data to the report only when it is specifically requested. Fields supplied with values derived from a reference file use an index field elsewhere in the report layout to select the proper record from the file (see procedure **2343**). This index field must *exactly* match the Key value of the desired record (see Appendix D).

When you use a datafile as a reference file on your report, the index file to that datafile must also be present.

Special Considerations in Updating a Reference File

ReportStar allows you to update reference files. You can add new records as well as change the data in existing records. However, if you are going to use this feature, you should be aware of the following:

1. Safety—If something goes wrong during the processing of your report (for example, disk full, power failure, fatal error, or operator termination), unless you have made a backup, recovering the initial state of the file you were updating may be difficult. Therefore, if possible, make a backup of the reference files to be updated.

If you haven't created a backup and something interrupts the processing, you must identify and remove the transactions which have been processed. Then restart the report to process the remainder of the transactions. In all cases except power failure, the last record updated will be intact.

If a power failure occurs, the last record may or may not be intact. You may have to use WordStar in non-document mode to repair the last record. After repairing the file, use FormSort to rebuild the index file.

2130 Sequential-Reference

2. Speed—If you are updating a large portion of a long reference file, it may be faster to process the file sequentially. (See *Special Considerations in Accessing Two or More Files Sequentially* on page 2-18.)

You might also consider processing the reference file sequentially when a significant number of records (i.e., over 100) will be inserted between two consecutive existing records.

If you choose to process the reference file sequentially, sorting the input data files before running the report is more efficient than using index files after running the report. Use FormSort to rebuild the indexes.

In summary, you will probably want to use the reference file update feature when your reference file is:

- a) small and easily backed up, or
- b) very large, but you want to update only a small portion of it.

ENTER DATAFILE ACCESS METHOD

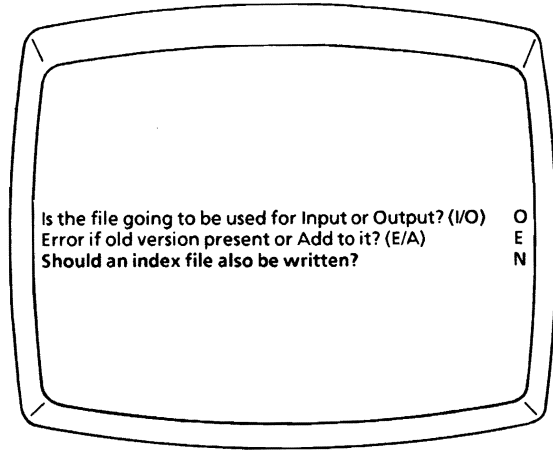
- S** Enter **S** (for Sequential) or press **RETURN** (default) to specify sequential access. The next prompt asks you to choose the form of sequential access.

<p>NEXT PROCEDURE NO. 2135</p>
--

- R** Enter **R** (for Reference file) to select a specific data record, based on the Key value you provide. If you select this option, there must also be an index file for this datafile present.

<p>NEXT PROCEDURE NO. 2150</p>
--

2133/Index File



The index file prompt appears only when the file description is for an *output* file, i.e., a datafile created or added to when the report is run. Your response indicates whether an index file should be created for the output datafile.

If you want to use this datafile in DataStar or in a later report as a reference file, you will need an index file. When the index file is created, it will have the same name as the datafile except that the file name extension will be .NDX rather than .DTA.

Creating an index file will limit the size of your output datafile to 48K, which provides protection to users of small computers. You can alter this limit on the output file size by using the patcher in the installation routine (see Appendix B). Consult the ReportStar Technical Reference Manual, available from your MicroPro dealer.

Caution: If you choose this option, you should be aware of two limitations:

1. At run time, there must be enough space on one disk for both your output data and index files in their entirety; you will not be able to change disks (see procedure 2155).
2. Index files require a portion of your computer's memory, decreasing the amount available for processing your report.

For a short report, this index file option can be a convenience. If your output files are large, however, you will save time by using FORMSORT to create an index *after* your report is run.

SPECIFY INDEX FILE OR NOT

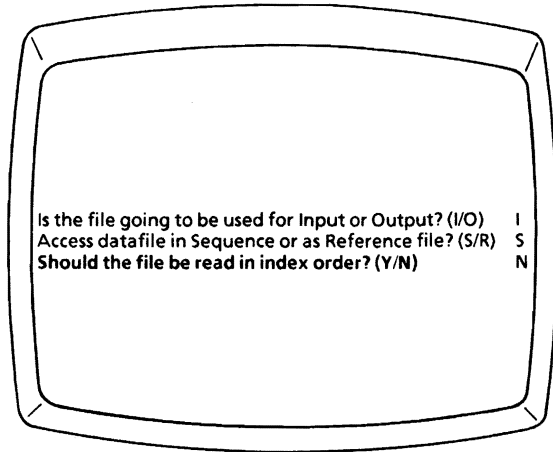
- N** Enter **N** (for No) or press **RETURN** (default) if an index file should *not* be written for your datafile. You can create an index later with FORMSORT.

NEXT PROCEDURE
NO. 2140

- Y** Enter **Y** (for Yes) if an index file should be written for your output datafile. For small output files, the delay in report processing is minimal.

NEXT PROCEDURE
NO. 2150

2135/Index Order



Is the file going to be used for Input or Output? (I/O) I
Access datafile in Sequence or as Reference file? (S/R) S
Should the file be read in index order? (Y/N) N

This prompt refers to your choice of sequential access (see procedure **2130**). Your sequence may be based on either file order or index order. File order is determined by the current sequence of data records in the datafile. Index order is determined by the sequence of a corresponding index file.

To access a sequential file in index order, the index file must also be present. Sequential access in index order uses more memory space in your computer than does file order, and report processing may be slowed. If your datafile is large, you will save time by sorting the file with FORMSORT *before* your report is run. A sequential file accessed in index order may only be in a single volume (see procedure **2145**).

INDICATE SEQUENTIAL ACCESS ORDER

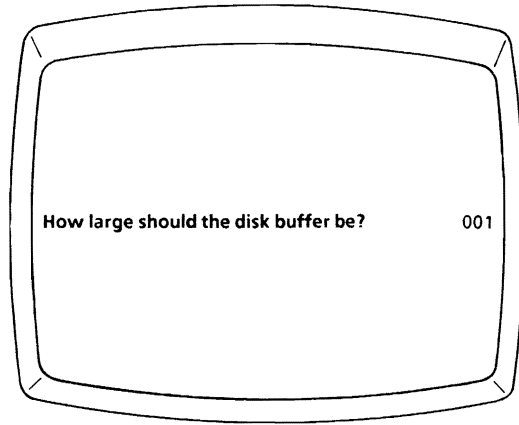
- N** Enter **N** (for No) or press **RETURN** (default) if you do not want to read records from the datafile in index order. Your records will be read in their current order.

**NEXT PROCEDURE
NO. 2140**

- Y** Enter **Y** (for Yes) if you want to read records from the datafile in the order of the index file. (There must be an index file for this datafile available on the same disk.)

**NEXT PROCEDURE
NO. 2150**

2140/Disk Buffer



Your response to this buffer prompt allocates memory sectors for temporary storage of data, which allows your report to run more efficiently. You can set up as many as 32 sectors for a disk buffer. However, each sector you assign uses 128 bytes of your computer's Random Access Memory (RAM). Allocating too small a buffer may slow down your computer, but too large a buffer robs your computer of memory.

REDIT accepts only specific numbers of buffer sectors: 1, 2, 4, 8, 16, or 32. If you enter any other number (up to 31), the program must automatically assign the next higher value. An entry higher than 32 produces an error message. For example, if you attempt to allocate 5 buffers, the program must allocate 8 buffers. You'll know when such a default takes place because your response will change to look like this:

005/008

To determine your most efficient disk buffer size, you must first determine your smallest disk allocation size. From your operating system prompt, run the program that shows you file size. For example:

STAT *.*

The resulting display shows you allocation sizes for your files; find the smallest value in the display.

If the smallest value is:	1	Your disk buffer allocation should be:	8
	2		16
	4		32

If you have limited RAM, you may enter 001, 002, or 004 to save space.

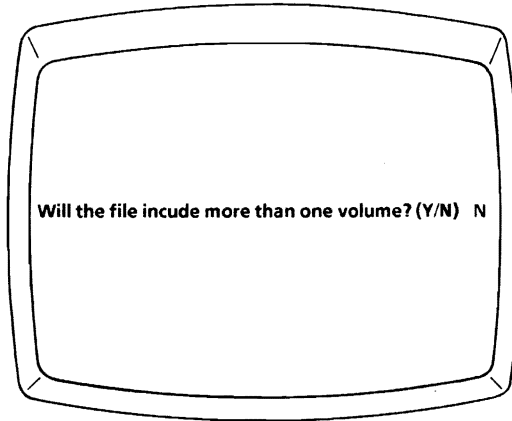
ENTER DISK BUFFER NUMBER

RETURN Press **RETURN** (default) to allocate one buffer sector. If you make no other entry, one sector is allocated.

nnn Enter three digits for any other response; i.e., 001, 002, 004, 008, 016, or 032. If you enter any other number up to 031, the next higher number will be allocated.

<p>NEXT PROCEDURE NO. 2145</p>
--

2145/Multi-Volume Files



If your data records are contained on more than one disk or in separate files on the same disk (multi-volume files), you must name and give the location of each volume to be used. If your report requires that multiple volumes be read in a specific order, you can establish the appropriate order in subsequent prompts.

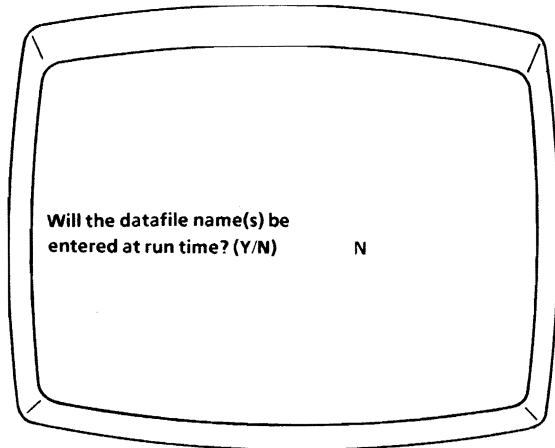
Output files may be in multiple volumes when the output records won't fit on a single disk. If your output datafiles require insertion of a new disk to accommodate multiple volumes, be sure to specify the disk change condition in procedure **2155**.

SPECIFY MULTI-VOLUME DATAFILE

- N** Enter **N** (for No) or press **RETURN** (default) if your data records are contained in one file on one disk.
- Y** Enter **Y** (for Yes) if data records for this input file are in more than one volume or if data records for this output file require more space than is available on one disk. In subsequent prompts, you can specify as many volumes as required.

<p>NEXT PROCEDURE NO. 2150</p>
--

2150/Name Now or Later



You can choose *when* to enter the names of datafile volumes used with your report. Enter the name now or later, when the report is run.

{ENTER DATAFILE NAMES NOW}

If you decide to enter volume names now, you must specify the disk drive where each volume will be located, the file name and extension, and whether a disk change will be required. This information becomes part of your report specification file. When the report is run, ReportStar looks for the named datafile volume (and index file, if this file has been described as a reference file in procedure **2130**) on the specified disk drive.

Name Now or Later **2150**

- N** Enter **N** (for No) or press **RETURN** (default) if you will enter the name of the datafile now.

NEXT PROCEDURE
NO. 2152

{ENTER DATAFILE NAMES WHEN REPORT IS RUN}

If you decide not to enter the volume names now, a message will appear when the report is run, asking for the names to use (see procedure 3210).

- Y** Enter **Y** (for Yes) if the name of the datafile will be entered when the report is run.

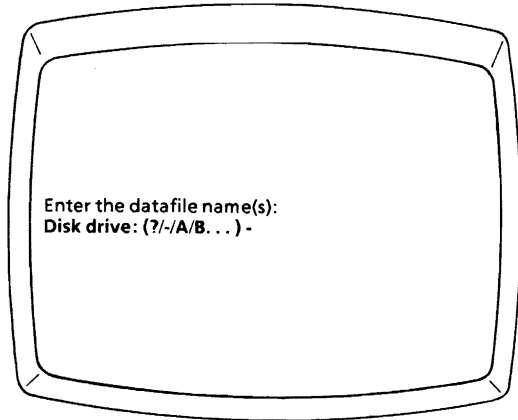
If this file has been described as a sequential file in procedure 2130:

NEXT PROCEDURE
NO. 2160

If this file has been described as a reference file in procedure 2130:

NEXT PROCEDURE
NO. 2100

2152/Disk Drive



Enter the datafile name(s):
Disk drive: (?-/A/B...)-

This disk drive prompt is the first of four asking you to describe each volume of a particular datafile. Your response specifies the disk drive on which the volume will be found when the report is run.

INDICATE DISK DRIVE LOCATION FOR DATAFILE

- ? Enter a question mark to defer the question, instructing ReportStar to ask for the disk drive when the report is run.

NEXT PROCEDURE
NO. 2153

- Enter a dash or press **RETURN** (default) to tell ReportStar that the datafile volume will be on the logged disk drive when the report is run. (Note that the logged drive when the report is run is not necessarily the drive to which you are now logged.)

NEXT PROCEDURE
NO. 2153

- A - P** Enter a specific disk drive letter, to tell ReportStar to look on that disk drive to find the datafile volume when the report is run.

NEXT PROCEDURE
NO. 2153

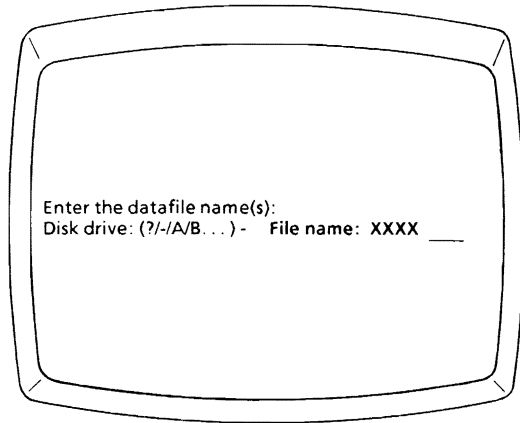
**{REMOVE DISK DRIVE LOCATION FOR
DATAFILE}**

Move the cursor over the letter or question mark and enter **^G**; the disk drive character reverts to the default (dash).

**{CHANGE DISK DRIVE LOCATION FOR
DATAFILE}**

Enter the new value (a question mark, dash, or disk drive letter) over the existing one.

2153/Volume Name



This prompt is the second of four asking you to describe a particular datafile volume. Here you enter the name of your datafile.

ENTER DATAFILE NAME

For the first volume of each file, the name of the form definition file will be inserted automatically. If the name of the datafile volume is not the same as that of the form definition file, you must change it. You must type the file name for each additional volume (for multi-volume files).

If your file name is shorter than eight characters, press **RETURN** after typing the name. If the name is exactly eight characters, there is no need to press **RETURN**.

<p>NEXT PROCEDURE NO. 2154</p>
--

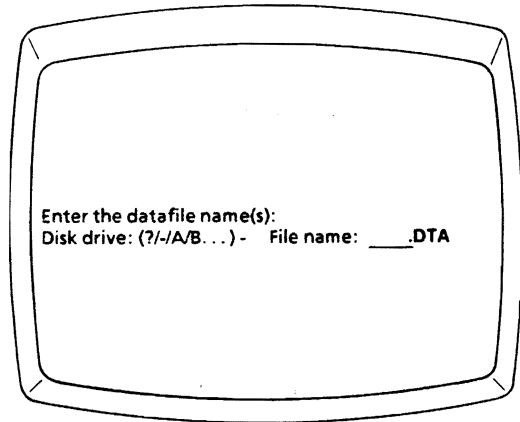
{REMOVE DATAFILE NAME}

Move the cursor over the first character in the name and enter successive **^G**'s.

{CHANGE DATAFILE NAME}

Enter a new name over the existing name. If the new name is shorter, use **^G**'s to remove excess characters.

2154/Extension



This prompt is the third of four needed to describe a particular datafile volume. Your response specifies the file name extension for the datafile volume you are describing.

ENTER DATAFILE NAME EXTENSION

For the first volume of each file, the extension .DTA will be inserted automatically. If this extension is not correct, you must change it. You must type the extension for each additional volume (for multi-volume files).

If you are describing a reference file (as specified in procedure **2130**), enter the extension only for the datafile, not the index file. The REPORT program will assume that the index file is named with the .NDX extension. If it is not, REPORT will ask for the correct index file name and extension (see procedure **3210**).

If your datafile has an extension other than .DTA, or if you want to create an output datafile with a different extension, you can enter the extension required. If your extension is exactly three characters, the next procedure appears. Otherwise, press **RETURN**.

<p>NEXT PROCEDURE NO. 2155</p>
--

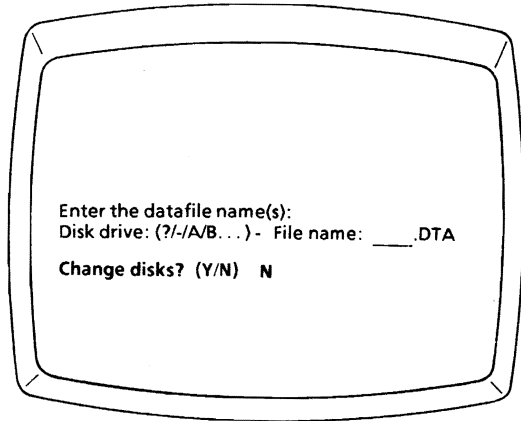
{REMOVE DATAFILE NAME EXTENSION}

Move the cursor over the first character of the extension and enter successive ^G's.

{CHANGE DATAFILE NAME EXTENSION}

Enter a new extension over the existing one. If the new extension is shorter, use ^G's to remove excess characters.

2155/Disk Change



This prompt is the last of the four needed to describe a particular datafile volume. Your answer indicates whether a disk change will be necessary while the report is running. A disk change is necessary if the disk containing this volume will not be on the specified drive when the report begins.

If you are describing an output file (i.e., one being created or added to), and the entire file may not fit on one disk, you should specify that a disk change is necessary. A message will appear when the current disk is full, requesting that you insert a new disk in the drive. (This disk change message also prevents operating system errors that occur on some systems when a drive door is opened during the run.) If the current does not become full, the change message will not appear.

Caution: If your report requires more than one file (either input or output) on the same diskdrive, you cannot specify a disk change that will affect one file and not another.

SPECIFY DISK CHANGE REQUIREMENT

- N** Enter **N** (for No) or press **RETURN** (default) if no change of disks is required. The datafile will already be on the designated disk drive, or the output file will fit on the disk when the report is run.
- Y** Enter **Y** (for Yes) if a new disk must be inserted in the designated disk drive when the report is run. A message will appear, requesting that the disk with the named datafile be inserted in the designated disk drive before processing continues.

If you indicated that this file is multi-volume (procedure **2145**), REDIT repeats the same series of prompts (procedures **2152 - 2155**) until you have no more datafile volumes to specify. When you reach this point, press **RETURN** without making any other entry at each prompt in the series.

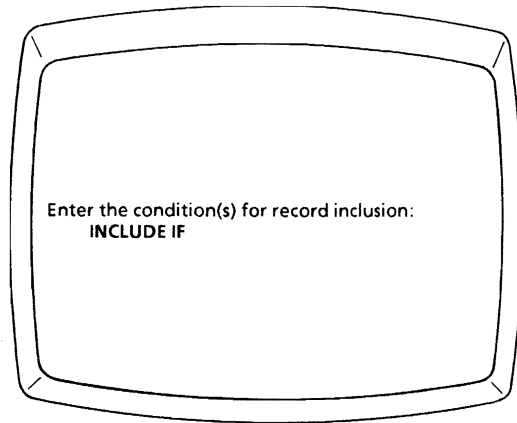
If you specified that this file was a reference file in procedure **2130**:

NEXT PROCEDURE
NO. 2100

If this file exists in a single volume, or if you have named all the volumes of a multi-volume file:

NEXT PROCEDURE
NO. 2160

2160/Include If



Enter the condition(s) for record inclusion:
INCLUDE IF

You can use the **INCLUDE IF** option to determine when a data record should be included in the report or written into an output datafile. You must form a logical expression of the criteria by which a record is included. Every data record is checked against your criteria, and data records that do not meet the criteria are bypassed.

Appendix C explains the formation of appropriate logical expressions, which involve references to fields within your data records. Remember that if you use field numbers rather than names, the program looks only in your report layout for each field you name. If field names are used in an **INCLUDE IF** expression, the program will always look first in your datafile, then in your report layout. This sequence can have significant impact on the presentation of data in your report. If the named field cannot be found in either place, an error message will appear.

When a report field is the reference of an INCLUDE IF expression, it must be a data field which has been assigned the LOAD IF R condition (see procedure **2360**).

Logical expressions range from simple to complex. Some simple expressions are offered as examples below. If you need to construct more complex expressions, see Appendix C.

EXAMPLES OF SIMPLE LOGICAL EXPRESSIONS

INCLUDE IF BALANCE > 0

Only those data records with a BALANCE field greater than zero are included.

INCLUDE IF AGE > 20.AND.AGE < 25.AND.SEX = "F"

All FEMALES aged 21 to 24 are included.

INCLUDE IF TAX RESALE NO < > 0.OR.TAX PAID > 0

All records for customers having a TAX RESALE NUMBER or who have paid taxes are included.

INCLUDE IF PURCHASE DATE > 0514.AND.PURCHASE DATE < 0616

All records with a purchase date occurring from May 15th to June 15th are included.

INCLUDE IF #017 = 125

The record is only included if the value of report field number 17 equals 125. Note that if you enter an expression using a report field number rather than a name, the name replaces the number *after* the expression has been entered. This sample expression assumes the LOAD condition for report field #17 is R.

2160 *Include If*

ENTER LOGICAL EXPRESSION FOR RECORD INCLUSION

Press **RETURN** without entering a logical expression if you want to include all data records in the report or in the output datafile.

If you want to select only certain records from the datafile for inclusion in the report, the expression you enter must conform to the rules for its formation. Otherwise, an error message appears on your terminal and the logical expression does not take effect. Please read Appendix C.

<p>NEXT PROCEDURE NO. 2100</p>

Report Layout

The Report Layout Design Screen is like a blank worksheet. You indicate where and how information in your report is to appear. Unlike file description and report field definition, the report layout design process has only one screen and very few prompts to which you must respond.

Be sure to read this entire section before beginning to design your report layout. There are certain, specific procedures to follow.

START REPORT LAYOUT DESIGN

First start the Report Edit program (REDIT), as described in **Section 2, Report Edit**. When you see the first file description prompt, enter **^C**. The Report Layout Design Screen appears on your terminal.

You can also start the report layout design process by linking from the Quick Report program (RGEN). To do so, choose the **L** option from the Report Completion Screen (procedure **1400**). Use this method when you want to do initial field selections and basic formatting with RGEN.

Report Layout Design Screen Contents

Your Report Layout Design Screen contains three distinct areas:

- Status Line
- Command Menu
- Report Layout Area.

STATUS LINE

The status line is the top line of your display. The name of your report specification file is on the left, followed by five separate numbers which identify the cursor's position in your report layout.

LIN (for **LINE**) tells you the line (between the top and bottom of the layout) in which the cursor is currently located. This locator can contain a value from 001 to 255.

CHR (for **CHaRacter**) tells you the column (between left and right margins of the layout) in which the cursor is currently located. The value can range from 001 to 254. If the cursor is in the furthest left column of your display, this portion of the status line reads **CHR = CTL** to indicate that the cursor is in the print **ConTrol** column (see procedure **2240**).

The next three locators (**NUM**, **LEN**, and **POS**) appear only when the cursor is within an assigned report field. The cursor's position is indicated by a three digit number ranging from 001 to 254, indicating that your report layout can be considerably larger than the area available on your display screen.

NUM (for **NUMBER**) tells you in which of your numbered report fields the cursor is currently located.

LEN (for **LENGth**) tells you the number of character positions in the report field where the cursor is currently located.

POS (for **POSition**) tells you the position within the report field where the cursor is currently located. If the cursor moves into a position containing a print control command (see procedure **2260**), **POS** disappears from the status line.

The last locator on the status line is **EDC** (for **EDit Characters**), which also appears only when the cursor is in an assigned report field. If the report field has been defined with an edit mask (see procedures **2353** and **2354**), the edit condition code and constant for the cursor's *current* field position appear following **EDC**. The display changes for each successive position and does not show the full edit mask.

To the right of the status line is a message indicating which Command Menu is currently displayed.

COMMAND MENU

The five lines below the status line contain a menu of ReportStar commands. Use **^J** to rotate the display between different menus, the introductory message, or removal of the display from the screen. You can see more lines in your report layout when you remove the Command Menu.

REPORT LAYOUT AREA

Your report layout appears under the Command Menu. The first line in the layout area indicates where tab stops are set. Each assigned tab stop is indicated by a period.

The term "report lines" refers to the lines which make up the length of your report layout. The same term refers to both lines which appear in the final report and lines which do not, such as those containing dot commands (see procedures **2220** and **2260**).

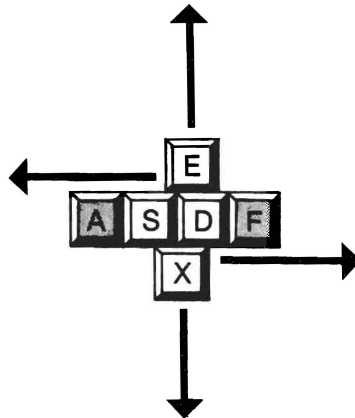
Although your terminal screen will only display 79 columns and 17 report lines, you can enlarge the area of your report. The maximum possible width is 253 columns, and the maximum number of report lines is 255. (The maximum may be limited by the amount of memory available in your computer.)

If your report layout grows beyond the capacity of your display screen, you can still see all parts of your layout by scrolling it vertically and horizontally on your screen. Think of your display screen as a moveable "window." When your layout is larger than your screen, you can move the window up, down, left, and right to view the entire area. Wherever you move the cursor in the layout, the window follows. For example, if you want to view an area to the right of your display screen, use ^F's or ^D's and keep moving the cursor until the desired area appears on your display screen.

Cursor Movement in the Report Layout Area

Several commands move the cursor in your report layout, simultaneously moving the window up, down, left, or right, as necessary to bring the cursor's location into view.

The basic cursor movement commands are ^E, ^S, ^D, ^X, ^A, and ^F. The alphabetic keys are conveniently grouped on your keyboard with the position of each corresponding to the direction in which the cursor moves.



Note that cursor commands **^A** and **^F** have no effect when the cursor is in the print control column (see procedure **2240**).

These control keys have a "wrapping" effect. If the cursor is in the last line of your layout and you enter a **^X** command (down line), the cursor wraps around and appears in the first line of your layout.

Cursor Movement Commands

- | | |
|-----------|--|
| ^A | LEFT ITEM
Moves the cursor one item to the left. If the cursor is in a report field, it moves to the first position of the next report field to the left. If it is <i>not</i> in a report field, it moves to the beginning of the previous word of background text in the layout (see procedure 2210). |
| ^S | LEFT CHARACTER
Moves the cursor one print position to the left. If the cursor is at the first print position in a report line, it moves into the print control column of the current line (see procedure 2240). If it is in the print control column, it moves to the end of the previous line. |
| ^D | RIGHT CHARACTER
Moves the cursor one print position to the right. If the cursor is at the end of a report line, it moves into the print control column of the next report line. If it is in the print control column, it moves into the first print position of the current line. |

^F	RIGHT ITEM Moves the cursor one item to the right. If the cursor is in a report field, it moves to the first print position of the next report field. If it is <i>not</i> in a report field, it moves to the next word of background text in the layout (see procedure 2210).
^E	UP LINE Moves the cursor up one report line while remaining in the same relative print column. If the report line into which the cursor is moved is shorter than the current line, the cursor moves to the end of the new line.
^X	DOWN LINE Moves the cursor down one report line while remaining in the same relative print column. If the report line into which the cursor is moved is shorter than the current line, the cursor moves to the end of the new line.
RETURN	DOWN LINE Moves the cursor down one report line and into the first print column. If the cursor is in the print control column, it moves down one line while remaining in the column.
^I	RIGHT TAB STOP Moves the cursor to the next tab stop to the right. If the cursor is in the print control column, it moves out of the column to the first tab stop.

^U

SET / CLEAR TAB STOP

Sets or clears a tab stop in the print column where the cursor is located. Assigned tab stops are indicated by periods (.) in the top line of the Report Layout Area.

**CTRL/
CTRL/DEL**

LEFT TAB STOP

To move the cursor left to the previous tab stop, hold down the **CTRL** key while pressing either the **DEL** or underline () key. (On some terminals, this command has no effect.)

2210/Report Fields

Within your report layout, the areas reserved for specific data are called "report fields." You can designate a report field by a series of underlines; e.g. the area reserved for name and address on a printed report. A report field can be a maximum of 253 positions long, or one entire report line. The maximum number of fields allowed in any given report is 245.

Information can only appear in your report when a specific report field has been established to receive the specified data. The eventual contents of a report field can originate on the terminal keyboard, in an input datafile, or be the result of a calculation. The origin of the data going into a report field is specified in report field definition procedures **2340** through **2347**.

{ADD REPORT FIELD TO THE REPORT LAYOUT}

To add a report field to your layout, move the cursor to the location in the layout where you want the field to appear and use either the underline key or **^Q** to reserve a space for each position in the report field. The report field must have a sufficient number of positions to contain the maximum number of characters ever to be placed in it. For example, if you are creating a report field for numeric data from a file, the field must be large enough to hold the highest possible value *plus* any edit characters, such as dollar signs, commas, or decimal points.

If your report field is too small for the data, asterisks will replace data printed in the field at run time, and a warning message will appear.

As you add report fields to your layout, recognize that you're dealing only with space on a physical page. You will specify the actual information to occupy the space and the characteristics of the report field in procedures **2300** through **2381**.

The status line does not change while you enter **^Q**'s or underlines because the cursor is not actually in your new report field. To check the status of a new field, place the cursor on top of one of the underlines in the field; the information then appears in your status line.

{REMOVE REPORT FIELD FROM THE REPORT LAYOUT}

To remove a report field from your layout, place the cursor on top of any underline in the field and enter **^Z**. If you remove the field, you also erase any report field definition created for it. If you want to restore the field, you must also complete a new report field definition (see procedures **2300 - 2381**).

{CHANGE REPORT FIELD IN THE REPORT LAYOUT}

To increase the size of a report field, add underlines to the existing field. Use the underline or **^Q** where you want to add the positions.

To shorten a report field, use **^G** to delete character positions, or use the space bar to replace them with spaces. Note that **^G** will not only shorten the report field, it will also shorten the report line (see procedure **2250**).

If changing the length of the report field affects any edit mask characteristics assigned to it, you will see a warning message. You may need to reenter the report field definition process and change the edit mask (see procedures **2353 - 2354**).

{JOIN REPORT FIELDS}

When you remove all spaces between two or more report fields, the result is a single report field with the field number and definition of the lower numbered field (see procedure **2300**). For example, if you join fields 003 and 004, the single field retains the field 003 number and definition. If an edit mask is assigned to field 003, it is also retained and will probably need to be changed.

Two or more report fields can also be joined in such a way that their individual field numbers and definitions are retained. Refer to the **JOIN FIELDS** command (procedure **2260**).

{SPLIT REPORT FIELDS}

When you split a report field into two or more separate fields by inserting a space, the original field definition is automatically copied for both resulting fields, with these exceptions:

1. The newly created fields are assigned their own report field numbers.
2. The name of the original field is copied only to the field on the left.
3. If an edit mask is assigned to the original field, the conditions and the constants at each successive position are copied to the new fields.

For example, if you split report field 005 into two fields, field 006 is created and the field definition will be the same for both.

Caution: When you add, remove, join, or split report fields, ReportStar automatically adjusts *all* references to your remaining report fields. For example, if your report has ten fields and you remove field 006, all references to fields 007, 008, 009, and 010 are automatically adjusted. However, *you* must change any specific references to a field you remove. For example, if a logical expression references field 006, you must either remove or change that expression.

2215/Report Background

Report headings, subheadings, column headings, and other constants in your layout are examples of background text or report field labels. A label can be used to identify information in a report field or in the layout. While labels are optional, most reports are too difficult to read without them. You can locate a report field label anywhere in the report layout.

{ADD REPORT FIELD LABELS}

To create a report field label, simply move the cursor to the place in the layout where you want the label to appear, and type it. To remove a label, type spaces over it.

Report Lines/2220

The initial report layout area contains space for 17 report lines. If your report requires more than 17, you can add lines to the end of your layout. You can also insert lines, move lines from one location to another, and remove lines as required.

The maximum number of lines in a report layout is 255. Note, however, that the limit is ultimately determined by your computer's memory and could actually be less. The maximum length of one report line is 253 positions, and the length of different report lines within one report layout can vary.

Report Line Buffer

The last line of your report layout area can be used as a report line buffer. Using **^P** and **^N** commands, you can copy lines into and out of the buffer, thus extending your layout by adding lines to it or changing it by inserting, moving, and removing lines.

When you copy a line into the buffer area, the new line is added to the total length of your report layout. If you copy line 003, for instance, the same line will exist in two places, at 003 and at 018 in an 18-line layout. You can then change either line independently of the other and gain two different lines.

When you copy a report line that contains a defined report field into the buffer area, all references to the field are changed to refer to the field in the buffer area. For example, suppose a report line contains field 006, which is referenced in an algebraic expression. If you copy this report line into the buffer, field 006 remains in your layout and the field in the buffer is assigned a new number, i.e. field 007. Your algebraic expression now references field 007 instead of field 006.

Caution: The commands for adding, inserting, moving, and removing report lines sometimes seem slow to take effect. Avoid entering a second command, thinking the first command was missed. Allow enough time for each to take effect.

{ADD REPORT LINE TO THE REPORT LAYOUT}

^P To add a report line to the end of your layout, place the cursor in any current line and enter **^P**. The line containing the cursor is copied below the last report line and becomes the new last line of your report layout.

{INSERT REPORT LINE IN REPORT LAYOUT}

^N To insert a new line in an existing report layout, place the cursor where you want to insert the line and enter **^N**. The last line of the layout (the line buffer) is copied to the cursor location, causing the cursor's original line and all report lines below it to shift down one line.

If the inserted line contains report fields, all field number references affected by the insertion are automatically adjusted.

{MOVE REPORT LINE IN REPORT LAYOUT}

^P^N To move a report line from one location in your layout to another, place the cursor anywhere on the line, and enter **^P** to copy the line in the buffer area and **^Y** to delete the original line. Then place the cursor on any line in which you want the line selected to appear and enter **^N**.

Remember the automatic adjustment of field numbers. When you use the **^P** and **^N** commands to move lines, all field number references will be adjusted twice.

{REMOVE REPORT LINE FROM THE REPORT LAYOUT}

^Y To remove an assigned line from your layout, place the cursor anywhere in the line and enter **^Y**. All lines below the removed line move up accordingly.

If the removed report line contains report fields, all remaining report field numbers will be adjusted, but *you must adjust specific references to the removed report fields*. For example, if you remove a line containing field 006 and that field is referenced in a logical expression, you must change the logical expression.

2230/Control Break Status

A control break can occur when the sequence of data being placed into a report field changes. You can, among other things, use a control break to print accumulated totals for certain categories or groups of information.

For example, suppose you have a datafile of dated invoice records with a control break level assigned to the date field in your report layout. The control break occurs when the date in one invoice record is not equal to the date in the previous record, permitting you to print the total of invoices for the previous date.

Control Break Assignment

You can have as many as nine report fields assigned as control breaks. Each is numbered according to the order in which it is assigned, and the number signifies each break's level of precedence within the whole series.

The level 1 control break has the highest precedence, level 9 the lowest. When a change occurs in a report field at level 1, a control break is forced to take place at all subordinate levels. On the other hand, if a change occurs at the third of five levels, a break is forced at levels 3, 4, and 5 but not for levels 1 and 2.

If you assign a series of control breaks at different levels (e.g. branch office number, sales representative's identification, and date), you can keep track of groups of information *within* other groups (e.g. total sales by date for each sales representative in each branch).

Caution: There is an important relationship between control breaks and the sort order of datafiles. Your control break levels must correspond to the sort Keys for your datafile; i.e. your level 1 control break must be assigned to the primary sort field, level 2 to the secondary field, and so on. If you don't preserve the relationship, control breaks can occur at random. For additional information, refer to the glossary in your General Information Manual.

{ASSIGN CONTROL BREAK STATUS TO REPORT FIELDS}

^K To assign control break status to a report field, move the cursor to one of the underlines in the field and enter **^K**. The underlines change to asterisks to indicate the field's control break status.

Report field before entering **^K**:
 Report field after entering **^K**: *****

2230 *Control Break Status*

{REMOVE CONTROL BREAK STATUS FROM A REPORT FIELD}

To remove control break status from a report field, move the cursor to one of the asterisks in the field and enter **^K** again. The field again appears as underlines and is no longer a control break field. Other assigned control break levels are automatically adjusted; i.e., if you remove level 2, level 3 automatically becomes level 2 and level 4 becomes 3.

{CHANGE CONTROL BREAK LEVEL}

You change the control break level assigned to a report field in one of two ways: Use **^K** to remove and reassign levels as required or change the assigned level numbers (see procedure **2320**).

Print Control Column/2240

The print control column is the vertical column farthest left in your report layout area. The codes you place in this column indicate *when* the corresponding line should be printed. When you scroll your layout horizontally, the print control column always remains on the screen in the farthest left column.

If your terminal is equipped with highlighting (either bright/dim or inverse video), the print control column is highlighted.

Cursor Movement and Print Control Column

To enter a code in the print control column you must first place the cursor in that column. There are two ways to enter the column and three ways to leave it.

2240 Print Control Column

^S *To enter:* With the cursor in the first column to the right of the print control column, enter ^S. The cursor moves left into the print control column on the same line.

To leave: With the cursor in the print control column, enter ^S. The cursor moves to the right end of the previous report line.

^D *To enter:* With the cursor in the last column of a report line, enter ^D. The cursor moves down one report line and into the print control column.

To leave: With the cursor in the print control column, enter ^D. The cursor moves into the first column to the right on the same line.

^I *To leave:* With the cursor in the print control column, enter ^I. The cursor moves to the first tab stop on the current line. If no tab stops are set, the cursor stays in the print control column and moves down one line.

	LIN = ###	COL = CTL	HELP SCREEN C	
CURSOR:	^E = up line	^S = left char	^D = right char	^X = down line
PRINTCNTL:	SPACE = always print	P = once/page	R = once/report	: = summaries only
	1-9 = print at control break n		.	* = user defined
OTHER:	^J = rotate help	^W = list form	^C = form done	^O = toggle ^ char

Following **PRINT CNTL** in Help Screen C are the various command codes you can insert in the print control column. These codes do *not* print on your report.

Print Control Commands

(SPACE) **Always Print**
Use a **SPACE** if you want the report line to print once for each record read from a datafile (a detail line). The Report Layout program requires at least one detail line or one nonprinting summary line (see description below) in every report layout.

P **Print Once per Report Page**
Enter **P** if you want the report line to print only once on each report page. Use this code for printing page headings or footings.

Caution: You must give some advance consideration to the relationship between the number of lines in the page heading or footing (report lines coded **P**) and the size of top and bottom margins on the page (allocated with the commands **.MT** and **.MB** in procedure **2260**). For example, if you allocate fewer lines for the margin that are in the heading, no blank lines will print at the top of the page.

R **Print Once per Report**
Enter **R** if you want the line to print only at the beginning or the end of the report, i.e. for one-time report headings or grand totals.

: **Non-Printing Midpoint Line**
Use a colon if there is no space detail line in your report. You must supply a midpoint marker in the print control column between header and footer lines (see the illustration on page 3-24).

2240 *Print Control Column*

(1-9) **Print at Control Break**

Enter the appropriate control break level number if you want the line to print when the control break occurs. Use these codes to print accumulated totals for groups of information.

Caution: When you use a control break level number in the print control column, that control break level *must* be assigned to a report field (see procedures 2230 and 2320).

• **Never Print the Report Line**

Enter a period to reserve the report line for comments, dot commands, or intermediate calculated fields, which will not print in your report. To enter a non-printing comment in your report layout, enter a second period in the column next to the print control column, followed by the comment. Dot commands are explained in procedure 2260.

* **User Defined Print Control**

Enter an asterisk if none of the preceding commands corresponds to your condition for printing the line. You can enter your own criteria in the form of a logical expression. When the report layout area is cleared, the following prompt appears:

Enter the condition(s) under which this line should be printed:PRINT WHEN

Enter the appropriate logical expression. If you press RETURN without entering a logical expression, the report line will *always* be printed (the same as SPACE). If you enter an expression but it is never satisfied, the line will *never* be printed.

Appendix C contains detailed instructions for forming logical expressions. If you have not read this material, you may wish to do so now. The following examples are intended as a supplement to that material.

PRINT WHEN TAX RESALE NUMBER > 0

The report line prints only when the report field named "TAX RESALE NUMBER" contains a value greater than zero.

PRINT WHEN #003 = #005.OR.#003 = #011

The report line prints only when report field number 003 equals number 005 or 011.

PRINT WHEN QUANTITY ON HAND < 0

The line prints only when the QUANTITY ON HAND is negative. This technique can be used to print messages when exception conditions occur. For example, the report line to which this condition applies might contain a message saying, "Quantity on Hand is Negative. Inventory adjustment required."

Note: To review or change your logical expression after entering it, place the cursor back in the print control column and enter the asterisk again.

2240 *Print Control Column*

Report Line Order

The coding of report lines in your layout must follow the order in this chart.

<u>CODE</u>	<u>INTERPRETATION</u>	<u>APPLICATION</u>
R	print once per report	Report headings
P	print once per page	Page headings
1	print after control break level 1	Control break headers
2	print after control break level 2	
3	print after control break level 3	
4	print after control break level 4	
5	print after control break level 5	
6	print after control break level 6	
7	print after control break level 7	
8	print after control break level 8	
9	print after control break level 9	
(SPACE)	always print	Detail lines
:	midpoint line	
9	print after control break level 9	Control break totals
8	print after control break level 8	
7	print after control break level 7	
6	print after control break level 6	
5	print after control break level 5	
4	print after control break level 4	
3	print after control break level 3	
2	print after control break level 2	
1	print after control break level 1	
R	print once per report	Report summaries
P	print once per page	Page footings

Your report layout must have at least one line with either a SPACE (detail line) or a colon (midpoint line) in the print control column. The coding of all other lines (R, P, or Control Break) is optional and depends on the specific requirements of your report.

Your layout can have multiple lines with the same condition, but the condition codes must follow the order shown in the list. For example, your layout might begin with two R lines followed by two P lines and three detail lines. However, if your layout began with two P lines followed by two R lines and three detail lines, the line order would be violated.

Print Control Column 2240

In the "Application" column of the report line order list, note that the sequence of other conditions in relation to detail or summary lines determines how each line may be used. For example, an R line *before* the first detail line is a report header, but when located *after* the first detail line, it is a report summary. The header can be used to print report titles; the summary line can be used to print grand totals.

The same principles apply to the control break lines. A control break line *before* the first detail line is a header; a control break line *after* the detail line is a total line.

Example:

In this sample report layout, line numbers have been inserted at the right side for the discussion.

R	Sample Report For ReportStar Reference Manual	(01)
R		(02)
P	SALES BY SALESPERSON WITHIN BRANCH	(03)
P	Report Date ___/___/___	(04)
P		(05)
P	Salesperson Invoice Amount	(06)
1	Branch *** Summary	(07)
1		(08)
	_____	(09)
1		(10)
1	Branch: _____ Total: _____	(11)
R		(12)
R	Total for ALL Branches: _____	(13)
P	MONTHLY SALES REPORTS	(14)

2240 *Print Control Column*

Line 01 prints only on the first page of the report as a report header. **Line 02** prints under the same conditions and provides a blank line following the report header.

Lines 03 – 06 are page header lines which print at the beginning of each report page after the first page.

Page header lines do not normally print on the same page with report header lines. You can thus reserve one report page as a cover sheet or report title page. When your report doesn't warrant an extra page, you can eliminate it by assigning no report header lines. If, however, your report requires both report and page header lines on the first page, repeat the page headers as both report and page header lines.

Lines 07 – 08 are control break header lines and print only after a level one control break occurs. Since these lines are located above the detail lines, they print *before* the data from the new Key group that caused the control break. The control break field on line 07 will print the branch number of the next Key group of records in the datafile.

Caution: You should not place summary fields on control break header lines because data from a previous Key group will be printed in those fields.

Line 09 is the only detail line for this report. During each program pass, the report fields on this line are filled with the salesperson identification, invoice number, and invoice amount. The detail line is then printed.

Lines 10 – 11 print when a level one control break occurs (a change in the branch number). Line 10 is a blank line between the detail and total lines. The branch number and accumulated invoice amounts print on Line 11. At control break one, the first accumulator is reset to zero so that a new total is calculated for the next branch.

Lines 12 – 13 print only after the last record in the report datafile has been processed. Line 12 is a blank line between the last branch total and the grand total.

Line 14 is a page footer line and prints at the bottom of each page in the report.

Summary

There are two basic rules to remember about report line order:

1. Your report layout must have at least one detail line or nonprinting summary line (SPACE or colon code).
2. All other line codings are optional; they can be used in any combination and number so long as you preserve the report line order.

2250/Other Edit Commands

Four optional commands permit you to insert or delete characters in a report line and add or remove columns in the report layout. Two other commands enable you to exit from or to restore the Report Layout Design Screen.

{INSERT CHARACTER IN THE REPORT LAYOUT}

- ^V** Position the cursor where you want to insert a character in your report layout, and enter **^V** to insert a single space under the cursor without moving it. (Help Screen 3 appears at the top of your screen.) Now you can enter any character you want to fill the space created.

Use the same command to insert special print control commands in your layout, e.g. double striking characters or alternate character pitch (see procedure **2260**).

{DELETE CHARACTER FROM THE REPORT LAYOUT}

^G Position the cursor directly over the character you want to delete, and enter **^G**. The character under the cursor is deleted, and the rest of the report line to the right of the cursor moves one column to the left. The report line is shortened by one character. The cursor does not move.

If either **DEL** or **RUB** is used to delete characters from a report line, the cursor moves one column to the left and deletes the character without moving the rest of the characters on the line. These keys can be used to correct typing errors or split report fields without changing the line length. However, if either key is used to remove the last character on a report line, the line is shortened by one character.

If the insertion or deletion of characters (or spaces) on a print line affects the edit mask associated with a report field, a warning message advises you that the edit mask may need to be adjusted. Refer to procedures **2353 - 2354**.

{ADD COLUMN TO THE REPORT LAYOUT}

^B To add a column to the report layout, move the cursor to the appropriate column, and enter **^B**.

Caution: This command effectively adds a space at the same relative position in *every* report line, except those that have a control character (^) in the column being added. If a line does not extend through the added column, it won't be affected. Take care to avoid entering unwanted spaces on other report lines

{REMOVE COLUMN FROM THE REPORT LAYOUT}

^T To remove a column from the report layout, move the cursor to the appropriate column, and enter **^T**.

Caution: This command effectively removes a space from the same relative position in *every* report line except those that have a control character (^) in the column being removed. If a line does not extend through the column being removed, it will not be affected.

If the addition or removal of a print column causes a report field to be split or shortened, a warning message gives you the opportunity to stop the command before it is executed. See also procedure **2210** for an explanation of report field definitions when a report field is split.

{EXIT FROM / RESTORE REPORT LAYOUT DESIGN SCREEN}

^C Enter **^C** when you are ready to save (or abandon) your layout. When the Report Completion Screen appears (procedure **2400**), you can select the appropriate option.

^L Under some circumstances, such as certain terminal or program malfunctions, you can restore your Report Layout Design Screen by entering **^L**.

Special Print Commands/2260

An assortment of special print enhancement commands supplements the edit mask functions explained in procedures **2353** and **2354**. The effects you can achieve with special print commands include boldface, underlines, varying character pitch, special pagination, adjusted page margins, and others.

Special print commands are divided into two groups: *printer control commands* and *dot commands*. Printer control commands control the operation of your printer; dot commands are used primarily for formatting the pages of your report.

Printer Control Commands

The insertion of printer control commands in your layout will affect the appearance of report fields and labels as they are printed. A printer control command can be used with all or part of a report field. You can combine printer control commands to achieve other special effects, such as underlines combined with boldface.

Many special effects you initiate with printer control commands require you to insert a matching command to stop the effect. For example, if you initiate boldface of a report field by inserting a **^B**, you must insert a subsequent **^B** at the position where you want the boldface to stop. A report field so treated might appear in your layout as follows:

^B **^B** (Boldface a field of 10 positions)
..... **^B** **^B** (Boldface only positions 5 and 6)

When you enter a printer control command you must hold down the control key symbolized **CTRL**, not the caret (^), while typing the character to be inserted as a printer control character. The command will appear in your layout as a caret followed by the character, but it will not be printed in your report.

Your cursor will never rest on the character in the command, only on the caret. When the command is embedded in a report field and the cursor is placed on top of it, the **POS** and **EDC** locators disappear from the status line. Printer control commands are not counted as part of the length of a report line.

To insert a printer control command in your report layout, move the cursor to the position where you want to insert the command and enter **^V**. Help Screen 3 appears at the top of your screen.

<<PRINT CONTROL CHARS>>

<p>*Special Effects* (begin and end) B Bold D Double S Underscore X Strikeout V Subscript T Superscript</p>	<p>* Special Effects* (one time each) F Phantom space G Phantom rubout H Overprint character</p>	<p>*Printing Changes* A Alternate pitch N Standard pitch C Printing pause Y Other ribbon color *User patches* Q(1) W(2) E(3) R(4)</p>
--	---	---

^B BOLDFACE

To print a report field in boldface, insert **^B** where you want boldface to begin and another **^B** where you want boldface to end.

Example of report field: **^B** **^B**

Result: **BOLDFACE**

^D DOUBLE STRIKE

Double striking produces a slightly lighter type face than boldfacing. To print a report field in double strikes, insert **^D** where you want double striking to begin and another **^D** where you want it to end.

Example of report field: **^D** **^D**

Result: **DOUBLE STRIKE**

^S UNDERLINE

To underline a report field, insert ^S where you want the underline to begin and another ^S where you want it to end. Only non-blank characters are underlined; spaces and tabs between ^S's are not underlined.

Example of report field: ^S ^S

Result:

^X STRIKEOUT

To strike out a report field, insert ^X where you want the strikeouts to begin and another ^X where you want it to end.

Example of report field: ^X ^X

Result:

^V SUBSCRIPT_{here}

Subscripting causes the value in a report field to be printed a fraction below the rest of the text on the line. Subscripts normally print 3/48 (or 1/16) inch below the line (the default). This distance can be changed by the .SR command on printers that have fractional line roll capability. To print a report field (or a portion of it) as a subscript, insert ^V where you want subscript to begin and another ^V where you want it to end.

Example of report field: ^V ^V

Result: H₂O

^T SUPERSCRIPThere

Superscripting has the same effect as subscripting except that the superscript value is printed a fraction *above* the rest of the text on the report line.

Superscripts normally print 3/48 (or 1/16) inch above the rest of the text on the line (the default). This distance can be changed by the .SR command on printers that have fractional line roll capability. To print a report field (or portion of it) as a superscript, insert ^T where you want the superscript to begin and another ^T where you want it to end.

Example of report field: `...^T...^T`

Result: 135¹⁰

^F PHANTOM SPACE

Phantom space causes the character assigned to hexadecimal code 20 (normally a space) to be printed by a daisy wheel printer. Some 88 and 96 character daisy wheels print a cent (¢) sign rather than a space, but the exact character depends on your particular printer.

^G PHANTOM RUBOUT

Phantom rubout, the same function as the phantom space, is assigned to hexadecimal code 7F. On most daisy wheel printers, this prints either a "not" (~) sign or double underlines.

^H OVERPRINT

Overprint allows two or more characters to print in a single position, such as accent marks or other graphic symbols you could not otherwise print. To overprint a character, insert ^H following the character to be overprinted. Type the second character *following* the ^H. If multiple overprints are desired, repeat the sequence.

Examples	Results
la boi^H^te	la bo [^] ite
+ ^H_10%	± 10%
H^H^HN^HZ	■

^A ALTERNATE CHARACTER PITCH

This command causes a daisy wheel printer to print 12 characters per inch rather than the standard 10 per inch. (It has no effect on other printers.) To print a report field at 12 characters per inch, insert ^A where you want the alternate pitch to take effect. Use ^N to restore standard character pitch.

Example: Print in ^Aalternate^N pitch.

Result: Print in alternate pitch.

^N STANDARD CHARACTER PITCH

This command causes the printer to print the standard pitch of 10 characters per inch. The only time you use this command is after setting the character pitch to other than standard with the ^A command. To set (or reset) the standard character pitch of 10 per inch, insert ^N where you want the standard pitch to take effect.

Note: You can also use the dot command .CW to change character pitch for an entire line or more (explained later in this section).

^C SUSPEND PRINTING

Insert **^C** where you want to pause to change print wheels (for different type faces) or ribbons. When ReportStar encounters the **^C** command, it stops printing and displays the following message on the terminal:

PRINT PAUSED
Abandon or Continue
Press A or C:

When your change is complete, press **RETURN** to resume printing. If you want to switch back to the original print wheel or ribbon, insert another **^C** where you want the second pause to occur. If you want to discontinue the run, enter **A**.

Printers that normally print bidirectionally always print a line containing a **^C** command from left to right.

Using the **^C** command in report fields with other special effects (such as boldface, underlining, or combined effects) can give you unpredictable results and should be avoided.

^Y RIBBON COLOR

On printers with ribbon color selection, this command causes the report field to be printed in the alternate ribbon color, usually red. (Of course a multi-color ribbon must be installed for this command to take effect.) To print a report field in an alternate color, insert **^Y** where you want the alternate color to begin and another **^Y** where you want to return to the standard ribbon color.

- ^Q** USER PRINTER FUNCTION 1
- ^W** USER PRINTER FUNCTION 2
- ^E** USER PRINTER FUNCTION 3
- ^R** USER PRINTER FUNCTION 4

Use these commands to create other printer functions, such as changing type fonts or activating a sheet feeder. The Technical Reference Manual contains instructions for patching the program to accept these commands.

**^\
JOIN REPORT FIELDS**

Note that this command *does not appear in Help Screen 3*. With it, you can place two or more report fields side by side with no intervening spaces. You cannot connect separate fields without this command because ReportStar treats any continuous string of underlines as a single report field. For example, if you want to link two data fields of three characters each into a single string of six characters on your report, you would use the join command as follows:

--- \ ---

When the report is printed, the Join command is removed; the result is six characters with no break. Each three character field has its own report field number and field definition. See also to "Join Report Fields" in procedure **2210**.

{ENTER PRINTER CONTROL COMMANDS}

To enter any printer control command, enter **^V**, then type the appropriate character while pressing the **CTRL** key. If you don't hold down **CTRL**, the character you type will be inserted as a constant and not as a printer control character.

{REMOVE PRINTER CONTROL COMMANDS}

To remove a printer control command from your layout, place the cursor on the caret and enter **^G** or type another character over it. If there is a matching command (to stop the special effect), be sure you also remove that command.

If you want to review your report layout with the printer control commands temporarily removed, the **^O** toggle will turn off (and on) the display of these commands. Removing the commands allows you to check column alignment more easily. However, when the commands are not displayed, you might inadvertently type over or remove them.

Dot Commands

Dot commands control the format of a report page by establishing vertical and horizontal page layout, pagination, page headings and footings, page numbering, and other functions. Most dot commands must be entered above the first printing report line. Dot commands themselves never appear in the printed report.

All dot commands follow the same basic format, a period followed by a two letter code, with additional information sometimes following the code. Dot commands are summarized in the table, then discussed in detail.

2260 *Special Print Commands*

Function	Dot Command	Unit of Measure	Standard Default
Lines/Vertical Inch	.LH n	1/48 inch	8 (6 lines/inch)
Bottom Margin	.MB n	Print Lines	8 lines
Top Margin	.MT n	Print Lines	3 lines
Page Length	.PL n	Print Lines	66 lines
Character Width	.CW n*	1/120 inch	Standard Pitch = 12 Alternate Pitch = 10
Page Offset	.PO n*	Print Column	8 columns
Omit Page Numbers	.OP		
Page Number	.PN n		1
Bidirectional Print	.BP n*	OFF/ON	ON
Sub/Superscript Roll	.SR n	1/48 inch	3/48 (1/16 inch)

* -- **.BP**, **.CW**, and **.PO** commands can be located anywhere in your report layout. All other commands must precede the first printing line.

Vertical Page Layout Commands

.LH n **LINE HEIGHT**
 (This command can be used only for daisy wheel printers). Replace **n** with the number (0-96) of lines you want to print in each vertical inch on a report page. The command **.LH 8** (default) prints six lines per vertical inch; the command **.LH 5** prints 9.6 lines per vertical inch. Valid commands are summarized in this table:

.LH Dot Commands	Lines/ Inch
.LH24	2.0
.LH20	2.4
.LH18	2.6
.LH16	3.0 ←Standard double spacing
.LH12	4.0
.LH10	4.8
.LH9	5.3
.LH8	6.0 ←Default Value/Single spacing
.LH7	6.8
.LH6	8.0
.LH5	9.6

.MT n **TOP MARGIN**
 Replace **n** with the number (0-96) of lines to be left between the top of the page and the first line of body text. The default is three lines.

Page headings print *within* the top margin and are indicated by the code **P** in the print control column (see procedure **2240**). If the margin is smaller than the header, the margin will be overwritten.

.MB n **BOTTOM MARGIN**
Replace *n* with the number (0-96) of lines to be left between the last line of body text and the bottom of the page. The default is eight lines.

Page footings print *within* the bottom margin and are indicated by the code **P** in the print control column (see procedure **2240**). If the margin is smaller than the footer, the margin will be overwritten.

.PL **PAGE LENGTH**
Replace *n* with the number (0-250) of lines to be printed in your report layout, including top and bottom margins. The default is 66 lines, based on six lines per inch (.LH 8) on a form eleven inches long.

You can determine the maximum number of text lines on a page by the formula: **.PL - .MT - .MB** (page length minus top margin, minus bottom margin).

If you change line height (.LH) after entering **.PL**, **.MT**, and **.MB** commands, the same number of inches (*not lines*) of text continues to print. Adjust the top and bottom margins to print the desired number of text lines on a page or to center the text vertically on the page.

Horizontal Page Layout Commands

.CW n **CHARACTER PITCH**
(This command can be used only for daisy wheel printers.) Replace *n* with the number (1-250) of characters which print within each horizontal inch on a line, thus adjusting the space left between characters. The default width is based on ten characters per inch. If the default is not suitable. Refer to the table to pick a character width.

Characters Per Inch	Dot Command	
5	.CW24	
6	.CW20	
7	.CW17	
8	.CW15	
10	.CW12	←Default Value
12	.CW10	
15	.CW8	
20	.CW6	
24	.CW5	

.PO n **PAGE OFFSET**
Replace n with the desired number (0-250) of offset columns (margins or indentation) to determine how far the body text is indented from the furthest left print position. The default is eight columns. All tabs and spacings within your report layouts are unaffected.

Page Numbering Commands

One easy way to number your report pages is to create a report field with page numbers calculated using the numeric **PAGE** function (see appendix C). The commands **.OP** and **.PN** suppress or set specific page number sequences.

.OP **OMIT PAGE NUMBERS**
Enter **.OP** when you do not want your report pages numbered. If you omit the **.OP** command and have no page footers (see **.MB** command above), ReportStar automatically calculates page numbers for you and centers them at the bottom of each report page.

.PN n **SET PAGE NUMBER**
Replace *n* with a specific page number (any value), and ReportStar will begin numbering pages with the value you specify.

Other Dot Commands

.BP n **BIDIRECTIONAL PRINT**
(This command can only be used for printers with the bidirectional printing capability.) Replace *n* with **0** or **1**. When *n* = **0**, all lines print from left to right; when **1**, alternate lines print from left to right and right to left. The feature is normally **1** for daisy wheel printers, but when printer registration is not precise, turning **.BP 0** can improve print quality.

.SR n **SUB / SUPERSCRIPIT ROLL FACTOR**
This command can only be used with daisy wheel printers. Replace *n* with the numerator of a fraction (0-250) to control how far below or above the line subscripts and superscripts print. The distance is measured in 1/48ths of an inch. For example, if you replace *n* with 5, sub/superscripts will print 5/48ths of an inch below and above the line, respectively. The default is three, i.e., 3/48 (or 1/16) of an inch.

•• **COMMENTS**
You can enter nonprinting comments for future reference in your report layout. Type your comment on the same line following the second dot.

The illustration 23-1, Report
Field 2300-2381, is located in
the back of this manual.

Report Field Definition

Every report field in your report layout *must* be defined. The definition indicates where the field information originates, when it should be loaded, how it is to look in print, etc. Your field definition is stored in the report specification file for your report.

Your Report Field Definition Procedure Map (Illustration 23-1) shows you the field definition prompts, and this manual fully explains them in procedures **2300** through **2381**.

When you define a report field, you don't see every prompt in the field definition procedures. You respond only to prompts based on the characteristics of your report field. Here is a summary of the steps in defining a report field.

1. Assign the field a number and name.
2. Identify field source.
 - a. Identify datafile and data field.
 - b. Identify index field.
 - c. Enter algebraic or string expression.
 - d. Enter operator input prompt.
3. Choose options for the appearance of data in your report fields.
 - a. Pad characters.
 - b. Left/right justification.
 - c. Edit mask.

4. Indicate if output field.
 - a. Identify output datafile.
 - b. Identify output data field.
5. Specify field load/clear condition.
6. Specify field clear condition.

In order to acquaint yourself with the best way to define report fields, use the Quick Report feature and set up a report layout which incorporates various field types, i.e. fields in detail lines, control break fields, and so on. You can see how Quick Report sets up such fields by reviewing the various definitions.

Cursor commands for field definition appear in a Help Menu at the top of each screen.

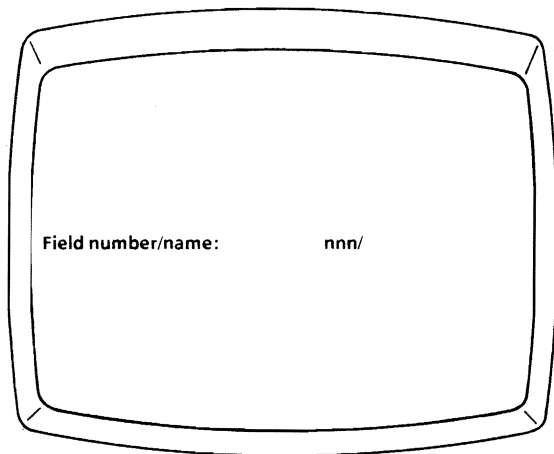
Caution: As you work through these Field Definition procedures, you must complete each entry and press **RETURN** before going to another function of the program. If you enter **^J** to display help messages before completing the entry, any information already entered is lost and must be reentered.

START REPORT FIELD DEFINITION PROCEDURES

First start your Report Edit program. Instructions are found in **SECTION 2, REPORT EDIT**. Then enter **^C** at the first File Description prompt to put the Report Layout Design Screen on your terminal.

When the Layout Design Screen appears, move the cursor to one of the underscores in the report field you want to define. Then enter **^R**, and you will see the first Report Field Definition prompt on your terminal. Refer to procedure **2300**.

Field Number/2300



The field number determines the order in which data are placed into the report field during report processing. A field number is mandatory, but a field name, which is cross-referenced with the field number, is optional. Report field numbers are originally assigned by the program according to the order in which each field appears in the report layout. Field numbers start with 001 and increase by one from left to right, then top to bottom. When a report field is added, moved, or removed from the layout, all other report field numbers are adjusted automatically.

Once you assign a name to a report field, the name appears in place of the field number, when the number is entered.

You can have up to 245 different report fields in your layout, so report field numbers can range from 001 to 245. You can change a report field number from its original assignment to any number up to the maximum number of report fields in your layout.

2300 *Field Number*

When you begin report field definition, the prompt appears with the report field number currently assigned to the field. The current field number appears in place of nnn.

Report field numbers should be assigned with care since the number determines *when* data are placed in the report field. The timing of this process is critical, particularly when calculations are to be made or Key fields set up to access reference files. For example, if you tell ReportStar to use the value of a report field, but the report field has not yet been loaded with the desired value, you will use data left in the field from the previous record. Although in certain cases this may be desired, under normal circumstances, observe the following rule:

Do not reference a report field with a number *greater than* the report field you are currently defining.

{ENTER REPORT FIELD NUMBER}

If you do not want to change the report field number assigned by ReportStar, press **RETURN**. The cursor moves to the field name portion of the prompt. If you do want to enter a report field number, enter any number from 001 to the maximum number of fields in your layout (not to exceed 245). Always enter three digits, preceding the number with zeros when necessary. For example, enter 006 rather than 6 or 06. Remember that the number you enter determines *when* information is placed in the report field relative to all other fields in your report.

{ENTER REPORT FIELD NAME}

If you do not want to assign a name to the report field, press **RETURN** while the prompt area is still blank.

If you do want to assign a name to the report field, type the name and press **RETURN**. The name can contain up to 32 characters, but the longer your name, the more disk and computer memory space required to store it. A report field name must begin with a letter A through Z (upper or lower case). The remaining characters may be any combination of letters, spaces, or numbers 0 through 9.

NEXT PROCEDURE
NO. 2310

{CHANGE REPORT FIELD NAME}

Enter a new name over the existing name. If a new name is shorter, use ^G's to remove excess characters. When you change a report field name, all other references to the field automatically change.

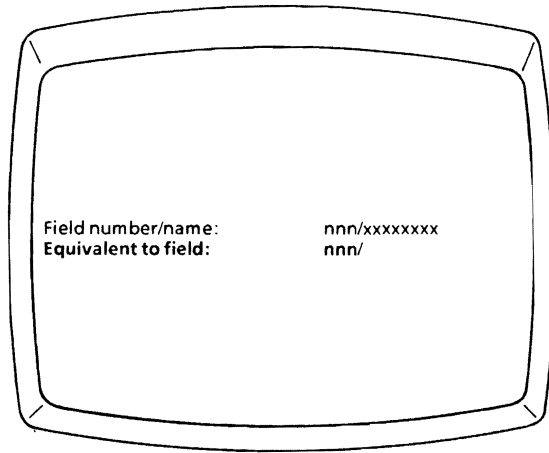
NEXT PROCEDURE
NO. 2310

Caution: When assigning names to report fields, avoid using these numeric function codes.

ABS	CB	ERR	FERR	FILE	FLD
INT	MAX	MIN	PAGE	REM	

If you use a numeric function code as a field name, you cannot use it as a function anywhere in your report. For example, if you name a field ABS, the numeric function for absolute value will be unavailable. Numeric functions are fully described in the appendices to this manual.

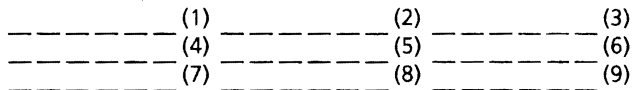
2310/Field Equivalency



Field equivalency means that data from more than one record in a datafile can be printed at the same time on your report. Equivalency can only be used when the fields are on the same detail line.

Equivalent Field Usage

Suppose your report prints name and address labels in a three-up format. Your layout might look like the following (field numbers inserted for this discussion):



The first line (report fields 1, 2, and 3) contains the name information. The second line (fields 4, 5, and 6) contains the street address, and the third line (fields 7, 8, and 9) contains the city and state address.

Report fields 1, 4, and 7 should be defined first; they are the base fields. When the time comes to define fields 2 and 3, they will be equivalent to field 1. Likewise, fields 5 and 6 will be equivalent to field 4; fields 8 and 9 will be equivalent to field 7.

When this report is run, ReportStar reads the first record and fills fields 1, 4, and 7; then reads the second and fills 2, 5, and 8; then reads the third and fills 3, 6, and 9.

ReportStar won't print a line with equivalent fields until all fields on the line are filled or a control break occurs. When the three lines are printed, the report will resemble the following:

John Jones	Bill Smith	Sally Doe
123 4th St.	432 1st St.	678 9th St.
Portland, OR	Portland, OR	Portland, OR

Report fields defined as equivalent to another field cannot be referenced by other report fields, or in calculation, print, or clear expressions, but the base field can be referenced.

Equivalent fields can appear *only* on detail (always print) report lines (see procedure 2240). These fields cannot be operator-input or control break fields.

Caution: When defining equivalent fields, keep the following points in mind.

1. You cannot make one field equivalent to another which is itself equivalent to yet another field. In the example, field 3 cannot be equivalent to field 2 because field 2 is itself equivalent to field 1.

2. Within one report, the number of fields equivalent to base fields must be the same for each base field. In the example, you cannot have a fourth field on any line when there are only three on the other lines.
3. A base field and all fields equivalent to it must be the same length (number of positions on the line).
4. A field can only be equivalent to a base field with a lower field number.

{ENTER EQUIVALENT FIELD NUMBER/
NAME}

After you have assigned a number to the base field, you can make another report field equivalent to it by entering the number (or **RETURN** and the name) of the base field.

NEXT PROCEDURE
NO. 2200

To bypass equivalent field assignment, press **RETURN** twice.

If the current field is a control break field:

NEXT PROCEDURE
NO. 2320

If the current field is not a control break field:

NEXT PROCEDURE
NO. 2330

Control Break/2320

Field number/name:	nnn/xxxxxxx
Equivalent to field:	nnn/yyyyyyy
Control break level:	001

This control break prompt appears only when your report field was established as a control break field on the report layout (refer to procedure **2230**).

The answer portion of the prompt (shown as n above) contains a value from 1 to 9, which indicates the level of control break status assigned to the report field. You can change the level as required, and all other control break levels will be adjusted automatically.

{ASSIGN CONTROL BREAK PROCESSING}

The level 1 control break has the highest precedence, level 9 the lowest. When a change occurs in the value of the report field at level 1, a control break is forced to take place at all subordinate levels. On the other hand, if a change occurs at the third of five control break levels, a break is forced for levels 3, 4, and 5 but not for levels 1 and 2.

A connection between control break processing and the sort order of datafiles means that control break levels must be assigned carefully. If you set a report field as a control break, but the datafile is not sorted by that field, a control break is likely to occur following every record in the datafile.

The value of a control break field cannot be dependent upon another control break or a page break.

Your control break levels should correspond to the Key order of your datafile. For example, assign the level 1 control break to the first Key, assign the level 2 control break to the second Key, and so on. Additional information regarding sort order and control breaks can be found in the glossary of your General Information Manual.

{CHANGE CONTROL BREAK LEVELS}

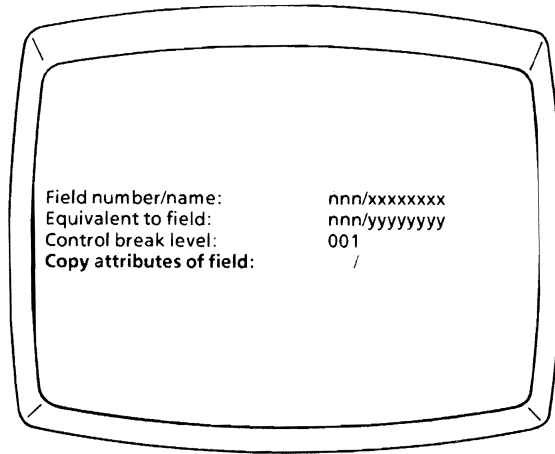
The first field assigned control break status with ^K (procedure 2230) is assigned level 1; the second, level 2; and the third, level 3; and so on. If you change the third field to level 1, ReportStar automatically adjusts by re-assigning level 2 to the first field and level 3 to the second field.

If you remove a control break report field entirely, the remaining control break numbers are reassigned sequentially.

- 1-9** Enter the control break level. Enter any number from 1 to the maximum number of control breaks in your report (through 9). If you enter a number greater than the number of control breaks assigned, an error message appears.

<p style="text-align: center;">NEXT PROCEDURE NO. 2330</p>
--

Copy Attributes/2330



Field number/name:	nnn/xxxxxxx
Equivalent to field:	nnn/yyyyyyy
Control break level:	001
Copy attributes of field:	/

You can copy the definition (attributes) of a previously defined report field when defining report fields intended for the same or similar uses. For example, if you know that report field #009 is the same as #003, simply enter 003 at this prompt to define field #009 at this prompt. All your original responses are copied to the current definition.

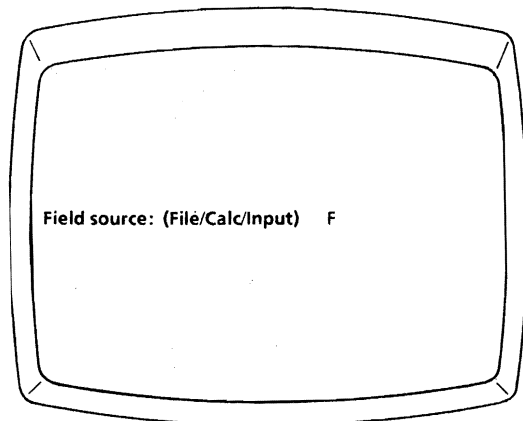
You can also use this procedure when report fields are similar but not identical. When you copy the attributes of another report field, all attributes previously defined for the current field are overlaid by the copied attributes. After the definition has been copied, review the copied version and change the responses which need to be different.

{COPY REPORT FIELD ATTRIBUTES}

001-nnn Enter the number or (**RETURN** and the name) of a report field previously defined. (Enter three digits, i.e., 006, not 6 or 06.) Enter any number from **001** to the maximum number of fields in your report layout. If you enter zero or a number greater than the maximum number of report fields, an error message appears.

<p>NEXT PROCEDURE NO. 2340</p>
--

Field Source/2340



This prompt begins identifying the source of data to fill the report field when the report is run. Your answer tells ReportStar where to get the information to put into your report field. The information can originate in one of three sources:

1. directly from a **DATAFILE**
2. as the result of a **CALCULATION**
3. as operator-entered **INPUT** when the report is run.

Subsequent prompts ask for more information about the source, based on your response to this prompt.

INDICATE REPORT FIELD SOURCE

- F** Enter **F** (for File) or press **RETURN** (default) to fill this report field with information from a datafile.

NEXT PROCEDURE
NO. 2341

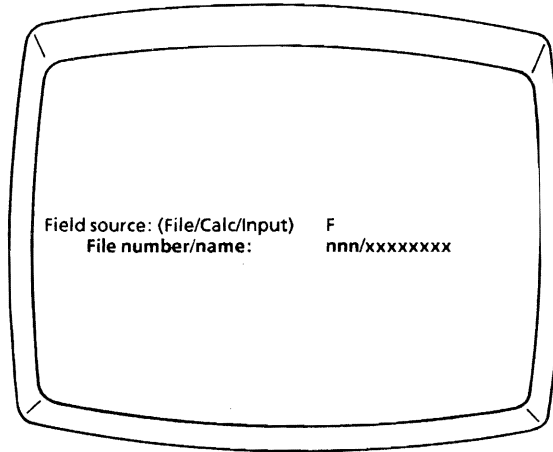
- C** Enter **C** (for Calc) to fill this report field with information the program will calculate. (Calculations use constants or data from other report fields.)

NEXT PROCEDURE
NO. 2344

- I** Enter **I** (for Input) to fill this report field with operator-entered information when the report is run.

NEXT PROCEDURE
NO. 2347

Input File/2341



```
Field source: (File/Calc/Input) F
File number/name: nnn/xxxxxxxx
```

The file prompt, which appears when your previous response (procedure **2340**) indicates that the source of the report field is a datafile, asks you to identify the source of information for your current report field.

Identify the file description which describes the input datafile by providing its number or its name. Whichever you enter, ReportStar inserts the other automatically. The datafile you specify must be an input file. If you have not yet completed a file description for the datafile, your response is rejected and an error message appears. (File description is covered by procedures **2100** through **2160**. If you want to go directly to procedure **2100** to begin creating a file description, enter **^C^CF**.)

ENTER FILE DESCRIPTION NUMBER/NAME

001-nnn Enter any number from **001** to the maximum number of file descriptions in your report. Your entry must be a file description which describes the datafile serving as the source for your current report field. (Enter three digits, i.e., 006, not 6 or 06.) If you enter a number greater than the maximum number of file descriptions in your report, an error message is displayed. If you change the number, the name also changes automatically.

/ _____ Enter the name, followed by **RETURN** if it is less than eight characters. Your entry must be a file description which defines the datafile serving as the source for your current report field. If an unrecognized name is entered, the entry is ignored. If you change the name, the number also changes automatically.

<p>NEXT PROCEDURE NO. 2342</p>
--

Input Field/2342

```
Field source: (File/Calc/Input) F
File number/name: nnn/xxxxxxxx
Field number/name: nnn/
```

The field prompt asks you to identify the specific data field which provides the information for your report field. You can enter either the name or the number of the field. If you enter the data field name, it must be defined in the form definition file which describes the datafile.

ReportStar uses your entry to locate the desired data field, then fills your report field with information from that data field. If the form definition file contains a name for the data field, the name will be inserted (following the slash) after you enter the number. If data field names are not specified in the form definition file, that portion of the answer is left blank.

{ENTER DATA FIELD NUMBER/NAME}

001-nnn Enter any number from **001** to the maximum number of data fields defined in your form definition file. (Enter three digits, i.e., 006, not 6 or 06.) If the number you enter is greater than the maximum number of data fields, an error message appears. If you change the number, the name also changes automatically.

/ _ _ _ _ Press **RETURN** if you want to enter the data field name rather than its number. When the cursor moves past the slash, enter the name, followed by **RETURN** if fewer than 32 characters. (The name must be defined in your form definition file.) If you enter an unrecognized name, it is ignored. If you change the name, the number also changes automatically.

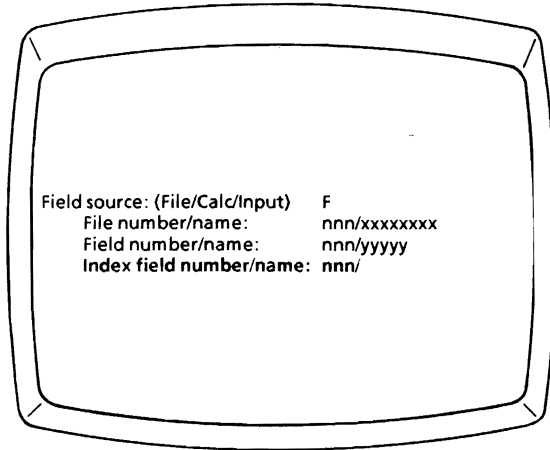
If the datafile containing your data field is to be accessed as a reference file (as specified in procedure **2130**), then:

**NEXT PROCEDURE
NO. 2343**

If the datafile containing your data field is to be accessed sequentially (also specified in procedure **2130**), then:

**NEXT PROCEDURE
NO. 2350**

Index Field/2343



```
Field source: (File/Calc/Input)  F
File number/name:               nnn/xxxxxxx
Field number/name:              nnn/yyyyy
Index field number/name:        nnn/
```

The index field prompt appears only if access to your datafile (identified in procedure 2130) will be as a reference file. Your answer to this prompt identifies the *report* field (not the data field) which will contain the Key value ReportStar can use to access the datafile.

In order to retrieve information from a reference file, you must provide a Key value, one which is unique to the data record you want to access. If the reference file has more than one Key field, the index field on your report must contain a combination of values from all Key fields in the reference file, and these values must be combined in the proper order and be the correct length. The program can then retrieve the specific data record and make its information available for use in your report. For more information, refer to the appendices to this manual.

The report field number you enter should be *lower* than your current report field because report fields are filled in sequence, according to their individual field numbers when the report is run. If you were to enter a higher number, the information in your report could become disorganized. You can use the LOAD IF condition (procedure **2360**) to control placement of a new Key value in the index field.

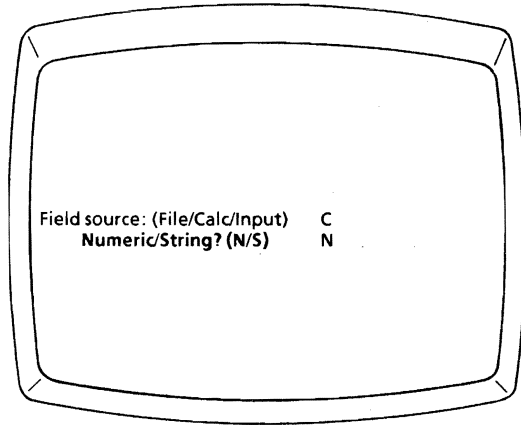
ENTER INDEX FIELD NUMBER/NAME

001-nnn Enter any number from **001** to the maximum number of report fields in your layout. Your entry must be a report field which is defined in your report layout. (Enter three digits, i.e. 006, not 6 or 06.) If the number you enter is greater than the maximum number of fields in your report, an error message appears. If you change the number, the name also changes automatically.

/ _ _ _ _ _ Press **RETURN** to enter the name of the report field rather than the number (if you assigned a name to the field). When the cursor moves past the slash, enter the name, followed by **RETURN** if less than 32 characters. If you enter an unrecognized name, the name is ignored. If you change the name, the number also changes automatically.

<p style="text-align: center;">NEXT PROCEDURE NO. 2350</p>
--

Numeric or String/2344



Your response to this numeric/string prompt begins to describe the type of calculation required to fill your report field. There are two types of calculations, **numeric** and **string**.

A **numeric** calculation involves the mathematical manipulation of numbers to produce a result. A numeric calculation can be as simple as:

ANSWER = #001 + #002

or as complex as:

ANSWER = (#010*(#002 + #006-#001)/(#012 + #002))/10.5 + #004

In order to perform a numeric calculation, be sure your figures are numeric (not alphabetic or alphanumeric). They should also represent a calculable amount if the results are to have any meaning. (For example, you can add zip codes, but the sum would be meaningless.)

2344 *Numeric or String*

A **string** calculation is an arbitrary manipulation of characters from data fields. A string calculation can refer to all or part of any data field. You can use strings to create report fields which are composites of other fields or parts of other fields.

You can perform a string calculation with alphabetic, alphanumeric, or numeric data. (See the appendices to this manual for more details.)

SPECIFY NUMERIC OR STRING CALCULATION

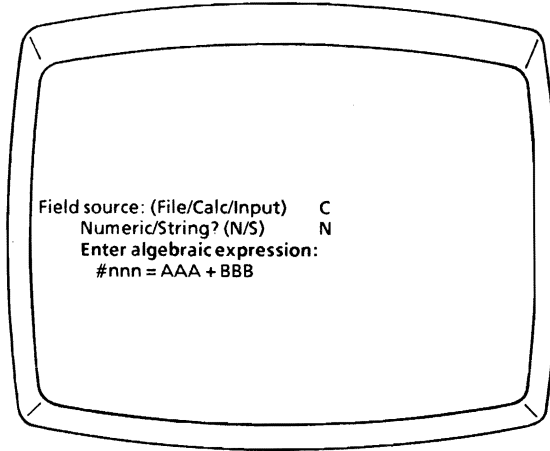
- N** Enter **N** (for Numeric) to fill the report field with information resulting from a numeric calculation.

<p>NEXT PROCEDURE NO. 2345</p>

- S** Enter **S** (for String) to fill the report field with information resulting from a string calculation.

<p>NEXT PROCEDURE NO. 2346</p>

Algebraic Expression/2345



This algebraic expression prompt asks for the numeric calculation to establish the value of your report field. The number of your report field replaces nnn. If you assigned a field name (procedure **2300**), the name would appear in place of the number.

If an algebraic expression references a field with a higher number, the calculation will use data remaining in that field from the previous record read.

The performance of ReportStar calculations requires the formation of algebraic expressions, according to the process explained in Appendix C. If you have not read this material, you may find it helpful to do so now. The following discussion is intended as a supplement to that material. In each expression, you need to understand:

- Operators and operands
- Precedence
- Rounding and precision.

If you are familiar with these concepts, turn to page 4-29, and enter algebraic expression.

Operators and Operands in Algebraic Expressions

An algebraic expression is a combination of *operators* (actions to be performed) and *operands* (elements upon which the actions are performed). In the expression $2 + 2$, for example, the 2's are the operands, and the + is the operator.

An **operand** can be:

- a report field (number or name)
- a numeric function
- a constant
- a combination of any of any of these (usually enclosed in parentheses).

Report fields are indicated by the # sign followed by the number of the field. If the report field was assigned a name (see procedure **2300**), the name appears in place of the field number after the expression has been saved. You can enter the report field name in place of the number if desired. If you do, omit the leading pound (#) sign. Examples:

<u>Valid Field Nos./Names</u>	<u>Invalid Field Nos./Names</u>
#001	#0 (only 001 to 255 accepted)
#010	5 (missing # sign)
ORDER NUMBER	1SALE (must begin with letter)

Numeric functions (ABS, REM, PAGE, INT, etc.) are discussed at length in Appendix C.

A constant has a numerical value. A single decimal point is optional. A leading minus sign (-) is also optional. Examples:

<u>Valid Constants</u>	<u>Invalid Constants</u>
1.023	1.10.06 (only one decimal point allowed)
-15992634.125	15- (minus sign must precede number)
127	+ 234 (leading plus sign not allowed)

An **operator** is usually the familiar sign for an arithmetic function. The operators you can use are:

- + (add)
- (subtract)
- * (multiply)
- / (divide)
- ^ (exponentiate)

2345 Algebraic Expression

Parentheses may be used to enclose parts of expressions. Several examples of valid numeric expressions are:

<u>Valid expression</u>	<u>Interpretation</u>
#010 = #002	The value in field 10 is found by copying the value in field 2.
#010 = #005*#006	The value in field 10 is found by multiplying the value in field 5 by the value in field 6.
#010 = (#008 + #009)/.125	The value in field 10 is found by adding the value in field 8 to the value in field 9, then dividing the result by .125.
#010 = #007 * 4.5 - 2	The value in field 10 is found by multiplying the value in field 7 by 4.5, then subtracting 2 from the result.
AMOUNT = UNITS*PRICE	The value in the field named AMOUNT is found by multiplying the value in UNITS by the value in PRICE.
TOTAL = TOTAL + AMOUNT	The value of TOTAL is found by adding AMOUNT to it in each program pass.

Precedence in Algebraic Expressions

When all operators in an algebraic expression are the same, the operations are performed from left to right in the expression. When more than one kind of operator is used, though, certain operations take precedence over others. In the ReportStar program (as with most programming languages) the order of precedence is:

Any part of the expression enclosed in parentheses is completed **first**.

Exponentiation is performed **second**.

Multiplication or division is done **third**.

Addition or subtraction is done **last**.

The order of precedence specifies that any part of an expression enclosed in parentheses has the highest precedence among the operations in the expression; it is resolved before other operations are performed. When more than one set of parentheses is used, the innermost set is resolved first; then each set in the expression is evaluated from left to right. Example:

$$\#010 = (\#004 + 2 * \underbrace{(\#003 + \#001)}_a)^2$$

The diagram shows the expression $\#010 = (\#004 + 2 * (\#003 + \#001))^2$ with four levels of brackets indicating the order of operations:

- a**: A bracket under the innermost parentheses $(\#003 + \#001)$.
- b**: A bracket under the multiplication $2 * (\#003 + \#001)$.
- c**: A bracket under the addition $\#004 + 2 * (\#003 + \#001)$.
- d**: A bracket under the entire expression $(\#004 + 2 * (\#003 + \#001))^2$.

Operation a takes place first; field 3 is added to field 1. Operation b occurs next; the result of operation a is multiplied by the constant value 2. Operation c occurs next; the result of operation b is added to field 4. Finally, operation d occurs; the result of operation c is squared. (Note that the numbers preceded by the # sign refer to the values in report fields; they have no quantifiable value of their own.)

2345 Algebraic Expression

To improve your processing time, calculate exponential results by multiplication rather than by using an exponent. For example, to find the square of a value in field 005 and place the result in field 008, use:

$$\#008 = \#005 * \#005$$

which will be calculated faster and more precisely than:

$$\#008 = \#005 ^2$$

Rounding Results of Algebraic Expressions

The results of algebraic calculations are *not* rounded automatically. If you want to round the result, you must specify the rounding operation as part of your calculation. If you add a fractional value equal to one half the smallest value (that can be contained in the field) to the expression for the result of the calculation, the result which appears in your report will include fractional values to exactly as many places as you specify (in conjunction with the edit mask). Examples:

$$\#010 = (\#004 + \#005 + \#006)/3 + 0.5$$

In this case, *no* fractional values are included in your report. This expression computes the average of values in fields 4, 5, and 6; rounds the result to an integer value; and stores the final result in field 10.

$$\#010 = (\#004 + \#005 + \#006)/3 + .005$$

This case involves the same computation, but fractions (to the second decimal place) are included in your report.

If the value of the report field is to be a non-integral result (containing fractional decimals), specify a decimal point within the field. Otherwise, values to the right of the decimal point will be lost. The location of the decimal point can be specified as you design an edit mask in procedures 2353 and 2354.

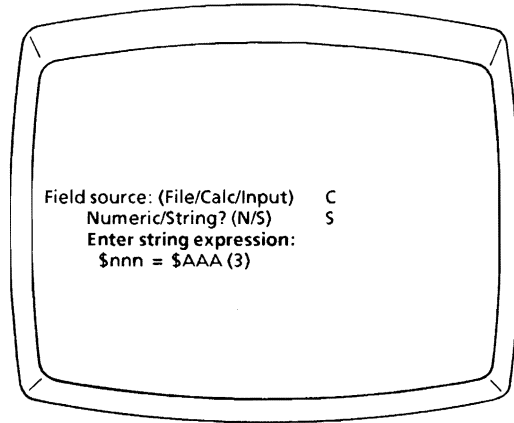
ReportStar calculations are carried out to 14 digits of precision. The method is binary coded decimal, so precision is never lost, even for the most complicated expressions.

ENTER ALGEBRAIC EXPRESSION

When the algebraic expression prompt appears, the cursor is in the space immediately following the = sign. Enter an expression composed of valid operators and operands. You can leave spaces between operands and operators, since they are ignored by ReportStar, but your expression must not exceed 254 characters in length (not counting spaces). The last entry in the expression must be an operand.

<p>NEXT PROCEDURE NO. 2348</p>

2346/String Expression



This prompt asks for a string expression to establish the value of your report field. The number of your report field replaces **nnn**. An assigned name would appear in place of the number.

If a string expression references a field with a higher number, the calculation will use data remaining in that field from the previous record read.

ReportStar can perform string manipulations on values in report fields, segments of report fields, or character string constants, according to the process explained in the appendices to this manual. If you have not read this material, you may find it helpful to do so now. Briefly, a valid string is composed of *operators* (which join two or more elements) and *operands* (the elements which are joined).

Operands, Operators, and Constants in String Expressions

A string operand can be:

- a report field (number or name)
- a subfield (segment within a field)
- a string constant.
- the string function (\$FILE)

A report field is represented in a string expression by a dollar sign, followed by the field number or name. A subfield is represented by a dollar sign and field number or name, followed by a start position and number of characters. The start position and number of characters are separated by a comma and enclosed in parentheses. The start position must be a valid position in the referenced field, and the start position plus number of characters must not exceed the field's length. Otherwise, an error message will appear at Report Edit completion (procedure **2400**). If the number of characters is not specified, the remainder of the report field is assumed. Examples:

<u>Valid operand</u>	<u>Subfield identified</u>
\$10(1,2)	the first two characters of field 10.
\$NAME(3,1)	the third character of field NAME.
\$5(4)	all but the first three characters of field 5.
<u>Invalid operand</u>	<u>Problem</u>
\$5(0,4)	position zero is not accepted.
\$NAME(1,300)	maximum field length is 255.
\$10(1,4	missing right parenthesis.

2346 String Expression

If you omit the dollar sign from a field number or name, an error results and your expression is not accepted.

A string constant is any number of characters (not counting quotation marks), up to 254, enclosed in quotation marks. The quotation mark character itself can be represented by two successive quotation marks ("") to signify one constant imbedded within another. Examples:

Valid string constants

"a "valid" string constant"

" " (using spaces as the string constant)

"" (null constant, useful in comparisons)

Invalid string constants

"trailing quotation mark is required

"single imbedded quotation mark "not permitted"

The only string operator is the symbol for "join", an ampersand (&). A string expression is formed by alternating string operands (report fields, subfields, and constants) with the string operator (&). Some examples of valid string expressions are:

\$006 = \$004&"/05/"&\$003

This string expression results in the value of field 4 being joined to the constant /05/.

These are then joined to the value of field 003. Thus, if field 4 contains a value of 09, and field 3 contains a value of 77, the result in field 006 will be "09/05/77".

PRICE = \$003 & "cents per pound," & \$009"dollars per ton"

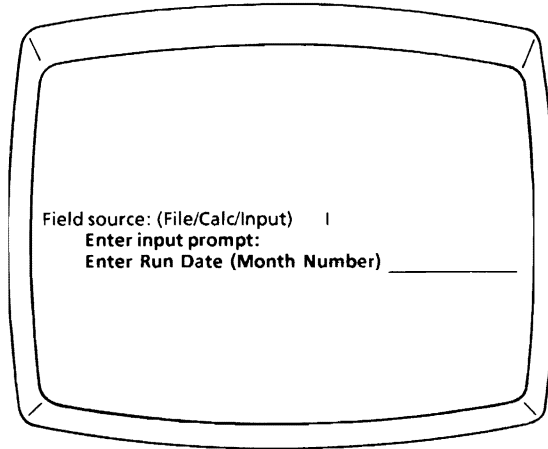
If the value of field 003 is .02, and the value of field 9 is 40, the result in report field PRICE will be, ".02 cents per pound, 40 dollars per ton."

ENTER STRING EXPRESSION

When the string expression prompt appears, the cursor is in the space immediately following the = sign. Enter a string expression composed of valid operators and operands. You can leave spaces between operands and operators, since they are ignored by ReportStar, but your expression must not exceed 254 characters in length (not counting spaces). The last entry in the expression must be an operand.

<p>NEXT PROCEDURE NO. 2348</p>
--

2347/Input Prompt



Your response to this prompt will appear on the terminal when the report is run. The message you enter now will tell the operator what information to enter in the report field. Your input prompt can be free-form. It can contain any character from your keyboard but must not exceed the number of positions on a line (determined by your terminal's screen) minus three. Procedure 3220 explains how your input prompt is used at report run time.

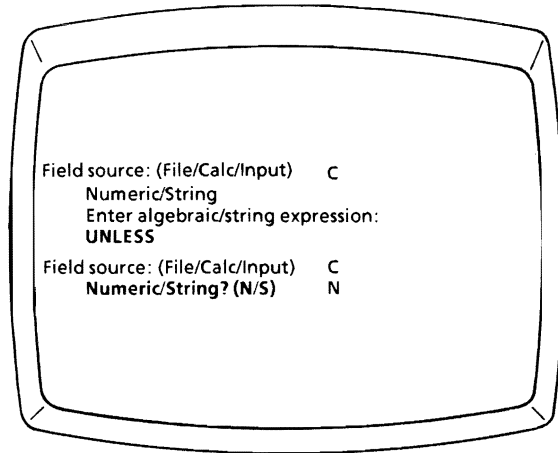
If you want the information to be entered in a particular format, explain the format as part of your prompt.

Examples:

Enter today's date: (mm/dd/yy)
Enter current Interest Rate: (nn.nn)

NEXT PROCEDURE
NO. 2350

Unless-Then/2348



When you have entered your string or algebraic expression (procedures **2345-2346**), the word **UNLESS** appears on the next line. To set up an alternate to the expression just entered, enter a logical expression at this point. When you have entered this UNLESS Expression, the word **THEN** appears on the next line. Enter an alternate expression to be performed when the UNLESS condition is true.

Here is an example involving an *algebraic* expression:

```
FREIGHT = WEIGHT*0.20.  
UNLESS TOTAL > 1000.00  
THEN FREIGHT = 0.00
```

FREIGHT is calculated by multiplying WEIGHT times the constant 0.20, *unless* the field TOTAL is greater than 1000. If TOTAL is greater than 1000, then FREIGHT equals 0.

You can continue entering UNLESS/THEN pairs to specify as many alternate expressions as necessary. ReportStar will continue to evaluate each UNLESS/THEN expression until it encounters one that is not true. For example:

```
FREIGHT = WEIGHT*0.20  
UNLESS TOTAL > 500.00  
THEN FREIGHT = WEIGHT*0.15  
UNLESS TOTAL > 1000.00  
THEN FREIGHT = 0.00
```

This example is similar to the previous one, except that a new calculation is performed if the TOTAL is between 500 and 1000.

String expressions may also have UNLESS conditions attached, or be part of the UNLESS expression:

```
$SALUTATION = "Dear Mr. "&$LASTNAME  
UNLESS GENDER = "F"  
THEN $SALUTATION = "Dear Ms "&$LASTNAME
```

Assuming the field LASTNAME contains the value "Robertson", SALUTATION will print as "Dear Mr. Robertson", unless the GENDER field indicates that Robertson is a female, in which case SALUTATION will print as "Dear Ms Robertson"

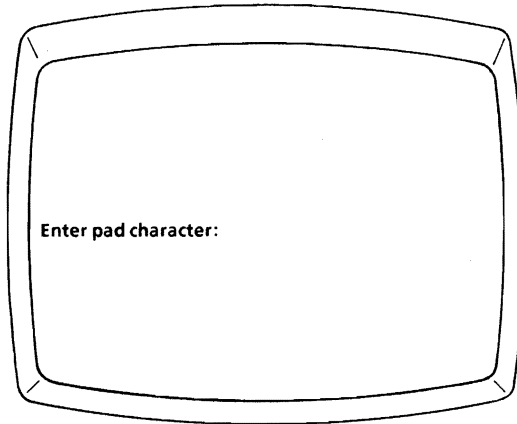
Appendix C includes a more detailed discussion of UNLESS/THEN expressions.

{ENTER UNLESS-THEN EXPRESSION}

If you do not want to enter conditional or alternate expressions in response to UNLESS/THEN, press RETURN before making an entry.

<p>NEXT PROCEDURE NO. 2350</p>

Pad Character/2350



The pad character prompt is the first in a series which permits you to indicate how the information in your report field will appear when printed or written to an output datafile. The pad character fills the field when there isn't enough data to do so. Pad characters usually protect a printed report field from alteration, e.g. amounts on checks.

PAY ***Fifty-four dollars and six cents**
PAY \$\$\$\$\$\$54.06

Asterisks are the pad character in the first example, dollar signs in the second.

If you write this report field into an output datafile, pad characters will be removed before the field is written. Pad characters in a Key field with right justification *will* be retained (see procedure 2351).

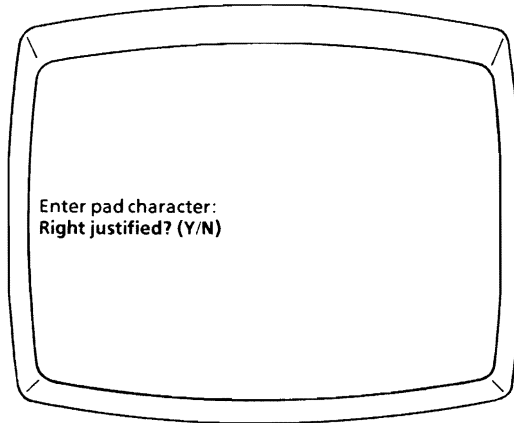
2350 *Pad Character*

ENTER PAD CHARACTER

Enter any single character on your keyboard as the pad character. If you want *no* pad character in the report field, enter **^G**. Press **RETURN** without entering another character, and spaces will pad the report field.

<p>NEXT PROCEDURE NO. 2351</p>
--

Right Justification/2351



This prompt permits you to align your data to the right side of the report field. Data is normally aligned to the left of the report field.

Data Left Justified

21604
1020
86

Same Data Right Justified

21604
1020
86

Right justification will have no effect if you specify a decimal alignment position for this report field (procedures **2353** and **2354**).

If you write this report field into an output datafile *and* it is a Key field (as specified in the form definition file), when right justification is specified the field will be padded with the pad character (procedure **2350**).

SPECIFY LEFT/RIGHT JUSTIFICATION

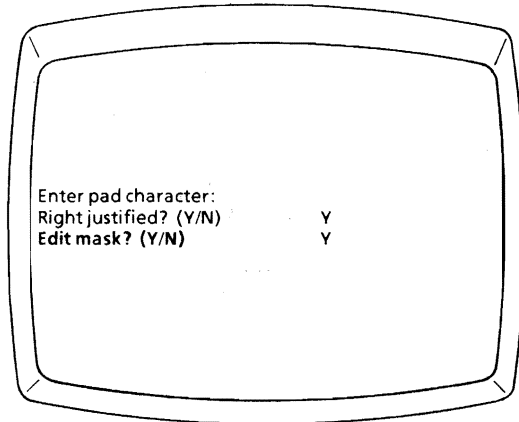
- N** Enter **N** (for No) or press **RETURN** (default) if the data in this report field is to be left justified.

**NEXT PROCEDURE
NO. 2352**

- Y** Enter **Y** (for Yes) to right justify the data in this report field.

**NEXT PROCEDURE
NO. 2352**

Edit Mask/2352



The edit mask prompt permits you to insert special characters (such as dollar signs, decimal points, or commas) in your report field. As you design an edit mask for your report field, two more prompts ask for the conditions and content of its application, such as:

- Constants which always occupy the same position
- Floating or trailing characters which vary among positions not occupied by data characters
- Decimal alignment which ensures the presentation of fractional results from calculations
- Notation of negative field values

Edit mask characters will be removed when the report field is written to an output datafile.

INDICATE IF EDIT MASK TO BE USED

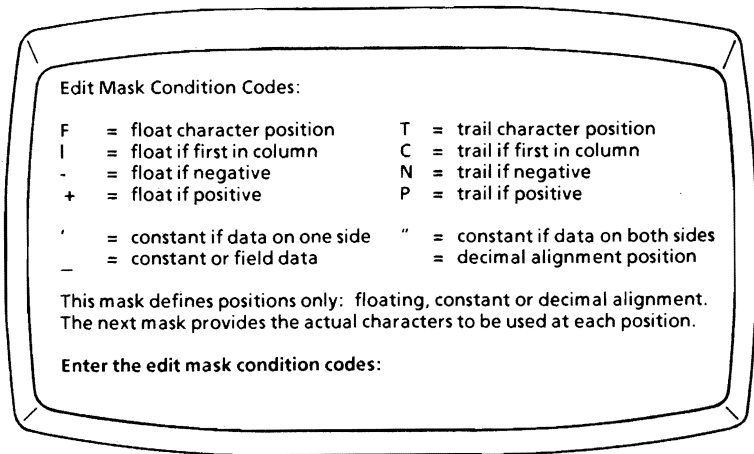
- N** Enter **N** (for No) or press **RETURN** (default) if there is no edit mask for this report field.

**NEXT PROCEDURE
NO. 2360**

- Y** Enter **Y** (for Yes) to create an edit mask for this report field. Subsequent prompts ask you to indicate the conditions for edit mask application and the actual characters to be used.

**NEXT PROCEDURE
NO. 2353**

Edit Mask Condition Codes/2353



Your answers to this condition code prompt, combined with your answers to the next (constants) prompt, complete the design of an edit mask for the report field. Condition codes specify which positions in the field are to be occupied by the characters you will provide in the constants prompt.

Above the prompt, two to four lines of your report layout appear with the cursor in the first position of your report field. When you enter a condition code, it appears in the field and the cursor moves to the next position. When the cursor moves beyond the farthest right position in this field, the next prompt (procedure **2354**) appears. Press **RETURN** if you complete the edit mask before the cursor moves out of the report field.

If you make an error when entering condition codes, use **^G** to delete unwanted codes.

2353 *Edit Mask Condition Codes*

You can assign as many condition codes to a field as there are positions in the field, but you can assign no more than one code to each position. In the following examples of applications for each condition code, note that the constants mask (procedure 2354) is also illustrated and that most columns of figures are right justified.

Edit Mask Condition Code Rules

There are four rules to consider when entering edit mask condition codes.

1. For each field, there cannot be more than one float and one trail character in the mask.
2. Float characters (F, +, -, 1) occur only at the beginning of the field and in a continuous string unless interrupted by a constant.

Valid

FFF
1"1

Invalid

FF (not at field beginning)
1 1 (not a continuous string)

3. Trail characters (T, P, N, C) occur only at the end of the field and in a continuous string.

Valid

..NN
..C

Invalid

NN (not at field end)
..C (not a continuous string)

4. Only one decimal point position can be specified in the edit mask, but it can occur anywhere in the field as long as it does not interrupt a floating or trailing string.

F Float Character Position

The character specified in the constants mask (procedure **2354**) is inserted in this position of the report field the first time there are no other data to fill the position.

<u>Data</u>	<u>Condition</u>	<u>Constant</u>	<u>Result</u>
125.69	FFFF..	\$.....	\$125.69
42.73			\$42.73
8.12			\$8.12

1 Float if First in Column

The floating character (to be specified) prints only in the *first* report field in a column. For example, this feature would print a dollar sign in the first report field at the top of each column on each page of the report.

<u>Data</u>	<u>Condition</u>	<u>Constant</u>	<u>Result</u>
125.69	1.....	\$.....	\$125.69
42.73			42.73
8.12			8.12

- Float.if Negative

This code prints a floating character in front of report fields containing a negative value, i.e., less than zero. (This example also demonstrates a "trail if negative" condition.)

<u>Data</u>	<u>Condition</u>	<u>Constant</u>	<u>Result</u>
-12208	----- N	<.....>	<12208>
-582			<582>
-6			<6>
17			17

2353 *Edit Mask Condition Codes*

+ Float if Positive

This code prints a floating character in front of report fields containing a positive value, i.e., greater than zero.

<u>Data</u>	<u>Condition</u>	<u>Constant</u>	<u>Result</u>
199	+++++	+ - - - -	+ 199
7557		- - - - -	+ 7557
1			+ 1
-5			5

T Trail Character Position

This code prints a character *following* the report field. (Trail characters are the same as float characters except that they follow, rather than precede, the report field.)

<u>Data</u>	<u>Condition</u>	<u>Constant</u>	<u>Result</u>
5	----T	----%	5%
110			110%
25			25%

C Trail if First in Column

The trail character prints only in the first report field in a column.

<u>Data</u>	<u>Condition</u>	<u>Constant</u>	<u>Result</u>
88	----C	----%	88%
273			273
2			2

N Trail if Negative

This code prints characters following a report field which contains a negative value (i.e., less than zero). For example, this code can print a credit symbol.

<u>Data</u>	<u>Condition</u>	<u>Constant</u>	<u>Result</u>
-25766	.....NN	.....CR	25766CR
1040			1040
-69			69CR

P Trail if Positive

This code prints characters following a report field which contains a positive value.

<u>Data</u>	<u>Condition</u>	<u>Constant</u>	<u>Result</u>
4412	PPPPPPPP	-----+	4412 +
709			709 +
-26			26

Constant if Data on One Side

This code (a single apostrophe) prints a character when there is data to only one side or the other. (This example also demonstrates a "constant if data on both sides" condition.)

<u>Data</u>	<u>Condition</u>	<u>Constant</u>	<u>Result</u>
4154991200	'.....	() -	(415)499-1200
4999523			499-9523

" Constant if Data on Both Sides

This code (a double apostrophe) prints a character when there is data on both sides of it. It is useful for inserting commas in a series of numbers (below) or dashes in telephone numbers.

<u>Data</u>	<u>Condition</u>	<u>Constant</u>	<u>Result</u>
157642	"		157,642
52006	"		52,006
124	"		124

_ Constant or Field Data

If you enter a constant character in the edit mask for this position (procedure **2354**), the character *always* appears when the field is printed. If no other code is entered, this code (the underline) becomes the default, and the corresponding report field position will contain data.

<u>Data</u>	<u>Condition</u>	<u>Constant</u>	<u>Result</u>
5551212		-9	555 1212-9
7722989			772 2989-9
7725400			772 5400-9

• Decimal Alignment Position

The decimal point code specifies the position in the report field on which all numeric data fields will be aligned.

Edit Mask Condition Codes **2353**

If your report field contains numbers with decimal points, you should specify decimal alignment in the edit mask. Otherwise, data to the right of the decimal won't appear in the report.

Data	Condition	Constant	Result
129.95	129.95
82.08			82.08
44.44			44.44
312			312.

ENTER EDIT MASK CONDITION CODES

Follow procedures in the description of each code.

<p style="text-align: center;">NEXT PROCEDURE NO. 2354</p>
--

2354/Edit Mask Constants

2 () _____ Total _____ **

2

1 () _____ Total " " _____ ***

This second edit mask is used to define the actual constants that will appear if the conditions of the first mask are met. When these conditions are satisfied, one character will appear in the field for every constant character in the mask. Combinations of floating characters may be used here; for example the characters "CR" used as constants in this mask with a corresponding "NN" in the previous mask will print a CR after negative quantities.

Enter the edit mask constants:

Your answers to this constants prompt identify the actual characters which appear in your report field when specified conditions (procedure **2353**) are satisfied.

Above the prompt, two to four lines of your report layout appear with the cursor located in the first position of your report field. When you enter a constant character, it appears in the field and the cursor moves to the next position. When the cursor goes beyond the furthest right position in this report field, the next prompt (procedure **2360**) appears. Press **RETURN** if you complete the edit mask before the cursor moves out of the report field.

You can now enter a constant character at the appropriate underlined position, specifying that it will always appear in the same relative position. You can also specify a floating or trailing constant at any float or trail position established in your response to the previous prompt (procedure 2353). As you move the cursor through the report field, the condition code entered for each position appears after **EDC =** on the status line at the top of your display.

You must enter a constant character at every position in your edit mask where you entered a decimal point, single apostrophe, or double apostrophe. Constants are optional for all other condition codes.

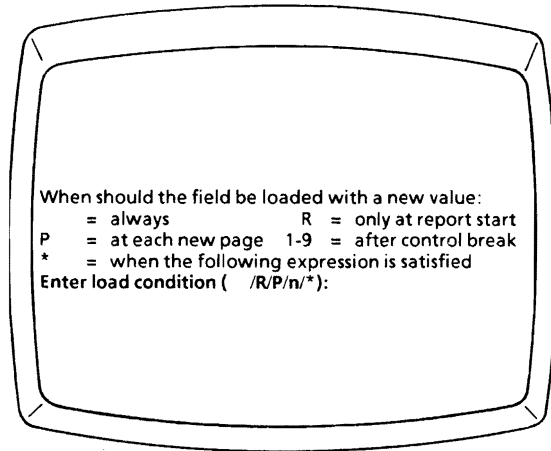
For examples of the most frequently used constants, refer back to procedure 2353.

Additional Examples:

<u>Data</u>	<u>Condition</u>	<u>Constant</u>	<u>Result</u>
-12569 7505	FFFF. NN	\$ CR	\$125.69CR \$75.05
5549273	.....	.....	554-9273
-39642 1551 -103	---"--- N	(. . .)	(39,642) (1,551) (103)

**NEXT PROCEDURE
NO. 2360**

2360/Load If Condition



Unless directed otherwise, ReportStar loads new data into a report field each time a new record is read. If this continual loading is appropriate for your report field, use the **SPACE** bar (default) to respond to this prompt. Otherwise, consult the list of codes for more specific loading instructions.

Load Condition Codes for Report Fields

(Space) Press **SPACE** to load the report field with a new value during every program pass (default) *unless* you have defined this field with an *input* information source (see procedures 2340 and 2347).

NEXT PROCEDURE
NO. 2370

- R** Enter **R** (for Report) if you want the field to be loaded with a new value only at the start of the report. This response is the default when defining a report field with an *input* source (see procedures **2340** and **2347**). Note that a report field defined with R loading instructions can be referenced in an INCLUDE IF expression (see procedure **2160**).

NEXT PROCEDURE
NO. 2370

- P** Enter **P** (for Page) if you want to load a new value in the field every time the report advances to a new page. You can use this technique, for example, to change page headings or to reset page counters.

NEXT PROCEDURE
NO. 2370

- 1-9** Enter the number (**1-9**) of a control break if you want to load the field with a new value at a predetermined level (see procedure **2320**). If you enter 4, for example, the report field is loaded with a new value only after a level 4 control break occurs.

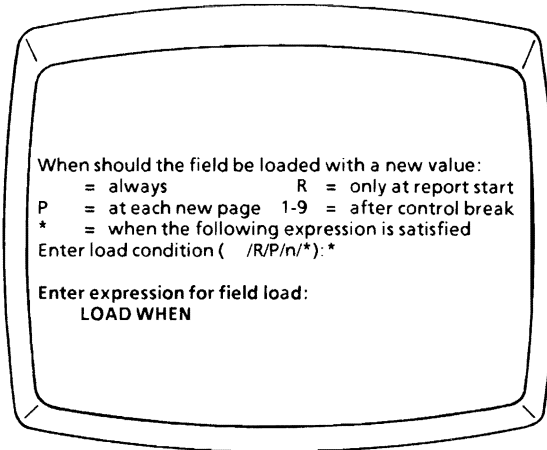
NEXT PROCEDURE
NO. 2370

2360 *Load If Condition*

- * Enter an asterisk if you want to load the report field with a new value depending on some other specific criteria. You will specify a logical expression in the next prompt.

<p style="text-align: center;">NEXT PROCEDURE NO. 2361</p>
--

Load When Condition/2361



When should the field be loaded with a new value:
= always R = only at report start
P = at each new page 1-9 = after control break
* = when the following expression is satisfied
Enter load condition (/R/P/n/*):*

Enter expression for field load:
LOAD WHEN

This prompt appears only after you respond with an asterisk to the previous prompt (procedure **2360**). You must now enter a logical expression to determine when the report field should be loaded with a new value. When your logical expression is satisfied during a program pass, your report field is loaded with a new value from the source you identified (procedures **2340** and **2347**). If the expression is *not* satisfied, the value in the report field remains unchanged.

If you press **RETURN** without entering a logical expression at this prompt, the result is the same as the default, *always* loading the field (see procedure **2360**).

Logical Expressions for Loading Report Fields

The appendices to this manual contain detailed instructions for forming logical expressions. If you have not read this material, you'll find it helpful to do so now.

Examples:

LOAD WHEN #025 < > #033

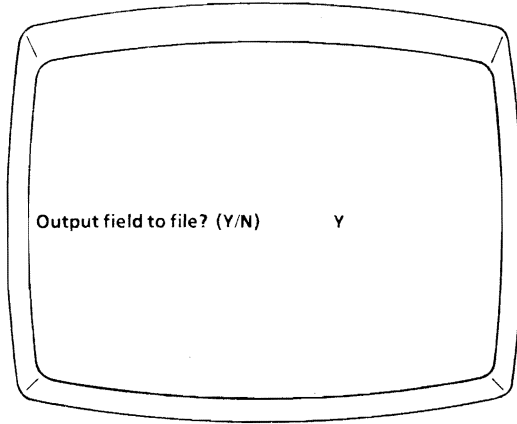
Your report field is only loaded when the values in fields number 25 and 33 are not equal.

**LOAD WHEN ACCOUNT NUMBER > 1589 .AND.
ACCOUNT NUMBER < 3521**

The report field is only loaded with new information if the field named ACCOUNT NUMBER contains a value greater than 1589 and less than 3521.

<p>NEXT PROCEDURE NO. 2370</p>

Output Option/2370



Output field to file? (Y/N) Y

The output prompt asks if you want to write the information contained in your report field into an output datafile. If so, in the next two prompts you will identify the output file and the data field where the information is to be placed.

Edit mask characters, if any, are removed from a report field before it is placed in the output file. However, if you specified right justification for the report field, *and* it is a Key field in the output datafile (as specified in the form definition file), the field will be right justified and retain the pad characters when the field is written in the output file.

2370 *Output Option*

INDICATE IF REPORT FIELD TO BE WRITTEN TO OUTPUT FILE

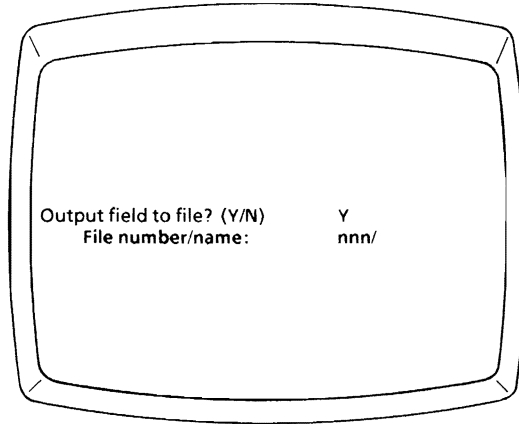
- Y** Enter **Y** (for Yes) if you *do* want to write the information from the report field into an output datafile.

NEXT PROCEDURE
NO. 2371

- N** Enter **N** (for No) or press **RETURN** (default) if you do *not* want to write the report field into an output datafile.

NEXT PROCEDURE
NO. 2380

Output File/2371



Output field to file? (Y/N) Y
File number/name: nnn/

Your response to this file prompt identifies the output datafile where the report field will be written. You can enter either the file description number or name for the output datafile, and ReportStar will provide the other.

If you have not yet created the file description for your output datafile, you must do so before your report can be run (procedure **2100**).

**{ENTER OUTPUT FILE DESCRIPTION
NUMBER/NAME}**

001-nnn Enter any number from 001 to the maximum number of files described in your report. Your entry must identify a file description for an output or reference datafile. (Enter three digits, i.e., 006 not 6 or 06.) If you enter a number greater than the maximum number of file descriptions in your report, an error message will appear at Report Edit completion (procedure 2400). If you change the number, the name also changes automatically.

/ _____ Press **RETURN** if you want to enter the file description name rather than number. When the cursor moves past the slash, enter the name, followed by **RETURN** if the name is less than eight characters. Your entry must identify a file description for an output or reference datafile. If an unrecognized name is entered, the entry is ignored and results in an error when leaving the program at procedure 2400. If you change the name, the corresponding number also changes automatically.

<p>NEXT PROCEDURE NO. 2372</p>

Output Field/2372

Output field to file? (Y/N) Y
File number/name: nnn/xxxxxxx
Field number/name: nnn/

This data field prompt asks you to identify the specific field (by either number or name) in the output datafile where the report field will be written (as specified in the form definition file for your output datafile).

{ENTER OUTPUT FIELD NUMBER/NAME}

001-*nnn* Enter any number from **001** to the maximum number of fields defined in the form definition file. (Enter three digits, i.e., 006 not 6 or 06.) If you enter a number greater than the maximum number of data fields, an error message will appear at Report Edit completion (procedure **2400**). If you change the output field number, the corresponding field name also changes automatically.

2372 *Output Field*

/ _ _ _ _ Press **RETURN** if you want to enter the data field name rather than its number. When the cursor moves past the slash, enter the name, followed by **RETURN** if the name is less than 32 characters. The name must be defined in your form definition file. If an unrecognized name is entered, the entry is ignored and results in an error when leaving the program at procedure **2400**. If you change the output field name, the corresponding number also changes automatically.

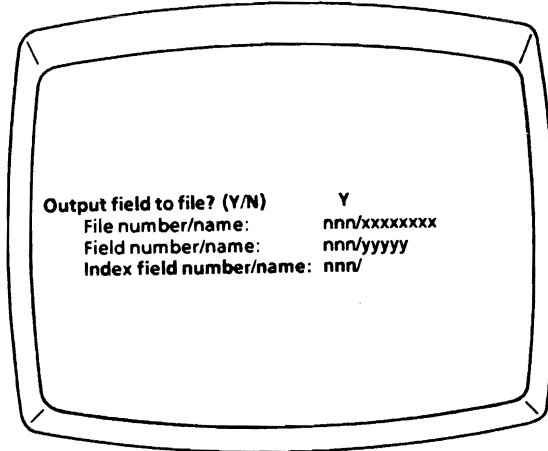
If the output file is to be processed as a reference file (i.e., you are updating the file), then:

NEXT PROCEDURE NO. 2373

If the output file is to be processed sequentially, then:

NEXT PROCEDURE NO. 2380

Index Field/2373



```
Output field to file? (Y/N)      Y
File number/name:               nnn/xxxxxxx
Field number/name:              nnn/yyyyyy
Index field number/name:        nnn/
```

The index field prompt appears only if access to your datafile (identified in procedure **2130**) will be as a reference file. Your answer to this prompt identifies the **report** field (not the data field) which will contain the Key value ReportStar can use to access the datafile.

In order to update information in a reference file, you must provide a Key value, one which is unique to the data record you want to access. If the reference file has more than one Key field, the index field on your report must contain a combination of values from all Key fields in the reference file, and these values must be combined in the proper order and be the correct length. The program can then retrieve the specific data record and update its information. For more information, refer to the appendices to this manual.

The report field number you enter should be *lower* than your current report field because report fields are filled in sequence, according to their individual field numbers when the report is run. If you were to enter a higher number, the information in your report could become disorganized. You can use the LOAD IF condition (procedure **2360**) to control placement of a new Key value in the index field.

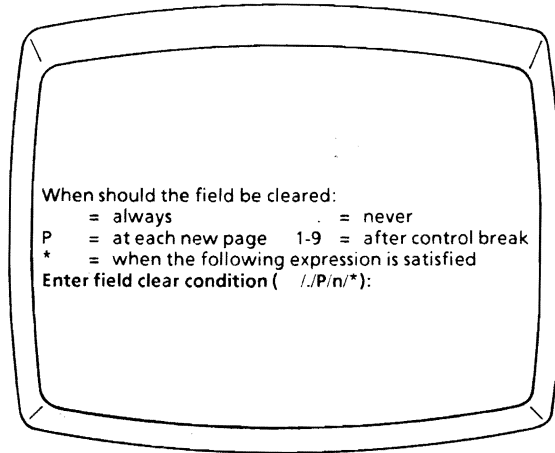
ENTER INDEX FIELD NUMBER/NAME

001-nnn Enter any number from **001** to the maximum number of report fields in your layout. Your entry must be a report field which is defined in your report layout. (Enter three digits, i.e. 006, not 6 or 06.) If the number you enter is greater than the maximum number of fields in your report, an error message appears. If you change the number, the name also changes automatically.

/ _____ Press **RETURN** to enter the name of the report field rather than the number (if you assigned a name to the field). When the cursor moves past the slash, enter the name, followed by **RETURN** if less than 32 characters. If you enter an unrecognized name, the name is ignored. If you change the name, the number also changes automatically.

<p>NEXT PROCEDURE NO. 2380</p>
--

Clear When Condition/2380



To clear a report field is actually to fill its positions with null characters (evaluated as zero in numeric expressions). Unless directed otherwise, ReportStar does not clear data from a report field but enters new data to "overlay" data previously loaded in the field. The overlay occurs during each program pass or under the specific load conditions you have defined (procedure 2360).

If floating or trailing characters have been inserted under the conditions of an edit mask, be sure you specify that the field be cleared "always." Otherwise, unwanted edit mask characters may remain when the next record is read.

Clear Condition Codes for Report Fields

- Enter a period (default) if the report field should *never* be cleared to a null value; new data will continue to overlay the present report field information.

NEXT PROCEDURE
NO. 2200

- (Space)** Press **SPACE** if you want the report field "always" cleared, i.e. following each program pass.

NEXT PROCEDURE
NO. 2200

- P** Enter **P** (for Page) if you want the report field cleared every time your report advances to a new page. (The report field will *not* be cleared at the end of each program pass.)

NEXT PROCEDURE
NO. 2200

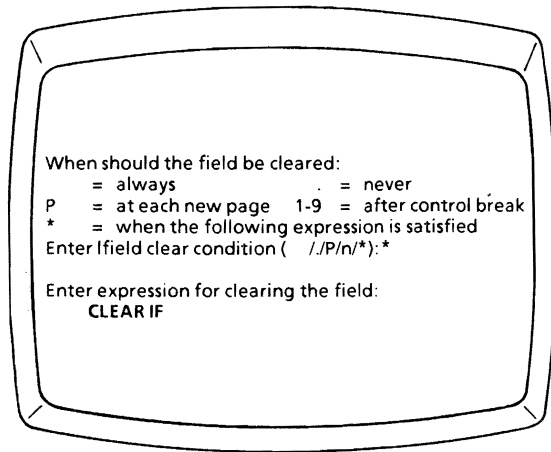
- 1-9** Enter the number (1-9) of a control break if you want to clear the report field at a predetermined level (see procedure **2320**). If you enter 4, for example, the report field is set to nulls following a level 4 control break.

NEXT PROCEDURE
NO. 2200

- *** Enter an asterisk if you want the report field cleared depending on some other specific criteria, according to a logical expression you will specify in the next prompt.

NEXT PROCEDURE
NO. 2381

2381/Clear If Condition



When should the field be cleared:
= always . = never
P = at each new page 1-9 = after control break
* = when the following expression is satisfied
Enter lfield clear condition (/P/n/*):*

Enter expression for clearing the field:
CLEAR IF

This prompt appears only after you respond with an asterisk to the previous prompt (procedure 2380). You must now enter a logical expression to determine when the report field should be cleared to a null value.

When your logical expression is satisfied during a program pass, your report field is filled with nulls. If the expression is *not* satisfied, the report field remains unchanged until overlaid with new values.

If you press **RETURN** without entering a logical expression at this prompt, the result is the same as the default to *never* clear the field in procedure 2380.

Logical Expressions for Clearing Report Fields

The appendices to this manual contain detailed instructions for forming logical expressions. If you have not read this material, you'll find it helpful to do so now.

Examples:

CLEAR IF #25 > 100

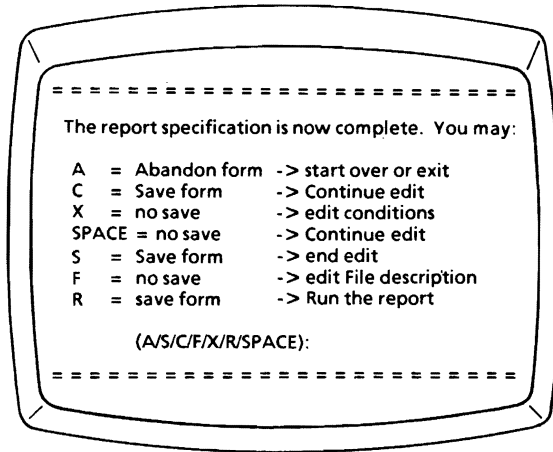
-or-

CLEAR IF RECORD COUNT > 100

If report field #25 is assigned the name RECORD COUNT and functions as a tally, we add the value one to this field each time a data record is processed. When we finish processing 100 data records, we want to reset (or clear) the report field and start the tally over again.

<p>NEXT PROCEDURE NO. 2200</p>
--

Report Edit Completion/2400



Your file description, report layout design, and field definition are stored in your report specification file. Now you have several options for the use of this file.

When you enter ^C at the Report Layout Design Screen, ReportStar checks your work for errors. If errors are found, a description of each appears above the exit menu. You must correct all errors before you can run the report (see page 5-6.).

Report Completion Options

- A** **Abandon form -> start over**
Enter **A** (for Abandon) if you do not want to save your work. When you select this option, the following prompt appears:

Abandon edit without saving form? (Y/N)

You can still change your mind before your work is lost. If you reply **Y** (for Yes), all changes since the last time the file was saved are lost; the Name Report Screen appears on your terminal (see procedure **2000**).

If you reply **N** (for No), the Report Layout Design Screen reappears and you can continue work on the same report (procedure **2200**), saving your updated report specification file when you complete the work.

- C** **Save form -> continue edit**
Enter **C** (for Continue) if you want to save your current report specification file and continue working on it. Your form will be written on the disk with changes included.

Use the option periodically to save your work. Periodic saves are recommended to prevent the loss of work should power failures or computer malfunctions occur.

<p>NEXT PROCEDURE NO. 2200</p>
--

- X** **No save -> edit conditions**
Enter **X** if you want to set **PAGE WHEN** or **END WHEN** conditions in your report. Two additional prompts appear, and you must provide logical expressions.

Enter the condition(s) for a new page:
PAGE WHEN

Enter a logical expression to specify when you want the report to advance to a new page. If you do not want to apply this condition to your report, press **RETURN**, and ReportStar will generate a new page whenever there is not enough room for all the lines ready to print.

The following prompt then appears:

Enter the condition(s) ending the report:
END WHEN

Normally, a report ends only after all records from the datafiles have been processed. If you want your report to end this way, press **RETURN** without making another entry. If you want to end your report some other way, enter the appropriate logical expression. If there are no sequential input datafiles in your report, an **END WHEN** condition may be necessary.

See Appendix C for detailed instructions for forming logical expressions.

<p>NEXT PROCEDURE NO. 2200</p>
--

2400 *Report Edit Completion*

SPACE **No save -> continue edit**
Press **SPACE** to continue editing your report without saving work you have already done. Your work won't be written on the disk but remains in your computer's memory until you save the file or exit from REDIT.

NEXT PROCEDURE
NO. 2200

S **Save form -> end edit**
Enter **S** (for Save) to save your work and either begin work on another report or exit from REDIT.

NEXT PROCEDURE
NO. 2000

F **No save -> edit file description**
Enter **F** (for File) to return to the file description procedures without writing your work on the disk. Current work remains in your computer's memory until you save the file or exit from REDIT.

NEXT PROCEDURE
NO. 2100

- R** **Save form -> Run the report**
Enter **R** (for Run) to save your work and run the report. When you select this option, ReportStar automatically links to the Report Print program.

<p style="text-align: center;">NEXT PROCEDURE NO. 3100</p>
--

You cannot run a report when uncorrected errors remain in your report specification file. When you go to the Report Completion Screen (enter **^C**), your report is checked for uncorrected errors. If any are found, the **L** option replaces **R** on the Exit Menu and the errors appear on your terminal screen.

- L** **List errors on LST: device**
Enter **L** (for List) if you want a printed copy of the errors listed on your screen.

Caution: Do not select this option if you do not have a printer or the LST: device is not installed. The program will stop running and all work done since you last saved the file will be lost.

The **^W** listing (see Appendix A) will help you determine the cause of any errors. When you have made these determinations, select one of the options from the menu to return to the appropriate procedure and make the necessary correction.

Report Edit Messages

When ReportStar cannot interpret your responses to REDIT prompts, the following messages appear on your terminal. For each message the problem is explained and a solution recommended.

There are two groups of messages. The first is Edit Time Messages, which appear while you perform the REDIT procedures. The second is Exit Time Messages, which appear when you attempt to save your work in procedure **2400**.

Edit Time Messages

These messages can appear during your file description, report layout design, or report field definition procedures. The first edit time messages listed are those that begin with the character or command you entered; the rest are listed alphabetically.

x Illegal character. Press ESC key:

Problem. The character you entered (x) is not acceptable in the current procedure.

Solution. Determine why the character entered is not acceptable. Check first for simple typing errors on your keyboard, the most frequent of these errors. Press ESCape and enter an acceptable character.

^x Unimplemented control character. Press ESC key:

Problem. The control character you entered (x) cannot be recognized in the current procedure.

Solution. Check the Command Menu on your display screen or your Command Summary Card to determine which commands are acceptable. Press ESCape and enter an acceptable control character.

At column limit, x ignored. Press ESC key:

Problem. The maximum number of print columns in a report layout is 253. The last function you performed (x) would exceed the limit and therefore is ignored.

Solution. Press ESCape and shorten the report line by removing characters as necessary.

At line limit, x ignored. Press ESC key:

Problem. The maximum number of report lines is 255. Your last entry (x) would exceed the limit and therefore is ignored.

Solution. Press ESCape and make necessary adjustments in your report layout. Keep the number of report lines within the limits.

Cannot delete last line. Press ESC key:

Problem. Your report cannot exist unless there is at least one report line in your layout. You have attempted to remove the last remaining print line from your report layout, but ReportStar has preserved it.

Solution. Press ESCape and continue with your editing. Add other report lines before attempting to delete any.

Can't read report definition file.
Replace system disk, type return.

Problem. ReportStar cannot read your report specification file. The precise reason is undetermined.

Solution. If you have a backup version of your report specification file on another disk, place that disk in your logged drive and press **RETURN**. If you do not have a backup, end the program here and recreate your report specification file

Cursor is not in a field, ^K ignored. Press ESC key:

Problem. In order to take effect, certain control commands (^K, ^Z, and ^R) require that the cursor be on top of an underline which designates a report field. The cursor was not in a position when you entered the command shown.

Solution. Press **ESCAPE** and move the cursor to an underline in the appropriate report field. Reenter the control command.

Directory on disk y: full.
Replace system disk, type return

Problem. There is no more room in the directory of the indicated disk (y). You cannot write any new files on this disk.

Solution. If the specific disk is not important, place another disk, one with adequate directory space, on your logged drive and press **RETURN**. If you need to use the current disk (because of referenced files, for example), remove one or more files from the disk by transferring or erasing them.

Field #xxx already has this name.Press ESC key:

Problem. Every report field in your report layout must have a unique name. You have tried to use the identical name for two report fields.

Solution. Press ESCape and choose a different name for one of the two report fields.

Illegal operand. Item must be:
a field number between \$001 and \$nnn,
a recognized field name starting with \$,
the function \$FILE, or
a literal enclosed in quotes. Press ESC key:

Problem. When this message appears, the corresponding string expression also appears. The operand in your string expression cannot be recognized.

Solution. Press ESCape. The cursor will move to the unrecognized operand. Enter a replacement chosen from the operands shown in the message. (Nnn is the total number of fields in you report.) For further information on the forming string expressions, consult Appendix C.

Illegal operand. Item must be:
a field number between #001 and #nnn,
a recognized field name,
one of the functions: ABS, INT, MIN, REN, PAGE, FLD, ERR, FERR, CB or
a numeric constant using only digits 0-9 and optional decimal point.
Press ESC key:

Problem. When this message appears, the corresponding numeric expression also appears. The operand in your numeric expression cannot be recognized.

Solution. Press ESCape. The cursor will move to the unrecognized operand. Enter a replacement chosen from the operands shown in the message. (Nnn is the total number of fields in your report.) For further information on the forming numeric expressions, consult Appendix C.

Illegal operator. Item must be one of the following:

Press ESC key:

Problem. Only specific operators are recognized by REDIT. The numeric, string, logical, or comparison operator in your expression is invalid.

Solution. Valid operators for your expression appear in the message. Press **ESC** and enter a valid operator in your expression. For further discussion on the types of acceptable operators, see procedures **2345 - 2346** or AppendixC.

**Insufficient memory.
Replace system disk, type return.**

Problem. There is not enough memory available on your computer to read and process your report specification file. You may have:

- Used RGEN to create a Quick Report, which has now grown too complex for the available memory
- Changed operating systems after creating the report specification file.

Solution. Depending on the cause of your problem, select the appropriate solution:

- Recreate the report with RGEN, making it less complex
 - Use your former operating system to edit or run your report.
-

Not enough memory, x ignored. Press ESC key:

Problem. Your report has become too complex or too large for the amount of memory available on your computer. Your last entry (x) has been ignored.

Solution. You must reduce the size of your report specification file. You may need to remove report fields from the layout, reduce the complexity of logical or numeric expressions, reduce the size of report field names, or make other changes. Press **ESCape** and make the necessary adjustments.

Possible fatal program error. Please report occurrence, x ignored. Press ESC key:

Problem. An error has occurred from which you may not be able to recover. The precise reason for the error is undetermined. The last entry you attempted (x) has been ignored.

Solution. Please record the precise function you were performing when this message appeared and report the incident to your dealer. You can help to resolve the problem by providing copies of the .RPT file and all datafiles used.

Press **ESCape**. You may be able to save your work and exit the program. Since the work in your .RPT file may not be recoverable, be sure to save the corresponding .BAK file.

REMSG.S.OVR?

Problem. The message file (REMSG.S.OVR), which *must* be available during your REDIT procedures, cannot be found on either the logged disk or the system disk.

Solution. Enter the letter of a disk drive where the disk containing the message file can be found. Use **^C** if you must exit to the operating system.

The form definition file, xxxxxxxx.nnn, is not present on drive y. Do you want to Reenter the file name or Change disks? (R/C)

Problem. The named form definition file (xxxxxxx.nnn) can not be located on the indicated disk drive (y).

Solution. Check the file name and drive location to determine which is in error (see procedures 2100 and 2110). If the name is incorrect, enter **R** and reenter the file name correctly. If the file is located on a different disk, enter **C** and then place the correct disk in the proper disk drive.

The maximum number of fields is 245, x ignored. Press ESC key:

Problem. The maximum number of report fields possible in any report is 245. The last function you performed (x) would exceed the limit and therefore has been ignored.

Solution. Press ESCape and change your report layout to conform to the limits.

Unclosed left parenthesis. Press ESC key:

Problem. In numeric and logical expressions, a left parenthesis {(} must be matched with a closing right parenthesis {)}. When this message appears, the corresponding expression also appears so that you can see where the right parenthesis is missing.

Solution. Press ESCape and insert the right parenthesis where required.

*** **WARNING:** Edit mask may need revision. Press ESC key:

This warning appears when you alter the length of a report field that has an edit mask. You may also need to change the edit mask (see procedures 2352 - 2354).

Exit Time Messages

When you move to the Report Completion Screen (procedure **2400**), REDIT checks to make sure your report design has been entered correctly. If errors are found, one or more of the following messages appears and allows you to make corrections before running the report.

This section contains both *warning* and *error* messages. Warnings indicate that your report can still be run, but the results may be incorrect. Errors, on the other hand, will prevent you from running the report until they are corrected.

These numbered exit time messages are listed in order. Most appear with a corresponding line, field, or file number to the left.

ERROR 01 No report field has been specified.

Problem. Your report cannot be processed unless you assign at least one report field in your layout.

Solution. Return to the Report Layout Design Screen and add at least one report field to the layout (see procedure **2210**).

ERROR 02 No detail line type (" " or " :") is present.

Problem. Every report layout must have at least one line coded with either a space or a colon in the print control column.

Solution. Return to the Report Layout Design Screen and code at least one report line (see procedure **2240**). Use a space to signify a detail line; use the colon if you have no lines that print on each pass.

Field nnn ERROR 03 Input file not specified.

Problem. The datafile you indicated as the source of the field (nnn) has not been identified by file description number or name.

Solution. Enter the appropriate file number or name (see procedure 2341).

Field nnn ERROR 04 Output file used for input.

Problem. You specified in the file description procedures that a particular datafile was to be used for output, but you have attempted to use the file as input for the indicated field (nnn).

Solution. Correct either the file description (see procedure 2120) or the report field definition (see procedure 2370).

Field nnn ERROR 05 Input field not specified.

Problem. In specifying a datafile as the source of information for a report field (nnn) you have not specified from which *data field* the information is to be retrieved.

Solution. Indicate the appropriate data field's name or number (see procedure 2342).

Field nnn ERROR 06 Index field not specified.

Problem. In specifying a reference file as the source of information for a report field (nnn), you have not specified the report field with the Key value necessary to read the reference file.

Solution. Confirm the datafile to be used as a reference file (see procedure 2130). Then identify the report field to use as the index field (see procedure 2343).

Field nnn ERROR 07 Output file not specified.

Problem. In specifying the information in the report field (nnn) as output to a datafile, you have not specified the number or name of the output file.

Solution. Specify the number or name of the appropriate output file (see procedure 2371).

Field nnn ERROR 08 Output field not specified.

Problem. In specifying the information in the report field (nnn) as output to a datafile, you have not specified the name of the appropriate data field in the output datafile.

Solution. Enter the appropriate number or name (see procedure 2372).

Field nnn ERROR 09 Equivalent field or its base cannot be a control break.

Problem. Control break status cannot be assigned to equivalent report fields or base fields.

Solution. Either remove control break status from the indicated field (nnn, see procedure 2230), or remove the equivalency definition (see procedure 2310).

Field nnn ERROR 10A Field calculation error: missing report field.

Problem. The assignment expression for the indicated report field (nnn) contained a reference to another report field that is no longer on the report form.

Solution. Correct your calculation so that it references the appropriate report field (see procedure 2345).

Field nnn ERROR 10B Field calculation error: illegal sub-field.

Problem. The string expression for the indicated report field (nnn) contains an invalid subfield reference. You may have indicated a subfield which is longer than the original field.

Solution. Correct the subfield reference in your string expression (see procedure 2346).

Field nnn WARNING 10C Field calculation error: restricted function.

Problem. You have used a numeric function in an expression where it will behave unpredictably.

Solution. Check the expression in the indicated field (nnn), (see Appendix C).

Field nnn ERROR 11A UNLESS/THEN error: missing report field.

Problem. The unless/then expression for the indicated report field (nnn) contained a reference to another report field that is no longer on the report form.

Solution. Correct your expression so that it references the appropriate report field (see procedure 2345).

Field nnn ERROR 11B UNLESS/THEN error: illegal sub-field.

Problem. The string expression for the indicated report field (nnn) contains an invalid subfield reference. You may have indicated a subfield which is longer than the original field.

Solution. Correct the subfield reference in your string expression (see Appendix C).

Field nnn WARNING 11C UNLESS/THEN error: restricted function.

Problem. You have used a numeric function in an expression where it will behave unpredictably.

Solution. Check the expression in the indicated field (nnn), (see Appendix C).

Field nnn ERROR 12 Missing edit mask constant.

Problem. Although you assigned an edit mask with condition codes to the report field (nnn), you did not specify the constant characters to replace these codes when the field is printed.

Solution. Enter the required constants for your edit mask (see procedures **2353 - 2354**).

Field nnn ERROR 13 Edit mask order is not float, data, trail.

Problem. The order of the edit mask condition codes for this report field (nnn) does not comply with the required order; float codes must appear first, followed by data codes, and finally trail codes.

Solution. Change the order of your condition codes as required (see procedure **2353**). The change may require a subsequent change to corresponding edit mask constants (see procedure **2354**).

Field nnn ERROR 14 Equivalent field is base of an equivalent field.

Problem. When identifying equivalent report fields, the base field (nnn) cannot also be described as an equivalent field.

Solution. Examine the way you have arranged your equivalent fields and make the necessary corrections (see procedure **2310**).

Field nnn **ERROR 15** Number of equivalent fields not constant.

Problem. When identifying sets of equivalent report fields, each line in the set must contain the same number of fields.

Solution. Adjust the number of report fields on the line in which the indicated field (nnn) appears (see procedure **2310**).

Field nnn **ERROR 16** Equivalent field is referenced.

Problem. An equivalent field (nnn) cannot be referenced by other report fields

Solution. Either change the reference or remove the equivalency condition (see procedure **2310**).

Field nnn **ERROR 17A** LOAD IF error: missing report field.

Problem. The expression for the indicated report field (nnn) contained a reference to another report field that is no longer on the report form.

Solution. Correct your expression so that it references the appropriate report field (see procedure **2361**).

Field nnn **ERROR 17B** LOAD IF error: illegal sub-field.

Problem. The string expression for the indicated report field (nnn) contains an invalid subfield reference. You may have indicated a subfield which is longer than the original field.

Solution. Correct the subfield reference in your string expression (see Appendix C).

Field nnn **WARNING 17C LOAD IF error: restricted function.**

Problem. You have used a numeric function in an expression where it will behave unpredictably.

Solution. Check the expression in the indicated field (nnn), (see Appendix C).

Field nnn **ERROR 18A CLEAR IF error: missing report field.**

Problem. The expression for the indicated report field (nnn) contained a reference to another report field that is no longer on the report form.

Solution. Correct your expression so that it references the appropriate report field (see procedure **2381**).

Field nnn **ERROR 18B CLEAR IF error: illegal sub-field.**

Problem. The string expression for the indicated report field (nnn) contains an invalid subfield reference. You may have indicated a subfield which is longer than the original field.

Solution. Correct the subfield reference in your string expression (see Appendix C).

Field nnn **WARNING 18C CLEAR IF error: restricted function.**

Problem. You have used a numeric function in an expression where it will behave unpredictably.

Solution. Check the expression in the indicated field (nnn), (see Appendix C).

File nnn ERROR 19A INCLUDE IF error: missing report field.

Problem. The expression in the indicated file description (nnn) contained a reference to a report field that is no longer on the report form.

Solution. Correct your expression so that it references the appropriate report field (see procedure 2160).

File nnn ERROR 19B INCLUDE IF error: illegal sub-field.

Problem. The string expression for a report field in the indicated file description (nnn) contains an invalid subfield reference. You may have indicated a subfield which is longer than the original field.

Solution. Correct the subfield reference in your string expression (see Appendix C).

File nnn WARNING 19C INCLUDE IF error: restricted function.

Problem. You have used a numeric function in an expression where it will behave unpredictably.

Solution. Check the expression in the indicated file (nnn), (see Appendix C).

File nnn ERROR 19D INCLUDE IF error: illegal use of FERR.

Problem. The function FERR can be used only in conjunction with output datafiles. You have used it with the input datafile indicated (nnn).

Solution. Check the expression in the indicated file, (see Appendix C).

File nnn **ERROR 19E INCLUDE IF error: report field reference not "R" LOAded.**

Problem. You have tried to reference a report field in the indicated file (nnn), but the field is not assigned the load condition (R), which is required for an INCLUDE IF expression.

Solution. Either change your INCLUDE IF expression (see procedure 2160) or change the LOAD condition (see procedure 2360).

Line nnn **ERROR 20A PRINT WHEN error: missing report field.**

Problem. The expression in your user-defined print control command for the indicated line (nnn) contained a reference to a report field that is no longer on the report form.

Solution. Correct your expression so that it references the appropriate report field (see procedure 2240).

Line nnn **ERROR 20B PRINT WHEN error: illegal sub-field.**

Problem. The string expression in your user-defined print control command for the indicated line (nnn) contains an invalid subfield reference. You may have indicated a subfield which is longer than the original field.

Solution. Correct the subfield reference in your string expression (see procedure 2240).

Line nnn **WARNING 20C PRINT WHEN** error: restricted function.

Problem. You have used a numeric function in an expression where it will behave unpredictably.

Solution. Check the expression for the indicated line (nnn), (see procedure **2240** and Appendix C).

Ctlb n **ERROR 21 Control break** not specified.

Problem. You have used a control break character (n) in the print control column of your report but have not identified a corresponding report field with control break status.

Solution. Place the cursor over an underline in the appropriate report field and enter ^K (see procedure **2230**).

Field nnn **ERROR 22 Illegal line type** for equivalent field or its base.

Problem. Equivalent fields and their base can appear only on detail lines in your report (indicated by a space in the print control column).

Solution. Either change field equivalency (see procedure **2310**), or change the print control command (see procedure **2240**).

WARNING 23 End report condition has not been specified.

Problem. ReportStar ends a report when the last data record in a sequential input datafile has been read and processed. If your report does not contain such a datafile, you may want to specify an END WHEN condition.

Solution. Use the **X** option in procedure **2400** to specify an END WHEN condition for your report.

Field nnn ERROR 24 Input file used for output.

Problem. You specified in the file description that a particular datafile was to be used for input, but you have attempted to use the file as output in your definition of the indicated field (nnn).

Solution. Correct either the file description (see procedure 2120) or the report field definition (see procedure 2370).

File nnn ERROR 25 Missing data file volume name.

Problem. You have failed to provide a name for your datafile (nnn) during the file description procedures.

Solution. Enter a name for your datafile (see procedure 2153).

Line nnn ERROR 26 Dot command error.

Problem. You have entered an unacceptable dot command on the print line indicated (nnn).

Solution. Correct the dot command (see procedure 2260).

WARNING 27 Control column order not RP123... : ...321RP.

Problem. The order of codes in the print control column of your report layout does not conform to that shown in the message.

Solution. Change the order of codes in the print control column (see procedure 2240).

Field nnn **ERROR 28 Missing edit mask float/trail constant.**

Problem. Although you assigned an edit mask with condition codes that use floating or trailing constants in the indicated report field (nnn), you did not specify the characters to replace the codes when the field is printed.

Solution. Enter the necessary floating or trailing constants for your edit mask (see procedures **2353-2354**).

Field nnn **ERROR 29 Missing edit mask decimal alignment constant.**

Problem. Although you assigned an edit mask with condition codes for a decimal alignment position in the indicated report field (nnn), you did not specify the constant character to fill the position when the field is printed.

Solution. Enter a decimal point (or other constant character) for the edit mask (see procedures **2353 - 2354**).

Field nnn **ERROR 30 Multiple edit mask decimal alignment positions.**

Problem. You cannot specify more than one decimal alignment position in an edit mask, as you did for the indicated report field (nnn).

Solution. Remove all but one decimal alignment position from your edit mask (see procedures **2353**).

Field nnn **ERROR 31 Edit mask float/trail constants not packed.**

Problem. You put spaces or non-constant character codes between the floating or trailing constants in the edit mask for the indicated report field (nnn).

Solution. Change the edit mask so that the float/trail codes are in a continuous string. There should be no spaces between float or trail positions (see procedure **2353**).

Field nnn **ERROR 32 Multiple edit mask float/trail conditionals.**

Problem. The condition codes for floating or trailing constants cannot be mixed in the same edit mask, as they are in the mask for the indicated field (nnn). For example, you cannot have codes F and + in the same edit mask.

Solution. Change the edit mask condition codes to conform to the rule (see procedure **2353**).

File nnn **ERROR 33 Missing sort order.**

Problem. Either the form definition file does not specify a sort order for the datafile indicated (nnn), or the form definition file was never read because you did not respond to the prompt asking for the disk drive where the file was located.

Solution. If your form definition file does not specify a sort order, you must return to DataStar and correct the form. Return to file description procedure **2110** and enter the appropriate disk drive to re-read the form file.

Field nnn **ERROR 34 All equivalent fields on a report line with different field lengths.**

Problem. Equivalent fields must be identical in every respect except for their field numbers.

Solution. Adjust the length of the non-conforming equivalent field (nnn, see procedures **2210 - 2310**).

Field nnn ERROR 35 Equivalent field target is forward referenced.

Problem. Report fields may only be made equivalent to fields with numbers *lower* than their own. You have described the indicated report field (nnn) as equivalent to one with a higher number.

Solution. Review your field equivalency and make the required changes (see procedure **2310**).

Field nnn ERROR 36 Multiple outputs to the same field.

Problem. You cannot place more than one report field in the same data field of an output file.

Solution. The indicated field (nnn) is one of the report fields you have attempted to write to the output datafile. Determine which other report field you are writing to the same field and make the necessary corrections (see procedure **2372**).

WARNING 37 Possibly not enough memory to run REPORT program.

Problem. Your computer may not have enough memory to run your report the way you have designed it.

Solution. This warning message will not prevent you from running your report, but the results are unpredictable. You can reduce memory requirements in stages as you try these solutions in the order presented.

1. Change the number of disk buffers for your datafiles to one (see procedure **2140**).
2. Make the names of your report fields shorter (see procedure **2300**).
3. If you are accessing sequential datafiles in index order, try changing to access by file order (see procedure **2135**).
4. If possible, simplify your report by dividing it into two separate reports.

Field nnn ERROR 38 Control break field is control break or page dependent.

Problem. The value of field nnn depends upon whether a control break or new page has occurred. This may be due to the assignment expression, the LOAD IF or CLEAR IF expressions, or because this field references another field with this error.

Solution. Remove or correct the function in the appropriate expression (see Appendix C).

ERROR 39A PAGE WHEN error: missing report field.

Problem. The expression for PAGE WHEN contains a reference to a report field that is no longer on the report form.

Solution. Correct your expression so that it references the appropriate report field (see procedure **2400**).

ERROR 39B PAGE WHEN error: illegal sub-field.

Problem. The string expression for PAGE WHEN contains an invalid subfield reference. You may have indicated a subfield which is longer than the original field.

Solution. Correct the subfield reference in your string expression (see Appendix C).

WARNING 39C PAGE WHEN error: restricted function.

Problem. You have used a numeric function in an expression where it will behave unpredictably.

Solution. Check the PAGE WHEN expression (see Appendix C).

ERROR 40A END WHEN error: missing report field.

Problem. The expression for END WHEN contains a reference to a report field no longer on the report form.

Solution. Correct your expression so that it references the appropriate report field (see procedure **2400**).

ERROR 40B END WHEN error: illegal sub-field.

Problem. The string expression for END WHEN contains an invalid subfield reference. You may have indicated a subfield which is longer than the original field.

Solution. Correct the subfield reference in your string expression (see Appendix C).

WARNING 40C END WHEN error: restricted function.

Problem. You have used a numeric function in an expression where it will behave unpredictably.

Solution. Check the END WHEN expression (see Appendix C).

Field nnn ERROR 41 Input field not present in file.

Problem. You cannot specify the number or name of a field which is not defined in the form definition file.

Solution. Change the specified field number or name (see procedure **2342**), or correct the form definition file using DataStar.

Field nnn ERROR 42 Output field not present in file.

Problem. You cannot specify the number or name of a field which is not defined in the form definition file.

Solution. Change the specified field number or name (see procedure **2372**), or correct the form definition file using DataStar.

Field nnn ERROR 43 File key different length than index field length.

Problem. The report field (nnn) specified as index field cannot access a reference file unless it is the same length as the Key field in that file.

Solution. Change the length of the index field in your report layout to match the Key field in the reference file (see procedure **2373**).

Field nnn ERROR44 Load condition not permitted with sequential input.

Problem. You must load data fields derived from sequential input datafiles on every program pass, but you have assigned some other load condition to the indicated field (nnn).

Solution. Change the load condition to ALWAYS (condition code SPACE) for this report field (see procedure **2360**).

Field nnn **ERROR 45** Base of equivalent field cannot be operator input.

Problem. The source of input for the base (nnn) of equivalent fields cannot be the terminal keyboard.

Solution. You must either change field equivalency (see procedure **2310**), or change the source for the report field (see procedure **2340** and **2347**).

SECTION 3. REPORT PRINT

The Report Print program (REPORT) prepares your report according to the instructions in your report specification file. Most of the work takes place "behind the scenes," but you need to complete certain steps before and during the programmed report preparation. These steps are determined by your report specification file and by ReportStar's specific installation on your computer. Here is a brief overview of the procedures.

Name Report

You must provide the report name that is also the file name of the appropriate report specification file (see procedure 3000).

Error Reporting Options

You have several options for reporting errors that may occur during report preparation and for determining their impact on your report (see procedure 3050).

You will not complete this step if your error reporting options are preset by the ReportStar installation on your computer. (Refer to the appendices to this manual.)

Write Report to Disk Option

When your ReportStar program is installed, you choose whether to print reports, to write them to disk, or to defer the question to run time (see procedure 3100).

If you deferred the question earlier, you must now decide whether to write the report on the printer or on a disk at the time the report is run.

Operator Prompts

Some reports require information to be entered at run time, such as references to datafiles in the report or operator entered input for report fields. When such information is required, a prompt appears that asks for the information to be entered (see procedure **3200**). **File Control Prompts** (procedure **3210**) ask for information about how to process the datafiles in a report. **Data Entry Prompts** (procedure **3220**) ask for information required to fill a report field.

Report Completion

This last procedure (**3300**) summarizes the condition of your report at the end of the run.

Run-Time Error Messages

Various error messages may appear when REPORT is run. They are listed, along with probable causes and solutions for each, in the messages section beginning on page 6-28.

START REPORT PRINT PROGRAM

To start the Report Print program from your operating system prompt, type **REPORT** and press **RETURN**. The Name Report Screen (procedure **3000**) will appear on your terminal.

If you type the name of your report specification file on the same line as REPORT (as shown here), you will bypass the Name Report Screen, the error reporting option, and the write to disk option; and you will return to your operating system at completion.

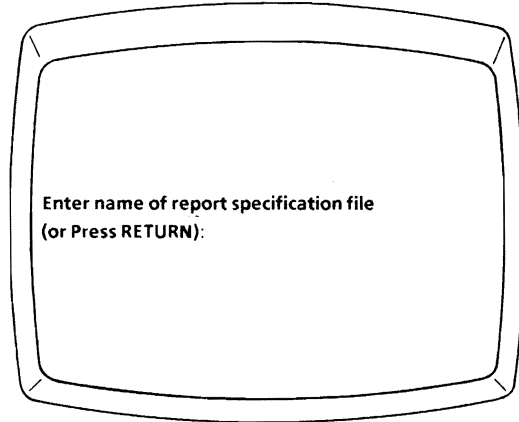
REPORT filename (RETURN)

You can also specify error reporting options on this line. Type a slash mark (/) after the filename, then enter the desired value for each option (see procedure 3050), separating the letters or numerals by slash marks. Be sure to specify all four choices, for example:

REPORT filename /L/A/A/4 (RETURN)

You can also start REPORT from the Quick Report (RGEN) Completion Screen (procedure 1400) or the Report Edit (REDIT) Completion Screen (procedure 2400). Select the R option at either one.

3000/Name Report



The name report prompt normally appears when you start REPORT, along with copyright and installation information. If your computer system does not include the equipment named on the screen, you should *stop now*. Run the ReportStar installation program. Otherwise, your terminal and printer may behave unpredictably. (Refer to the appendices to this manual.)

To bypass this prompt, provide your report specification file name when you start REPORT. Instead of only entering **REPORT** at your operating system prompt, enter the command:

operating system prompt>**REPORT filename (RETURN)**

Caution: When you start this way, the error reporting and write report to disk options (procedures 3050 and 3100) are also bypassed.

ENTER REPORT SPECIFICATION FILE NAME

The name you enter must be a valid file name containing one to eight characters (any combination of letters A through Z (upper or lowercase) and numbers 0 through 9). A report specification file has the extension **.RPT** assigned to it; but you should *not* enter the extension.

If you want to run a report that is on a disk drive other than the one to which you are currently logged, enter the letter of the desired disk drive (A through P), followed by a colon (:), before the file name. Be sure to use the letter of a disk drive present on your computer.

If you press **RETURN** without entering a file name, a help message appears on your screen, and the original prompt is replaced with the following:

Press ESC to enter report name or ^C to exit:

Press the **ESC** key to continue with the Report Print program. The name report prompt will return to your screen, and you can enter the name of the next report to run.

{END REPORT PRINT PROGRAM}

Enter **^C** to end the Report Print program. You will return to your operating system prompt.

Name Report Errors

Here are messages which may appear during this procedure. They are also listed in the Run Time Error Messages section beginning on page 6-28.

The report specification file, filename.ext, is not present on drive y:.
R = Re-enter the report drive/name
G = Generate a new report spec
Press R or G:

Problem. Either you entered the report specification file name incorrectly, or the file cannot be found on the indicated disk drive.

Solution. If you entered an incorrect file name or disk drive letter, press R. You can reenter the name correctly.

If the named file does not exist and you want to create one, press G. The Quick Report File Selection Screen (procedure 1100) will appear.

The report specification file, xxxxxxxx.xxx, on drive y: contains errors.
R = Re-enter the report drive/name
L = List the errors so that they can be corrected
Press R or L:

Problem. Due to errors, your report cannot be prepared using the report specification file named (xxxxxxx.xxx).

Solution. If you want to name a different report specification file, press R. You will return to the name report prompt.

If you want the errors in the named file listed on your LST: device (normally your printer), press L.

The report specification file, xxxxxxxx.xxx, on drive y: is unreadable.

R = Re-enter the report drive/name

X = Exit to operating system

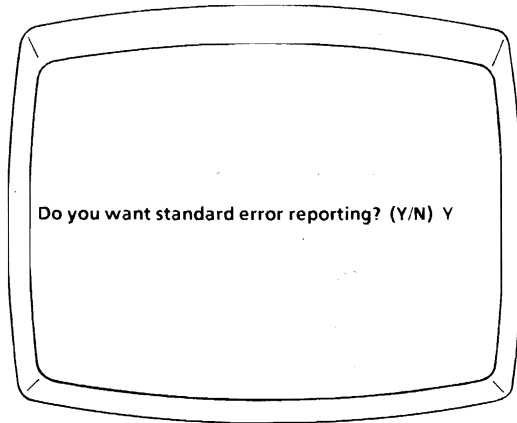
Press R or X:

Problem. Although the precise reason is undetermined, ReportStar cannot read the report specification file named (xxxxxxx.xxx).

Solution. If you want to enter the name of a different report specification file, press **R**. You will return to the name report prompt.

If you have a backup version of the file named in the message, press **X**. When you return to your operating system, make your backup available, copy the file, then restart the Report Print program.

3050/Error Reporting Options



This prompt appears only when error reporting is not preset by your ReportStar installation program and you begin the Report Print procedures through the name report prompt (procedure 3000). The standard error reporting options will:

- Display all error and warning messages while continuing to process the report
- Stop the report only if fatal errors occur
- Report *all* errors.

SELECT ERROR REPORTING OPTIONS

Y Enter **Y** (for Yes) or press **RETURN** (default) to select the standard error reporting options.

- N** Enter **N** to select non-standard options. Four additional prompts will appear.

Non-Standard Option 1

Where do you want error messages reported?

- D Display on terminal
- R Display on terminal and require an operator response
- L Log in disk file
- B Display on terminal and log in disk file

Press D/R/L/B: D

- D** Enter **D** (for Display) or press **RETURN** if you want error messages to appear while processing continues. Note that each message appears only briefly.
- R** Enter **R** (for Response) if you want error messages to appear and processing to stop until the necessary response is entered.
- L** Enter **L** (for Log) if you want error messages written to a disk file while processing continues. The resulting disk file is named **REPORT.LOG**, and if the **.LOG** file already exists, current errors are added to the end of the file.
- B** Enter **B** (for Both) if you want error messages both to be written to the **REPORT.LOG** file and to appear on the terminal.

Non-Standard Option 2

Which errors do you want reported?

- A All errors and warnings
- E Only errors
- F Only fatal errors
- N Only non-recoverable fatal errors

Press A/E/F/N: A

3050 *Error Reporting Options*

- A** Enter **A** (for All) or press **RETURN** (default) if you want to see all warnings and error messages (including fatal and non-recoverable errors) reported as specified in the preceding prompt.
- E** Enter **E** (for Error) if you want to see only error messages. Warnings will not be reported.
- F** Enter **F** (for Fatal) if you want to see only fatal errors. Warnings and non-fatal errors will not be reported.
- N** Enter **N** (for Non) if you want to see only non-recoverable fatal errors. Warnings, errors, and fatal errors will not be reported.

Each error type is fully described in the Run Time Error Messages section beginning on page 6-28.

Non-Standard Option 3

Which errors do you want to stop the report?

- A** All errors and warnings
- E** Only errors
- F** Only fatal errors
- N** Only non-recoverable fatal errors

Press A/E/F/N: F

- A** Enter **A** (for All) if you want any warning or error to stop the Report Print program.
- E** Enter **E** (for Error) if you want only errors, fatal errors, or non-recoverable fatal errors to stop the program. Warnings will have no effect.
- F** Enter **F** (for Fatal) or press **RETURN** (default) if you want only fatal or non-recoverable fatal errors to stop the program. Warnings and errors will have no effect.

- N** Enter **N** (for Non) if you want only non-recoverable fatal errors to stop the program. Warnings, errors, and fatal errors will have no effect. The best use of this option is for identifying technical problems in your reports.

Non-Standard Option 4

What is the maximum number of errors to report?

0 Don't report any

1 1

2 10

3 100

4 1000

A Report all

Press 0/1/2/3/4/A: A

Enter the appropriate number of errors when you want reporting to continue to a certain point. The Report Print program will continue processing, but reporting will stop after the indicated number of errors.

- Run your report more quickly
- Run your report when your printer is not working.

ENTER REPORT TO DISK

- N** Enter **N** (for No) or press **RETURN** (default) if you want your report printed.
- Y** Enter **Y** (for Yes) if you want your report written on your logged disk drive. It will appear in a file named **xxxxxxx.PRN** (x's replaced by the name of your report specification file).

Before writing on the disk, ReportStar checks for another file with the same name. If one is found, you will see this message:

**xxxxxxx.PRN already exists on drive y:
Enter the name of an alternate file to use for the report
or press RETURN to overwrite the existing file:**

Press **RETURN** if you want your new report file to replace the existing text file. Otherwise, enter a new name for your new text file. (You can enter the same name preceded by a different disk drive letter and a colon, enter a different file name with the extension **.PRN**, or enter the same file name with a different extension.)

The extension **.PRN** refers to a WordStar document file, and you can use WordStar to print a ReportStar text file or make necessary changes. Further options for printing or displaying the file depend on your operating system.

3200/Operator Prompts

If your report requires an operator to enter information at run time, a prompt appears requesting the information. The information may be for file control or data entry.

File Control Prompts

If you specified that datafile names be entered at run time (procedure 2150), these prompts will now ask you (or another operator) to provide file control information, such as the name or location of a file volume, or other information about the datafile (see procedure 3210).

Data Entry Prompts

Some reports require operator-entered information to appear in the report itself, to be used in a calculation, or to be placed in an output datafile. The prompts that ask for such information are data entry prompts (see procedure 3220).

File Control Prompts/3210

The file control prompts that appear when your report is run are based on your responses to certain file description prompts. Naming the files may have been deferred to run time, or a datafile may not be on the specified drive. When a series of file control prompts appears, you (or another operator) must respond by entering the names of datafiles required by your report (see procedure 2150).

Note: If a prompt or message not listed in this section should appear, it can be found either in procedure 3220, Data Entry Prompts, or in the Run Time Errors section beginning on page 6-28.

Many file control prompts are informational only, requiring no response from the operator, and may appear only for a moment on your screen. If you want more time to read and understand them, refer to either the appendices to this manual or procedure 3050.

Here are all of the file control prompts that may appear at run time, along with brief summaries of the situations and actions required to respond to each. The prompts are in alphabetical order.

xxxxxxx.PRN already exists on drive y:
Enter the name of an alternate file to use for the report
or press RETURN to overwrite the existing file:

Situation. When you want to write your report to a disk file rather than print it, this prompt appears if a file with your file name already exists on the specified disk drive.

Action. If you press **RETURN**, your new file will overwrite the existing file. The existing file will be lost.

If you want to save the existing file, enter another name for the new file. Enter any valid file name and extension.

Another alternative is to open a file on a different disk. You can simply enter the letter of another disk drive (followed by a colon (:)) and **RETURN**), or enter another file name. If you want this new file written on a disk other than the logged one, precede the file name with an alternate disk drive letter and a colon (:).

A file name is 1-8 letters/numbers and an optional 1-3 letter/number extension, separated by a period. A file name may be preceded by a disk drive selection (letter, colon).
Press ESC to re-enter the file name.

Situation. The file name is not acceptable as entered. You may have typed too many characters or used a character other than a letter or number. You must provide a valid file name before continuing.

Action. Press ESCape. When the original prompt reappears, type a valid file name.

Opening xxxxxxxx.xxx on drive y:

This message is for information only and requires no response. Before ReportStar can read or write any datafile, the file must be made ready. Datafiles are opened one-by-one, and this message appears each time.

Output volume xxxxxxxx.xxx of the file yyyyyyyy already exists on drive z: Enter the name of an alternate datafile to use:

Situation. In procedure 2125 you specified an error condition when the name of a new datafile duplicates the name of an existing datafile. This message indicates the duplication.

Action. You need a different name for your new datafile. Enter any valid file name and extension. You may precede the name with an alternate disk drive letter and a colon, but you cannot change the disk itself in this situation. Other files on the disk in drive z are needed by the program.

Output volume xxxxxxxx.xxx of the file yyyyyyyy already exists on drive z: Enter the name of an alternate datafile to use or press RETURN to change disks:

Situation. In procedure 2125 you specified an error condition when the name of a new datafile duplicates the name of an existing datafile. This message indicates the duplication.

Action. Note that this message is identical to the preceding one except that you can change disks and continue. The disk in drive z does not contain other files used for your report.

If you don't want to change disks, enter a different name for the new datafile. Enter any valid file name and extension. You may precede the name with an alternate disk drive letter and a colon.

Please enter the drive number (A:-P:) to use for the volume xxxxxxxx.xxx of the file yyyyyyyy:

Situation. In procedure 2152 a question mark was entered; the disk drive location of the datafile must be entered at run time.

Action. Enter the letter of the disk drive for the named file (xxxxxxx.xxx), and it will be retrieved from or written on the disk you indicate. (yyyyyyy is the name of the form definition file for this datafile.)

Please enter the name of the data volume to use for the file xxxxxxxx:

Situation. The program needs the name of a datafile associated with the form definition file (xxxxxxx). The Yes answer at procedure 2150 after a No answer at procedure 2145 indicate that the datafile name is to be entered at run time and that the datafile is contained in a single volume.

Action. Type the name of the datafile associated with the named form definition file and press RETURN.

Do you want to enter the volume names Now or Later (as required)?
(Press N/L)

Situation. If your input or output file is in more than one volume, you have the option either to enter the names of all volumes now or to enter each as required by the program.

Action. Enter N (for Now) if you're ready to enter all volume names. Subsequent prompts will ask you to enter each volume name.

Enter L (for Later) if you want to enter each volume name as the Report Print program needs it. A prompt at the appropriate time will ask you to enter each name.

Please enter the name of the first volume to use for the file xxxxxxxx:

Situation. The program now needs only the name of the *first* datafile volume associated with the named form definition file (xxxxxxx). The appearance of this prompt means that you indicated the datafile would be contained in multiple volumes (procedure **2145**) and that you indicated the file names would be entered at run time (procedure **2150**).

Action. Enter the name of the *first* datafile volume associated with the named form definition file and press **RETURN**.

Please enter the name of the next volume to use for the file xxxxxxxx, or press RETURN to end the file:

Situation. The program needs the name of the *next* datafile volume associated with the named form definition file (xxxxxxx). This prompt will reappear when the end of each volume is reached.

Action. Enter the name of the *next* datafile volume to be read. If there are no more to be read, press **RETURN** without typing a file name.

Please enter the rest of the volume names followed by RETURN. Press RETURN when the list is complete.

Situation. This prompt appears when you respond **N** (Now) to the earlier file control prompt about when to enter the names of remaining datafile volumes.

Action. Enter all datafile volume names in the order they are to be read by REPORT. Press **RETURN** after each name, and press **RETURN** a second time after the last name to signal the end of your list.

Please insert a diskette to use for the volume xxxxxxxx.xxx of the file yyyyyyy in drive z: and press RETURN.

Situation. This prompt appears when you indicate that a change of disks is necessary to process the datafiles for your report (procedure 2155). (Xxxxxxxx.xxx is the next datafile volume to be read. Yyyyyyy is the form definition file associated with the datafile. Z is the letter of the disk drive where the datafile volume will be found.)

Action. Insert the disk containing the indicated datafile volume on the specified disk drive and press RETURN.

The disk/directory in drive z: is full. Enter the name (A:-P:) of an alternate disk drive to use for the volume xxxxxxxx.xxx of the file yyyyyyy:

Situation. There is not enough room on the disk (z) to write a new output datafile (xxxxxxx.xxx) associated with the form definition file (yyyyyy). Your report requires other datafiles on this same disk drive, so you cannot change disks. An alternate disk drive is needed.

Action. Be sure there is sufficient space for the file on your alternate disk or the problem will recur. Type the letter of the disk drive for the alternate disk and a colon. Press RETURN and processing will continue.

The disk/directory in drive z: is full. Enter the name (A:-P:) of an alternate disk drive to use for the volume xxxxxxxx.xxx of the file yyyyyyyy or press RETURN to change disks:

Situation. Note that this prompt is identical to the preceding one except that no other files on the current disk are needed. You have the option of putting a different disk in the drive before you continue.

Action. If you want to place a different disk in the same disk drive, press **RETURN**. If you want to place the disk in an alternate disk drive, enter the appropriate letter and a colon, followed by **RETURN**.

The volume xxxxxxxx.xxx of the file yyyyyyyy is not present on the disk z:. Enter the name of an alternate datafile to use:

Situation The program cannot find a required datafile (xxxxxxx.xxx) associated with your form definition file (yyyyyyy) on the disk drive (z). Other files on this same disk drive are required, so you cannot replace the disk. The only alternative is a different datafile.

Action. Enter the name of a different datafile and press **RETURN**. You can precede the name with a disk drive letter and colon if the datafile is not on your current logged drive.

If you don't have an alternate datafile to use, your report can't be run now. Enter **^C** to return to your operating system prompt and create the required datafile.

The volume xxxxxxxx.xxx of the file yyyyyyyy is not present on the disk z:. Enter the name of an alternate datafile to use or press RETURN to change disks:

Situation. Note that this prompt is identical to the preceding one except that no other files on the current disk are needed. You have the option of putting a different disk in the drive before you continue.

Action. If you want to place a different disk in the designated disk drive (z), press RETURN.

If you want to name a different datafile (not xxxxxxxx.xxx), enter the name and press RETURN. You can precede the name with the appropriate disk drive letter and a colon.

If you don't have an alternate datafile to use, your report can't be run now. Enter ^C to return to your operating system prompt and create the required datafile.

Data Entry Prompts/3220

At run time, when a data entry prompt appears, you (or another operator) may enter information to fill a specific report field. This information may then be used in a calculation, as an output data field, or as an index field for accessing a reference file.

Each data entry prompt appears on the top line over the report layout on your screen. The wording is exactly as it was entered in procedure **2347**. The cursor moves between the prompt and a report field in the layout. As information is entered in response to the prompt, it loads the report field in the layout.

If the report field was assigned an edit mask, the mask appears with the report field in the layout. If your terminal has the capability, the report field and its edit mask will be highlighted (dimmed or in reverse video).

There can be any number of operator-entered fields in a given report layout.

Order of Data Entry Prompts

Operator-entered fields with the load condition R require the first responses. They appear in order, beginning with the lowest numbered report field.

The remaining operator-entered fields appear, either as needed or starting from the lowest number.

RESPOND TO DATA ENTRY PROMPT

A data entry response can be composed of any number and type of characters, but it cannot exceed the length of the report field.

If a field is loaded more than once during the course of a report, the previous response remains in the field—unless the clear condition is assigned. If you press **RETURN** without entering a new response, the previous response is accepted as your answer.

If you are entering data into a right-justified field with decimal alignment, all characters will be inserted to the left of the decimal point, **until** you type the decimal point character. If you use up all the spaces to the left of the decimal point, an error message will be displayed.

Operator Input Control Commands

During operator input, here is the menu of control commands displayed at the top of your screen:

CURSOR: CR = next item ^S = left char ^D = right char ^R = restart
OTHER: ^G = delete char ^V = insert hole ^C = abort report

- CR** (Carriage Return) Press **RETURN** to move on to the next data entry prompt in the report.
- ^S** Enter **^S** to move the cursor one character position to the left.
- ^D** Enter **^D** to move the cursor one character position to the right.
- ^R** Enter **^R** to restart the series of data entry prompts from the beginning. Once you have loaded all operator-entered fields which have the load condition R, the restart command takes you to the first data entry prompt which is *not* for an R-loaded field; you cannot reenter R-loaded information without starting the report again.
- ^E** (Not shown in menu.) Enter **^E** or **^A** to return to the previous data entry prompt. As with the **^R** command, when all R-loaded fields are complete, this command takes you to the first data entry prompt which is *not* for an R-loaded field.
- ^A**
- ^G** Enter **^G** to delete the character in the cursor's present location. The cursor does not move.
- ^V** Enter **^V** to insert a space in the cursor's present location. The cursor does not move. You can enter any character to fill the space.
- ^C** Enter **^C** to stop REPORT.

3300/Report Completion

Report processing can be ended by one of three methods:

1. Typing any key on your keyboard gives you the option of abandoning the report;
2. Processing of sequential input files has been completed;
3. An error that you have designated should stop the report occurs (see procedure 3050).

Normal Report Completion

If no errors have occurred that you have designated should stop the report (see method 3., above), and your report is not deliberately stopped by an operator, this message appears on the log device at completion:

xxxxxxx completed:

nnn warnings
nnn errors
nnn fatal errors

Report Terminated Due to Errors

If an error occurs that you have designated should stop the report (see procedure **3050** and Appendix **B**), your report is automatically terminated, and this message appears on the log device:

xxxxxxx terminated:

**nnn warnings
nnn errors
nnn fatal errors**

Report Terminated Due to Operator Intervention

If *any* key is pressed during the report run, this message appears at the top of the screen:

Abandon print? (Y/N) N

The report layout appears below the prompt to show the data record being processed when the interruption occurred.

Enter **N** (for No) to continue with the report. Enter **Y** (for Yes) to terminate the report. Then this message will appear on the log device:

xxxxxxx terminated by operator:

**nnn warnings
nnn errors
nnn fatal errors**

Your report is complete.

RUN TIME ERROR MESSAGES

During the final preparation of your report, error messages may appear on your assigned log device (normally your display screen). These messages tell you the pass number and field number when and where the error occurred.

Numbered Run Time Errors

Numbered error messages, listed in order here, are categorized by their severity into four types:

Warning Messages indicate inconsistencies between the decisions you made in the Report Edit procedures and the form of your actual data. If you don't resolve an inconsistency, data in certain report fields will be modified by your Report Edit specifications.

Error Messages generally indicate that your report does not conform to the procedures for its creation. Although processing of your report continues, data in the affected report field will be replaced by asterisks (**). If this field is used in a calculation that produces data in another report field, asterisks will also replace data in the second field. If either field is then directed to an output datafile, the output field will be empty.

Fatal Error Messages generally indicate that ReportStar cannot process your report or the datafiles necessary for the report. These errors will normally end processing by the Report Print program until you develop alternate procedures.

If you want to run your report strictly to identify all errors that may occur (a "debugging" process), you can use either the installation program or procedure **3050** to temporarily override the report's termination by fatal errors.

If you chose to direct errors to a disk file (installation program or procedure **3050**), they will be written in a file named **REPORT.LOG** on the logged drive. If this file already exists on that disk drive, current errors are added to it.

**** Warning #1 **** Pass nnn
Output file, xxxxxxxx.xxx, contains the following record with invalid data:

.....

Problem. This message, normally appearing in conjunction with one of the messages numbered 2-8, identifies a specific data record in a particular output datafile that may be incomplete or contains bad data. The contents of the data record appear below the message.

Solution. Check the way you defined each report field used in the output datafile (procedures **2300 - 2381**). The error may result from an incorrect calculation, invalid information from the input datafile, or invalid information entered at run time.

**** Warning #2 **** Pass nnn
Destination field, #xxx, in report is too small for data.

Problem. There is an insufficient number of character positions in the indicated report field (#xxx). The information to be placed in the field will be truncated.

Solution. If you do not want the information shortened, you must make the report field larger, change the sending field, or change the expressions used to create the data.

**** Warning #3 **** Pass nnn
Alpha characters in numeric field, #xxx, ignored.

Problem. You cannot perform numeric calculations with non-numeric information. ReportStar will remove non-numeric information from the indicated report field (#xxx), then continue processing.

Solution. The removal of non-numeric characters is a convenience when you enter them for editing purposes only. Otherwise, you should verify that the remaining data are appropriate and sufficient in this field; check the input at data entry prompts or from referencing fields.

**** Error #4 **** Pass nnn
Zero divide in calculation of field #xxx.

Problem. You cannot divide by zero.

Solution. Examine the divisor for field #nnn to determine why it is zero, and make the necessary corrections.

**** Error #5 **** Pass nnn
Destination field, #xxx, in report is too small for numeric result:

Problem. The indicated report field (**#xxx**) cannot contain the result of a numeric calculation because an insufficient number of character positions was allotted.

Solution. Check the following:

- Is the expression for calculating the value to be placed in the field correct?
- Does your edit mask contain too many constants?
- Does one of the fields used in the calculation contain bad data?

When you cannot solve the problem by fixing one of these conditions, you must add sufficient positions to the destination field.

**** Error #6 **** Pass nnn
Destination field, #xxx, in file **yyyyyyyyy.yyy**, is too small for data.

Problem. You cannot place a report field in the indicated data field (**#xxx**) of a named output datafile (**yyyyyyyyy.yyy**) because there are insufficient character positions.

Solution. Bad data in the report field or an incorrect expression used to calculate the field value. You may have to make the destination data field larger or change the expression used to calculate the value.

**** Error #7 **** Pass nnn
Reference file record for file, xxxxxxxx.xxx not found for index: yyy

Problem. The Key value you provided to find a particular data record does not match any of the index Keys in the reference file (xxxxxxx.xxx).

Solution. Read Appendix D thoroughly. Keep in mind that the value in the index field must *exactly* match the value in the index for the reference file.

If an edit mask is assigned, a report field used as an index field is edited *before* it is used to access the reference file and may no longer match the index key in the reference file.

**** Error #8 **** Pass nnn
Function argument out of range in field #xxx.

Problem. You cannot specify a numeric value ("argument") outside the range associated with a particular operation ("numeric function"). Here are the limits:

<u>Argument</u> <u>Function</u>	<u>Range</u>	<u>Operation</u>
CB	1-9	Set Control Break at level n.
ERR	1-20	Tally occurrences of ERROR #nn.
\$FILE	1- <i>nnn</i> *	Return FILE name for file # <i>nnn</i> .
FERR	1- <i>nnn</i> *	Test File ERROR s in file # <i>nnn</i> .
FLD	1- <i>nnn</i> *	Obtain value from Field # <i>nnn</i> .

(*The maximum number of files/fields in your report.)

Numeric functions are more fully explained in the appendices to this manual.

Solution. Reduce the specified value to bring it within the argument range. You may also need to adjust other values with related functions.

**** Fatal Error #9 **** Pass nnn
Number out of range in field #xxx.

Problem. The largest value ReportStar can process is 1064, you are attempting to place a larger number in the indicated report field (#xxx).

Solution. Examine the expression used to produce this particular report field, and simplify or reduce it as required.

**** Fatal Error #10 **** Pass nnn
Expression too complicated for available memory in field #xxx.

Problem. The numeric expression you are attempting to use to produce the value of the indicated report field (#xxx) is too complicated for the amount of computer memory available.

Solution. Reduce the complexity of the numeric expression for the indicated report field.

**** Fatal Error #11 ****
Dot command error. Margins exceed or equal page length.

Problem. The number of lines allocated for the top and bottom margins in your report is equal to or greater than the page length. There is no room to print your detail lines.

Solution. Use **.MT** and **.MB** commands to reduce the top and bottom margins for your report, or use the **.PL** command to increase page length (procedure **2260**).

**** Fatal Error #12 **** Pass nnn
Unknown fatal error.

Problem. The cause of this error is undetermined.

Solution. Please document *exactly* what you were doing when this error occurred, and report it to your dealer. Copies of your **.RPT** file and all datafiles used in your report may help to resolve the problem.

**** Fatal Error #13 **** Pass nnn
Can't read Report Specification File.

Problem. The report specification file for this report cannot be read by ReportStar. The precise reason is undetermined.

Solution. If you have a backup copy of this file, change the file name's extension from .BAK to .RPT. Then copy the file, and use REDIT to update changes to the file. You should be able to continue processing with the new file.

If you do not have a backup copy, you must create another report specification file.

**** Fatal Error #14 **** Pass nnn
The disk/directory on drive x: is full.

Problem. There is no more room on the disk or in the directory to store the output file you are attempting to create.

Solution. After REPORT ends, transfer or erase a sufficient number of files from the disk to make room for your new file. Then start over.

**** Fatal Error #15 **** Pass nnn
Insufficient memory.

Problem. There is not enough memory available on your computer to create the report as you designed it.

Solution. You must reduce the memory requirements for your report. Try the following solutions in the same order they're presented:

1. Change the number of disk buffers assigned to your datafiles to one buffer each.
2. Reduce the length of all report field names, or eliminate the names entirely.

3. If any of your datafiles are defined for sequential access in index order, change them to access by file order. (You must now also sort the datafiles into the correct sequence.)
4. Simplify your report by dividing it into two or more separate reports.
5. Run the report on a computer with more memory available, or secure additional memory for your computer.

**** Fatal Error #16 ****

Can't open file, xxxxxxxx.xxx (on drive y:)

Problem. The named file (xxxxxxx.xxx) on the indicated disk drive (y) cannot be opened for processing. The precise reason is undetermined, but the file cannot be used in its current state.

Solution. If you have a backup copy of this file, change the file name's extension from .BAK to the same extension shown in the message. Then copy the file, and restart REPORT.

If you do not have a backup copy, you must create a new file.

**** Warning #17 ****

Control character(s) present in input data for field #xxx, ignored.

Problem. The data being placed in the indicated report field (#xxx) contain control characters (procedure 2250), which will be removed before the report field is filled.

Solution. The removal of control characters is a convenience when you enter them for editing purposes only. Otherwise, you should verify that the remaining data are appropriate and sufficient in this field; check the input at data entry prompts or from referencing fields.

**** Fatal Error #18 ****

Change diskette message for xxxxxxxx.xxx on drive y:
cannot be issued because drive is being used for other files.

Problem. Your requested disk change (procedure 2155) before processing the indicated datafile (xxxxxxx.xxx) is impossible because other files on the same disk drive are needed by the program.

Solution. Examine your file descriptions (procedures 2100 - 2160), paying particular attention to the sequence of your datafiles. Make the required changes, and restart REPORT.

**** Fatal Error #19 ****

Change diskette message for xxxxxxxx.xxx on drive y:
cannot be issued because file output is in progress.

Problem. Your requested disk change (procedure 2155) before processing the indicated datafile (xxxxxxx.xxx) is impossible because an output datafile is currently being created.

Solution. Examine your file descriptions (procedures 2100 - 2160), paying particular attention to the sequence of your datafiles. Make the required changes, and restart the Report Print Program.

**** Fatal Error #20 ****

48K limit for writing output file with index.

Problem. The output datafile you are writing may not exceed a size of 48K.

Solution. Change your file description so that you are not writing an index file (see procedure 2133). After the report has completed, create an index file using FORMSORT (see procedure 4300).

Other Run Time Messages

The first three of these messages contain characters inserted on the basis of your previous entry, often merely a typing error or other small mistake that is easy to correct by reentry. The rest of these messages, in alphabetical order here, offer you procedural choices based on a previous entry.

xxxxxxx.COM is not present on drive y:
Specify which drive (A-P) to try next:

Problem. The named program (xxxxxxx.COM) cannot be found on the indicated disk drive (y).

Solution. Determine the disk drive location of the named program, and enter the letter of that drive.

"x" - illegal character.

A report specification name is eight (or less) letters and/or numbers, optionally preceded by a disk drive (letter A-P followed by colon).

Press ESC to enter report name or ^C to exit:

Problem. You cannot use the named character ("x") in a file name.

Solution.

ESC Press ESCape if you want to reenter a corrected name.

^C Enter ^C if you want to stop REPORT and return to your operating system prompt.

"x:" is not a legal disk drive.

A report specification name is eight (or less) letters and/or numbers, optionally preceded by a disk drive (letter A-P followed by colon).

Press ESC to enter report name or ^C to exit:

Problem. The disk drive letter entered (x) as the location of your report specification file does not exist on your computer.

Solution.

ESC Press ESCape if you want to reenter the disk drive letter and file name correctly. Note that the only letters you can enter are A through P (upper or lowercase) and the drive you indicate must exist on your computer.

^C Enter ^C if you want to stop REPORT and return to your operating system prompt.

Abandon print? (Y/N) N

This message appears when you press *any* key during the report run. Your report layout also appears on the screen and shows the record currently being processed.

N Enter **N** (for No) and processing will continue at the point where it was interrupted.

Y Enter **Y** (for Yes) and REPORT will end. You will see a termination message indicating the number of errors found in the report, then return to your operating system.

PRINT PAUSED.
Abandon or Continue?
Press A or C: C

When the printer control command **^C** appears in a report field (procedure **2250**), **REPORT** stops temporarily to allow you to change print wheels or ribbons or to perform some other task.

- A** Enter **A** (for Abandon) if you want to stop the Report Print program. You will see a report termination message indicating the number of errors found in the report, then return to your operating system.
- C** Enter **C** (for Continue) and processing will continue at the point where it was interrupted.

RSMSG5.OVR?

Problem. The message file (**RSMSG5.OVR**), which *must* be available during your **REDIT** procedures, cannot be found on either the logged disk or the system disk.

Solution. Enter the letter of a disk drive where the disk containing the message file can be found: Use **^C** if you must exit to the operating system.

The report specification file, **xxxxxxx.xxx**, is not present on drive **y**:

R = Re-enter the report drive/name

G = Generate a new report spec

Press **R** or **G**:

Problem. The named report specification file (**xxxxxxx.xxx**) cannot be found on the indicated disk drive (**y**).

Solution. If you entered a file name or disk drive letter incorrectly, enter **R**. You will be able to reenter the name correctly.

Report Run Time Errors

If the named report specification file does not exist and you want to create one with the entered name, enter **G**. The Quick Report File Selection Screen (procedure 1100) will appear.

The report specification file, xxxxxxxx.xxx, on drive y: contains errors.

R = Re-enter the report drive/name

L = List the errors so that they can be corrected

Press **R** or **L**:

Problem. Your report cannot be prepared using the named report specification file (xxxxxxx.xxx) because the file contains errors.

Solution.

R Enter **R** (for Reenter) if you selected the wrong report specification file. You will have the opportunity to select a different file.

L Enter **L** (for List) and the errors in the named report specification file will appear on your LST: device (normally your printer).

The report specification file, xxxxxxxx.xxx, on drive y: is unreadable.

R = Re-enter the report drive/name

X = Exit to operating system

Press **R** or **X**:

Problem. ReportStar cannot read the named report specification file (xxxxxxx.xxx). The precise reason is undetermined.

Solution.

R Enter **R** (for Reenter). You will have the opportunity to name a different report specification file.

X Enter **X** (for eXit). You will return to your operating system. If you have a backup version of the named file, change the extension from .BAK to .RPT. Copy the file, and start REPORT again.

Section 4. FORMSORT

The ReportStar program for sorting datafiles (FORMSORT) provides a very fast, flexible way to alter the sort order of your datafiles. FORMSORT will sort your files on up to 25 separate Key Fields, with a total Key length of up to 120 characters. Changing the sort order allows you to produce several reports from a single file. (See the ReportStar Training Guide, Chapter Five.)

There are four basic tasks that FORMSORT will do:

- **File Maintenance**
FORMSORT is much faster than the File Maintenance utility in the DataStar program. FORMSORT will sort a datafile and then create an index file for it.
- **Create an Index File**
Working from an existing datafile, FORMSORT creates an index for that file. The datafile is not altered.
- **Sort a Datafile**
FORMSORT will sort the datafile according to your needs without using or creating an index file.
- **Merge Datafiles**
Several datafiles can be joined together to create one comprehensive file. An index can also be created for this new datafile.

There are three kinds of files used by FORMSORT:

- **Form Definition Files**
These files are created in the FormGen program of DataStar. They are named with the extension .DEF.

- **Datfiles**

These files contain data in the format created by DataStar. All datfiles used with FORMSORT must be named with the extension .DTA.

- **Index Files**

These files contain keys and pointers to specific records in a datfile. When FORMSORT creates an index file, it adds the extension .NDX to the file name.

When you use FORMSORT, you will see no menus or prompt screens that require your responses. The program name (FORMSORT) and the .DEF file name(s) that define your datfiles are the only commands you need.

How FORMSORT Works

FORMSORT reads your .DEF files to find the Key structure, length, and special characteristics of your datfile records. You must tell FORMSORT the names of two files: the .DEF file that defines the sort order of the output file and the .DEF file that defines the input datfile to be sorted. (If you have not yet created form definition files for your data, use the FORMGEN program of DataStar before trying to use FORMSORT.) If these two .DEF files are the same (as in simple file maintenance), you only need to type the name once.

Caution: If you specify only one .DEF file (for both input and output) the newly sorted .DTA file will have the same name as the input .DTA file and the old datfile will be destroyed. Always make a backup copy of your input .DTA file and store this copy in a safe place.

FORMSORT

You give commands to FORMSORT directly from your operating system prompt (e.g., A>) by typing a single line to tell FORMSORT what needs to be sorted. A typical command line in FORMSORT looks like this:

```
A>FORMSORT [Output .DEF file name] [Input .DEF file name]
```

In the example, "Output .DEF file name" means the form definition file containing the new sort order, and "Input .DEF file name" is the form definition file of the old sort order. (You don't have to type the ".DEF" extension.) The input file may be on a different disk drive; simply precede the input file name with the letter of the appropriate disk drive.

FORMSORT reads the old .DEF file first, then the new form, checking to see that the data created with the old .DEF file is acceptable to the new form. If it is not, an error message appears. After verifying that input data will fit with the output form, FORMSORT looks for the .DTA file with the same name as the input form definition file. If it cannot find this datafile, FORMSORT asks you for the letter of the disk drive where the .DTA file is located.

Regardless of the name of the file sorted, the output datafile will always be named with the name of the output form definition file plus the .DTA extension. The newly sorted datafile will always be written onto the disk containing the output .DEF file.

When sorting large files, FORMSORT must have disk space available to temporarily store the records being sorted. This working file is always located on your currently logged disk.

Using FORMSORT with Datafiles on Two Disk Drives

If you want the output datafile on a disk separate from the input file, you must specify the file locations. When you enter each file name, precede it with the letter of the appropriate disk drive, followed by a colon(:). For example, the following command will produce a resorted file, NEWCUST.DTA, and a new index file, NEWCUST.NDX on drive A from a datafile named CUSTOMER.DTA on drive B.

A>FORMSORT NEWCUST B:CUSTOMER

FORMSORT must find the form definition file on the drive you specify in the command line. If you do not specify a drive, FORMSORT will assume you mean the drive you were logged on when you initiated the command line.

The next command will produce a sorted file, CUSTOMER.DTA, and a new index file, CUSTOMER.NDX, on drive B.

A>FORMSORT B:CUSTOMER

After reading CUSTOMER.DEF from drive B, FORMSORT will search for CUSTOMER.DTA on the same drive. If the datafile is not on drive B, a prompt will appear, asking for the location of this input datafile.

Precedence in the Sort Order

FORMSORT will evaluate the Key values in an ascending sequence of hexadecimal values. See Appendix E for a table of hexadecimal values assigned to data characters.

Caution: EXAMINE YOUR FORM DEFINITION FILES BEFORE RUNNING FORMSORT. Certain attributes assigned with FORMGEN to the key fields may affect the sort order of the datafile output by FORMSORT.

You can avoid confusion by taking care of the attributes you assign to key fields. You should not record edit characters in key fields in your datafile, especially if the data for the key field is numeric.

For numeric key fields, an edit mask should be designed that will reject most non-numeric characters. Content control condition code **9** allows only numeric data to be entered into the field. This edit mask makes the sort very predictable. If content control code **8** is used, some standard float and trail characters are also permitted in the field. Be sure that you do not record the edit characters in this case. If you do, FORMSORT will consider the value of all remaining field positions to be zero when it encounters such a float or trail character.

If a decimal point will not interfere with the key data, numeric key fields will sort more predictably if decimal alignment is also specified in the edit mask.

If you do not design an edit mask like the ones described above, justification becomes important. Remember that a left-justified field (the default condition in DataStar and standard for non-numeric data) will be evaluated position by position from right to left. A right-justified field will be evaluated from left to right.

Remember that using an edit mask with the content control codes **8** or **9** will override justification. For predictable results with numeric data, always use these edit mask codes and specify decimal alignment.

4100/File Maintenance

The simplest FORMSORT operation is regular file maintenance: sorting the records in a datafile according to the Key in the form definition file, erasing the records deleted in DataStar, and creating a new index file for the datafile.

To perform file maintenance, tell FORMSORT the name of the form definition file that describes the datafile you want sorted (maintained). If you specify only a single .DEF file, FORMSORT will sort the .DTA file with the same name. A message will appear, telling you that FORMSORT is proceeding this way.

Caution: Always keep a backup copy of your input datafiles. If an error occurs during the sort, the backup copy will make recovery much easier.

To do this fast maintenance on your datafiles, enter a simple command line. For example:

A>FORMSORT CUSTOMER

The result will be a newly sorted datafile, CUSTOMER.DTA (sorted according to the key structure in CUSTOMER.DEF) and a new index file, CUSTOMER.NDX.

Note: To assure that you will always have a backup of the input datafile, a good idea is to use separate drives for input and output datafiles. Specify the location of the .DEF (and, therefore, the location for data output) on a drive that does not contain the .DTA file. You will see a prompt asking for the location of the input datafile.

Changing Sort Order/4200

If you change a form definition file, you must assure that its datafiles will be acceptable to the new form. You may also want to create a new index file. FORMSORT will perform both tasks in one step when you enter the names of both the input and output files.

Enter FORMSORT, followed by the output .DEF file name, then the input .DEF file name. Either file name may be preceded by its disk drive location. For example:

```
A>FORMSORT CUSTNEW CUSTOLD
```

This command instructs FORMSORT to check that records created with CUSTOLD.DEF will be acceptable in CUSTNEW.DEF. Then, file maintenance is performed on CUSTOLD.DTA. The output files will be named CUSTNEW.DTA and CUSTNEW.NDX.

4300/Option Codes

The FORMSORT program produces two output files from each datafile sorted: a datafile (.DTA extension) and an index file (.NDX extension). Either file can be produced independently, using one of two option codes.

Create an Index File

The option code N (for index-file-only output) will save you time if you want to create an index file and not an output datafile. Type the code after the output form definition file name. Separate the file name from the code with a slash mark (/). For example:

```
A>FORMSORT CUSTOMER/N
```

The new index file will be named CUSTOMER.NDX. If the file CUSTOMER.DTA is not on the drive with the .DEF file, a message will appear, asking you for the input datafile's location.

Index files are necessary if you want to retrieve or look up specific records in a datafile. The index file contains pointers that indicate the location of each record in the datafile.

FORMSORT creates an index file very quickly, without altering the datafile. FORMSORT is one of the fastest ways to write an index, particularly if the file is very large.

Sort Datafile Only

To sort a datafile without creating an index file, insert the letter D in the command line. After the output .DEF file name, type a slash mark (/), then D. For example:

```
A>FORMSORT CUSTOMER/D
```

If the file CUSTOMER.DTA is not on the drive with the .DEF file, a message will appear, asking for the input datafile's location.

Caution: The newly sorted datafile will still be named CUSTOMER.DTA. Be sure to make a backup copy of your input datafile. If you want the input and output datafiles to have different names, copy and rename the output .DEF file. For example:

A>FORMSORT NEWCUST/D CUSTOMER

This operation produces a newly sorted datafile, NEWCUST.DTA on the same disk as the input file, CUSTOMER.DTA. The input file will not be affected.

4400/Merging Datafiles

You can combine from two to twenty-four datafiles with FORMSORT. For each .DTA file, you must have a copy of the .DEF file with the same name as the datafile.

After naming the output form definition file, simply list the input files. For example:

```
A>FORMSORT CUSTOMER CUST1 CUST2 CUST3
```

This command produces a new datafile (CUSTOMER.DTA), which will include all the records from the input datafiles, and an index file (CUSTOMER.NDX) for this new datafile.

Use the option code D to merge several files into one .DTA file without creating an index (see procedure 4300).

Caution: If one of your input .DTA files has the same name as the output.DTA file, be sure to make a backup copy of the input file and store it in a safe place.

FORMSORT cannot accept more than 25 file names on a command line. Be sure that you do not exceed this limit.

FORMSORT Messages

Several messages may appear on your terminal when you use FORMSORT. These messages are usually informational; for example, "FORMSORT is now creating the index file." However, if FORMSORT has a problem performing the task you have assigned, an error message may appear to tell you what problem has been encountered. The messages are listed here alphabetically, accompanied by an explanation of the problem and possible solutions.

Cannot create only an index file from a list of input files.

Problem: To create an index file, FORMSORT must have a single datafile to start from. You have specified more than one input file name and requested the N option.

Solution: Retype the command line without specifying any option. FORMSORT will first merge the datafiles into a single file, then create a single index file.

Cannot Open File XXXXXXXX.DEF

Problem: FORMSORT is unable to find the named form definition file (XXXXXXX.DEF).

Solution: Retype the command line, correcting the form name, or specify the location of an alternate disk that contains the form by preceding the .DEF file name with the drive letter and a colon.

Can't find FORMSORT.OVR

Problem: The file FORMSORT.OVR is not on either the disk with FORMSORT.COM or in the A drive.

Solution: Copy either FORMSORT.COM or FORMSORT.OVR so that both files are on the same disk, or, copy FORMSORT.OVR onto the A drive.

Close failure.

Problem: Either a disk change was attempted while the program was running, or FORMSORT has encountered an internal error.

Solution: Retype the command line and try the sort again. Do not attempt to change disks while FORMSORT is sorting the file.

Directory or Disk full while writing output file.

Problem: There is not enough room on the output disk or in the directory of the output disk to write the output file.

Solution: Change the disk in the output drive, or copy the output form definition file to another drive. Use this alternate disk drive for output. Otherwise, erase some files from the output drive. Erase the temporary file (filename.\$\$\$) which is still on the original output disk.

Enter disk drive to use for the datafile XXXXXXXX.DTA.

Problem: FORMSORT cannot locate the named input datafile (XXXXXXX.DTA) on the same disk as the form definition file.

Solution: Enter the letter (A-P) of the drive containing the disk with the named .DTA file. FORMSORT will continue to ask for the correct disk drive until you enter one that contains the named datafile.

Internal error

Problem: An internal logic error was encountered by FORMSORT.

Solution: Retype the command line and try the sort again. If the error recurs, consult your MicroPro dealer

Invalid .DEF file. Check your form with FormGen.

Problem: One of the form definition files specified on the command line contains errors. Check the forms with the FormGen program and correct the errors before attempting to sort the datafile. Errors in the form file are listed on the exit screen when you try to save the form in FormGen.

Invalid File Specification

Problem: One of the form definition file names you typed on the command line is not a valid file name.

Solution: Check the command line you entered. Re-enter it, using valid form definition file names.

Invalid Option Specified

Problem: The character typed after the output file name is not an acceptable option code. Only D and N are accepted option codes (see procedure 4300).

Solution: Examine the command line. Retype the line, using an acceptable code.

More than 25 files have been specified.

Problem: FORMSORT can merge only 25 datafiles at one time. You have entered more than 25 filenames on the command line.

Solution: Perform the merge in more than one step. In the first step, merge the first 24 files, then merge that file with another group of 24 datafiles. Continue this process of building a single file until all your files have been combined into one.

No Files Specified. Please Run FORMSORT With Arguments.

Problem: You did not specify a form definition file in the same line with the FORMSORT command.

Solution: Retype the command line. Be sure you specify the name of the .DEF file that defines the way the data should be sorted. If the input form is different, also type that form name.

No Input Files Specified. Input File Assumed Same As Output File.

Problem: You have specified only one form definition file on the command line. This is the standard way to specify that you want to perform file maintenance on a datafile.

Solution: If you did not intend to perform file maintenance, press ^C to stop the sort. Retype the command line, and specify the name of the .DEF file that defines the input datafile.

Too little memory.

Problem: FORMSORT has run out of space on the logged disk for storing an intermediate (working) file.

Solution: FORMSORT always puts its working file on the disk in the logged drive. Erase some files from the disk in the default drive to allow more room for the working file.

Warning: Mismatch on input and output form sizes.

Problem: After reading the form definition files, FORMSORT has discovered a difference in the potential total lengths of the input and output records. This message appears while the sorting program continues to run.

Solution: If the input datafile contains any records longer than the total length of all fields in the output form, those records will be split into two records before being output to the datafile. Watch for an additional message warning you of this possibility. If none appears, FORMSORT was able to sort your file without problem.

Warning SW5: Insufficient fields or columns for key or select in one or more records, blanks assumed.

Problem: Two things may have happened:

1. A Key field in the input datafile is shorter than the length specified in the .DEF file.
2. There are fewer fields in the record than needed to supply the Key field (e.g., field #006 is a Key field, but the record has only 5 fields).

FORMSORT will consider these missing Key positions to be blanks.

Solution: Examine your datafile with a text editor (such as the WordStar program in non-document mode) and correct it; or re-create your datafile with the DataStar program.

Warning SW6: One or more CR-delimited input records were longer than specified maximum length, and were divided into multiple records before sort/merge.

Problem: The input datafile contains at least one record longer than the total of the field lengths on the input form. The data in the file was modified by some means other than with the DataStar program.

Solution: You must use a text editor (for example, the WordStar program in non-document mode) to correct your datafile. You can either open the output datafile and correct the erroneous records; or open the input datafile, correct the problem records, and then use FORMSORT to sort the file.

Appendix A. Control W (^W) Listings

The ^W Listings help you to design ReportStar reports. You can use them to locate and resolve design errors and other problems.

Initiate your ^W listings from the Report Layout Screen. Make sure your printer is ready, and enter the command ^W. To stop the listings, press any key.

Here is the menu of options which appears in response to ^W:

```
=====
Which reports do you want?
  1 = Field numbers and ctl chars  4 = Field definitions
  2 = Edit masks                   5 = Printline and other conditions
  3 = File descriptions             6 = Cross reference
  N = none of the above            A = All of the above
Enter one or more of 1,2,3,4,5,6,N,A and/or RETURN: A
=====
```

Enter **A** (for All) or press **RETURN** (default) if you want to print all reports (1-6).

Enter **N** (for None) if you do not want to print any of the ^W listings. If you do not have a printer, you must enter this response. You will return to the Report Layout Design Screen.

You can select any combination of reports shown in the options menu. For example, to select the edit masks, file descriptions, and cross reference reports, type: **236RETURN**.

If any print line in your report layout is wider than 79 columns, the following prompt message appears:

Please enter page width (in columns):

Respond by entering the width of the paper in your printer, followed by **RETURN**. You must enter a three digit number, for example, 080, not 80. The prompt does not appear if your report layout is 79 columns wide or less.

The complete description of each option (1-6) includes samples of the possible lists as exhibits. If your report specification does not include a feature listed on the W menu, the report of that feature will not print.

Option 1. Field Numbers and Control Characters

Option 1 produces two separate listings.

Field Numbers List. Refer to Exhibit A1. All report fields in your layout are shown with their assigned field numbers on the far right. (See 2210 and 2300.)

Control Characters List. Refer to Exhibit A2. All control characters in your report layout are shown. Report fields are also shown with their assigned field numbers on the far right. (See procedure 2260.)

```

.PO 0
PPage  1                               Run Date  2/ 3/ 4
P
P                               CHECKS DISTRIBUTION REPORT
P
.CHK DATE =  5
PDistribution      Check Date      Number      Amount
 6- 7- 8         9 /10         11         12
-----
3
3      ( 13)       14 Total  15*
3
2      ( 16)       17 Total  18**
2
1      ( 19)       20 Total  21***
1
1=====
1
R
R TOTAL of all accounts:  22
R
R NUMBER of checks reported:  23

```

**Exhibit A1
FIELD NUMBERS**

Appendix A

```

.PO 0
PPage  1                               Run Date  2/ 3/ 4
P
P                                     CHECKS DISTRIBUTION REPORT
P
.^BCHK DATE =  5^B
P^SDistribution   Check Date   Number   Amount^S
 6- 7- 8        9 /10      11      12
-----
3
3      ( 13)           14 Total 15*
3
2      ( 16)           17 Total 18**
2
1      ( 19)           20 Total 21***
1
1-----
1
R
R TOTAL of all accounts:  22
R
R NUMBER of checks reported:  23

```

**Exhibit A2
CONTROL CHARACTERS**

Option 2. Edit Masks

Option 2 produces two separate listings.

Edit Mask Conditions List. Refer to Exhibit A3. This list shows the edit mask condition codes assigned to specific report fields. (See procedure **2353**.)

Edit Mask Constants List. Refer to Exhibit A4. This list shows the edit mask constants assigned to specific report fields. (See procedure **2354**.)

```

.PO 0
PPage _____ Run Date ____/____/____
P
P          CHECKS DISTRIBUTION REPORT
P
.CHK DATE = _____
PDistribution      Check Date      Number      Amount
  ___-___-___      ___/___/___      _____      "   "   .
3-----
3          (____)      _____      Total      "   "   .   *
3
2          (____)      _____      Total      "   "   .   **
2
1          (____)      _____      Total      "   "   .   ***
1
1=====
1
R
R TOTAL of all accounts:      "   "   .
R
R NUMBER of checks reported:      _____

```

**Exhibit A3
EDIT MASK CONDITIONS**

```

.PO 0
PPage _____ Run Date ____/____/____
P
P          CHECKS DISTRIBUTION REPORT
P
.CHK DATE = _____
PDistribution _____ Check Date _____ Number _____ Amount _____
  - - - - - / - - - - -
3-----
3          ( ) _____ Total _____ *
3
2          ( ) _____ Total _____ **
2
1          ( ) _____ Total _____ ***
1
1=====
1
R
R TOTAL of all accounts: _____
R
R NUMBER of checks reported: _____

```

**Exhibit A4
EDIT MASK CONSTANTS**

Option 3. File Descriptions

The file description listing shows how each file in your report is described. Information shown differs with the particular file description. Refer to Exhibit A5, following the explanations of all possible elements.

File description number can be from 001 to the maximum number of file descriptions in your report (procedure 2100).

File description name is the name of the form definition file assigned to the file description (procedure 2105).

Access, indicating how the file is used:

INPUT—read sequentially in file order (procedure 2130).

INPUT (INDEX ORDER)—read in the sequential order of the index associated with the file (procedure 2135).

REFERENCE—read according to Key fields of a reference file (procedure 2130).

OUTPUT—created by the report (procedure 2120).

OUTPUT, WRITE INDEX FILE—created by the report and an index file also created (procedures 2120 and 2133).

If file exists (appears for output files only) shows what happens if the name assigned to the output datafile is already assigned to another file.

ERROR—a message displayed to operator gives the option to overwrite the existing file or to provide a different name for the new output file (procedure 2125).

ADD TO—new output file added to the existing file.

Number of buffers indicates how many sectors were allocated in the file description (procedure 2140).

Volume name indicates the disk drive location at run time, the name of the datafile associated with the file description, and the file name extension. If there is more than one datafile, each is listed in the order entered in the file description. (See procedures **2152 - 2154**.)

CHANGE DISKS follows the volume name if the disk change was specified in procedure **2155**.

OPERATOR ENTERED means that the names of the datafile volumes will be entered by the operator at run time (procedure **2150**).

MULTI-VOLUME means the datafile is contained on more than one disk or in separate files on the same disk (procedure **2145**).

Include if indicates a condition under which records from the datafile are included in the report or an output datafile. The logical expression determining which data records to include is also shown (procedure **2160**).

Appendix A

001/CHECKS	Access: INPUT
	No. of buffers: 016
	Volume name: C:CHKDIST.DTA
002/MAJACCT	Access: REFERENCE
	Volume name: C:MAJACCT.DTA
003/INTACCT	Access: REFERENCE
	Volume name: C:INTACCT.DTA
004/MINACCT	Access: REFERENCE
	Volume name: C:MINACCT.DTA

**Exhibit A5
FILE DESCRIPTIONS**

Option 4. Field Definitions

The field definition listing shows how each report field in your layout is defined. Information shown differs with the particular field definition. Refer to Exhibit A6, following the explanation of all possible elements.

Field number can be from 001 to the maximum number of fields in your report layout. Definitions are listed in numerical order by field (procedures 2210 and 2300).

Field name appears exactly as assigned (procedure 2300).

Location indicates where in the report layout the field is located.

LINE—number of the print line on which the report field is located, from 001 to the maximum number of lines in your layout (up to 255).

COLUMN—number of the column where the report field *begins*, from 001 to the maximum length of the print lines (up to 253).

LENGTH—number of print positions in the report field (embedded control characters not computed), from 001 to 253.

Equivalent to indicates that the report field has been defined as equivalent to the base field identified by number and name (procedure 2310).

Control break level indicates that control break status has been assigned at the level number shown, 1-9 or the maximum number of control breaks assigned (procedures 2230 and 2320).

Source indicates the origin of the report field.

OPERATOR INPUT—from an operator entry at run time (procedure 2347). When this source is indicated, the following line appears:

Prompt: xxxxxxxxxxxx

Appendix A

The actual operator entry prompt (xxxxxxxxxx) appears.

FILE—from a datafile identified by number and name, with the number and name of the originating data *field* as well (procedures 2340 - 2342). If the source file is a reference file, the index field number and name also appear (procedure 2343).

CALCULATED—derived from a calculation, followed by the numeric or string expression used. If any UNLESS/THEN expressions are assigned, they are also shown. (See procedures 2340, 2344 - 2346, and 2348).

Editing indicates that the value in the report field is edited before printing.

RIGHT JUSTIFY—align to the right side of the field (procedure 2351).

EDIT MASK—edit mask condition codes and constants assigned to the report field (procedures 2352 - 2354). The edit mask itself appears in the Option 2 listing.

FIELD NOT PADDED—no pad character assigned (procedure 2350).

PAD WITH X—a pad character (x) assigned (procedure 2350).

Output indicates that the report field will be written into an output datafile identified by number and name, with field number and name also shown (procedures 2370 - 2372).

Clear if indicates that a displayed clear condition has been assigned to the report field (procedure 2380).

Load if indicates that a displayed load condition has been assigned to the report field (procedure 2360).

001/PAGE	Location:	Line=001	Column=006	Length=003
	Source:	CALCULATED		
		#001 = PAGE+1		
	Load if:	NEW PAGE		
002/	Location:	Line=001	Column=052	Length=002
	Source:	OPERATOR INPUT		
	Prompt:	Enter Run Date (Month Number)		
	Editing:	RIGHT JUSTIFY		
	Load if:	REPORT START		
003/	Location:	Line=001	Column=005	Length=002
	Source:	OPERATOR INPUT		
	Prompt:	Enter Run Date (Day)		
	Editing:	RIGHT JUSTIFY		
	Load if:	REPORT START		
004/	Location:	Line=001	Column=058	Length=002
	Source:	OPERATOR INPUT		
	Prompt:	Enter Run Date (Year)		
	Load if:	REPORT START		
005/	Location:	Line=005	Column=014	Length=008
	Source:	File=001/CHECKS	Field=001/CHK	DATE
006/MAJOR	Location:	Line=007	Column=002	Length=002
	Control break level:	001		
	Source:	File=001/CHECKS	Field=006/MAJ	DIST
007/INTER	Location:	Line=007	Column=005	Length=003
	Control break level:	002		
	Source:	File=001/CHECKS	Field=007/INT	DIST
008/MINOR	Location:	Line=007	Column=009	Length=003
	Control break level:	003		
	Source:	File=001/CHECKS	Field=008/MIN	DIST

Exhibit A6 FIELD DEFINITIONS

Option 5. Print Line and Other Conditions

This listing shows the PRINT WHEN, PAGE WHEN, and END WHEN conditions applied in your report. When one of these conditions is applied, the corresponding logical expression is shown in the listing. Refer to Exhibit A7.

Print line 011 when CODE<9
Print line 013 when CODE<9

PAGE WHEN C PAGE=20

END WHEN C REPORT=100

Exhibit A7
PRINT LINE AND OTHER CONDITIONS

Option 6. Cross References

All references made to fields in your report layout are listed alphabetically by the original report field name. Refer to Exhibit A8. Following the name and number of the original report field is the name and number of each report field which references it.

If a field definition references a field with a higher number, asterisks appear to the left of the referenced field. For example, if field 122 is used to calculate field 121, the listing of field 122 under field 121 will be preceded by ***.

To the right of each referencing field's name and number is a description of how the original report field is used.

CALCULATION—original field used to calculate the value in the referencing field.

CLEAR IF CONDITION—original field used in an expression for clearing the referenced field.

EQUIVALENT TO—original field equivalent to the referenced report field.

FIELD LOAD CONDITION—original field used in a load expression for the referenced field.

NEW PAGE CONDITION—original field used by the referenced field to set conditions for a new page.

END REPORT CONDITION—original field used by the referenced field to set conditions for ending the report.

LINE nnn PRINT CONDITION—original field used by the referenced field in a PRINT WHEN condition. The number of the print line (nnn) is identified.

FILE nnn/xxxxxxxxx INCLUDE CONDITION—original field used by the referenced field in an INCLUDE IF expression. The file number and name (nnn/xxxxxxxxx) show where the expression is used.

INDEX FOR nnn/xxxxxxx, FIELD yyy—original field used to access the identified field (yyy) in the identified reference file (nnn.xxxxxxx).

00^/		
003/		
004/		
005/	009/CHK MO DA	CALCULATION
	010/CHK YR	CALCULATION
023/		
	023/	CALCULATION
012/CHK AMOUNT		
	015/MIN TOTAL	CALCULATION
	018/INT TOTAL	CALCULATION
	021/MAJ TOTAL	CALCULATION
	022/TOTR CHK AMOUNT	CALCULATION
009/CHK MO DA		
011/CHK NUMBER		
010/CHK YR		
017/INT ACCT NAME		
016/INT DIST		
	017/INT ACCT NAME	INDEX FOR 003/INTACCT, FIELD 002
018/INT TOTAL		
	018/INT TOTAL	CALCULATION
007/INTER		
020/MAJ ACCT NAME		
	020/MAJ ACCT NAME	INDEX FOR 002/MAJACCT, FIELD 002
021/MAJ TOTAL		
	021/MAJ TOTAL	CALCULATION
006/MAJOR		
014/MIN ACCT NAME		

Exhibit A8
CROSS REFERENCE LISTING

Appendix B. Installing ReportStar on Your Computer

Introduction

ReportStar will work on a great variety of microcomputer systems. Each of these systems has its own special characteristics (kinds of terminal, computer and printer). To take full advantage of all ReportStar features, you must tell the program what machines (hardware) you will be using when you use the ReportStar software. This procedure is called *installing* the program.

There is a special program called RINSTALL.COM supplied on your ReportStar distribution disk. This program contains the installation procedure.

Installation for most systems is quite simple. All you need do is select the machines you are using from menus (lists) that appear on your terminal screen. Certain machines may not be listed. If this is the case with your system, talk to your MicroPro dealer. One of the selections on the menu may be so similar to your machine that ReportStar won't know the difference. Otherwise, you will need to use the "patcher" routine in RINSTALL, together with the Technical Reference Manual, to tell ReportStar how the machine works. Your dealer will help you.

The installation routine has one other important function. You can change some ReportStar program options (e.g., help level, error reporting, etc.) by responding to a few simple questions.

As you become more familiar with ReportStar, you will probably want to change some of these program options. To save time in getting through the menu portion of the installation, you can make the selection **U** or **RETURN** at any menu. This alerts ReportStar that *no change* should be made to the choice of terminal, printer, etc. that was made during an earlier installation.

Step 1. Starting RINSTALL

Turn On your computer, your terminal, and your printer (if you have one).

Boot your operating system.

Insert a *copy* of the ReportStar distribution disk into an available disk drive.

Log On to the disk drive containing the ReportStar disk.

Type RINSTALL, then press **RETURN**.

If all has gone well, you will see a brief copyright message, followed by ReportStar Terminal Menu #1. Proceed to Step 2.

If you do not see Terminal Menu #1, repeat the steps above. If you are still unable to start RINSTALL, ask your MicroPro dealer for assistance.

Step 2. Identify Your Terminal

There are three separate lists of terminals. They are called ReportStar Terminal Menus #1, #2 and #3. The terminals listed are most commonly used with microcomputers today.

- If you see the make and model of your terminal on the first menu, press the key listed next to its name.
- If your terminal is not listed on Terminal Menu #1, press **2** or **3** to look at the two other Terminal Menus. If your terminal name appears on any menu, press the key listed next to it.

- If your terminal is not on any menu, press **Z**. You must use the "patching" routine to explain to ReportStar how to use your terminal. See Step 7 of this appendix.

The selection you have made will be written out (the computer will "echo" your response) beneath the menu.

If this "echo" is correct, press **Y** or **RETURN**. Go on to Step 3.

- If the computer's response is not correct, press **N**. Terminal Menu #1 will reappear. You can then make another selection. (Repeat Step 2.)

Step 3. Identify Your Printer

The printers listed on this menu are the most commonly used with microcomputers today.

- If you see the make and model of your printer on this menu, press the key listed next to its name.
- If your printer is not on the list, press **Z**. You will need to use the "patching" routine to explain to ReportStar how to use your printer. See Step 7 of this appendix.
- If you do not have a printer in your system, press **RETURN**.

The selection you have made will be written out (the computer will "echo" your response) beneath the menu. Some additional information about the printer selection you have made will also appear.

- If this "echo" is correct, press **Y** or **RETURN**. Go on to Step 4.
- If the computer's response is not correct, press **N**. The Printer Menu will reappear. You can then make another selection. (Repeat Step 3.)

Step 4. Describe How Your Computer and Printer Communicate

When you print a report, your computer sends the characters to your printer at very great speed, as fast as 120 characters per second or more. Obviously, the printer cannot print these characters as fast as the computer sends them.

To assure that no characters are lost during this transfer, a *communications protocol* is set up between the computer and the printer. This protocol is usually just a special signal that is sent from the printer to the computer. The signal alerts the computer that the printer is ready to accept more characters for printing.

There are four choices on the Communications Protocol Menu:

- E** ETX/ACK
- X** X-ON/X-OFF
- N** NONE required (or handled outside of ReportStar)
- U** no change

The correct choice for your system will depend on your printer. If possible, ask your dealer for the correct protocol to use.

In some systems, the required protocol is handled by the operating system or by the machines themselves. This is called a hardware protocol and is usually the best if available. If this is the case with your system, select **N** from this menu.

- When you are certain of the correct protocol for your system, press the key listed.

As with the Printer Menu, your response will be echoed by the computer, along with some informational text.

- If this echo is correct, press **Y** or **RETURN**. Go on to Step 5.

- If the computer's response is not correct, press **N**. The Communications Protocol Menu will reappear. You can then make another selection. (Repeat Step 4.)

Step 5. Describe How Your Computer Will Send Characters To Your Printer

The next menu that appears is the *Output Driver* Menu. At this point you must indicate by what method characters will be sent to the printer.

Note: Your system may have special requirements in this regard. Be sure to consult with your MicroPro dealer.

There are six options on this menu:

- L** CP/M "List" Device (LST:)
- T** CP/M Primary Console Device (TTY:)
- C** CP/M Secondary Console Device (CRT:)
- P** Port Driver (Direct I/O to 8-bit Port)
- S** User-Installed Driver Subroutines
- U** no change

If a hardware protocol is used, the most common response is **L**. If one of the other devices is to be used (selections **T** or **C** on the menu), be sure that the device you select is not being used for some other function in the system.

- Press the key listed next to the driver selection which is appropriate for your system.

As with the Printer and Communication Protocol Menus, your response will be echoed by the computer, along with some informational text.

- If this echo is correct, press **Y** or **RETURN**. Go on to Step 6.
- If the computer's response is not correct, press **N**. The Driver Menu will reappear. You can then make another selection. (Repeat Step 5.)

Step 6. Modify Report Options

After you select an output driver for ReportStar, RINSTALL asks if there are any modifications you wish to make to the Report Print program (REPORT). The following options are available to you:

1. Running ReportStar under MP/M
2. Initial Help Level in REDIT
3. Location of System Disk Drive
4. Writing a Report to Disk Instead of Printer
5. Error Reporting

Generally, you will not need to utilize these options. To assure that ReportStar is installed correctly, be sure you look at each of these options now. On this and the pages that follow, each of the options will be explained.

Each prompt has two or more responses. One of the responses is the *default*, which means that unless you state otherwise, ReportStar assumes that a preset response is acceptable. When listed with other options, the default (a letter or number) always appears under the cursor. You can select the default by pressing RETURN.

- Press Y to view the options available for modification.

In the explanations that follow, the default response is indicated by three asterisks (***) on the left-hand side of the page.

1. Are you running under MP/M?

MP/M is a multi-user operating system designed by Digital Research of Pacific Grove, California. At present, ReportStar does not run in the MP/M environment, although this option will be available soon.

Because MP/M has some special characteristics, ReportStar must be told specifically if this is the operating system you are using.

- If you use the MP/M operating system, press **Y**.
- *** • If you are using any other operating system, press **N** or **RETURN**.

If you select response Y, this question will be redisplayed. ReportStar will not run under MP/M.

2. Enter the initial help level desired:

Several messages appear on the terminal screen in the Report Layout portion of ReportStar. Depending upon your response to this prompt, some of these messages can be suppressed (i.e. will not appear). Also, you can determine if a "Help Menu" (a directory of commands for cursor movement, adding/deleting characters, etc.) will appear as soon as you start the program or if you will ask for it when needed. As you become more familiar with ReportStar, you will probably not want the help menus displayed on your terminal screen while you work.

If you are just beginning with ReportStar, the default response is advisable. Note that if you do not select the default, a large amount of explanatory text will never appear on your screen. However, no matter which response you choose, all help menus will be available. You need only decide which menu should be the *first* one to appear.

- Press **1** if you are very sure of yourself using ReportStar.
- Press **2** if you need a minimum amount of onscreen information.
- Press **3** if you want all information *except* the explanatory text.
- *** • Press **4** or **RETURN** to allow all messages to be displayed.

3. Enter selection (A - P, 0) for system disk drive:

At several places in ReportStar, the program will search for other programs and messages. In some cases, you will tell ReportStar where to look. At other times, the program will make some assumptions about where to look first.

The *logged drive* (the drive indicated by your operating system when you start a program) is the first drive on which ReportStar will look. If the file being searched for is not found there, ReportStar will then look to the *system drive*.

- Press the letter of the disk drive (A - P) you want ReportStar to use as the system drive.
- *** • The default response is the **A** drive. Press **RETURN**.
- If you do not want to use the system drive feature of ReportStar, press **0**.

4. Enter selection for report output (D/P/U):

ReportStar will send a report to either your printer or a separate text file on a disk. There are three possibilities.

- If you want your reports *always* written to a text file, press **D**. This is especially useful if you do not have a printer in your present system.
- If you want your reports *always* sent to your printer, press **P**.
- *** • Press **U** if you want to select the report output option each time a report is run.

5. Do you want error reporting options installed into your REPORT program or do you want to select them each time you run the program (I/S)?

ReportStar may encounter problems when you try to run a report. For example, a file may contain unacceptable data, there may not be enough disk space, etc. You can direct ReportStar to report the error and warning messages associated with these problems in a variety of ways. You can also specify which errors are severe enough to automatically stop the report processing. These choices are your error reporting options.

ReportStar comes to you with a system already set up for reporting errors. The prompt now on your screen gives you the option of making this error reporting system an integral part of REPORT.COM or of allowing you to change the system each time you run a report. Until you are very familiar with ReportStar, the system is best allowed to remain as it is.

- ***
- Press **I** or **RETURN** to make the error reporting system a part of REPORT.COM.
 - Press **S** to select the error reporting options each time a report is run. The installation routine will proceed immediately to Step 7. Whenever you run a report, you will have to respond to the prompts that follow.

If you are installing ReportStar for the first time, the **I** selection is strongly recommended. For each of the prompts that follow, simply select the default by pressing **RETURN**.

There are four error reporting features that you can modify: **WHERE** the error messages should be reported; **WHICH TYPES** to report; **WHICH TYPES** should halt processing; and **HOW MANY** errors to report.

Here are the selections that will appear on your screen:

Where do you want error messages reported?

- Press **D** if you want the messages to be displayed on the top line of your terminal screen. If several errors are encountered in rapid succession, the error messages will appear and disappear very quickly.
- *** • Press **R** or **RETURN** to have the messages displayed at your terminal and remain there until you enter a response.
- Press **L** if you want ReportStar to set up a separate disk file in which the error messages will be written. This file will be named with your report name plus the extension .LOG.
- Press **B** to instruct ReportStar to report the error messages both at the terminal *and* in a disk file.

Which errors do you want reported?

- *** • Press **A** or **RETURN** to have ReportStar report *any* problem encountered in the report processing.
- Press **E** if you do not want warnings (the least severe type of error) reported. All other errors will be reported.
- Press **F** to report only *fatal* errors.
- Press **N** to report only *non-recoverable fatal* errors.

Which errors do you want to stop the report?

- Press **A** if you want processing to halt when *any* problem is encountered.

- Press **E** if any error other than a warning should stop the report.
- *** ● Press **F** if you do *not* want ReportStar to attempt to recover from a fatal error.
- Press **N** if ReportStar should continue to try to run the report even if a fatal error has been encountered. The only type of error that will halt processing in this case is a non-recoverable fatal error.

What is the maximum number of errors to report?

When you become well acquainted with ReportStar, you may want to direct the program to set a limit on the number of errors reported. After the maximum number set by your response to this prompt is reached, no more errors will be reported, although more problems may be encountered in the report processing.

- Press **0** to prevent any error from being reported.
- Press **1** to report only the first error.
- Press **2** to report only the first ten errors.
- Press **3** for one hundred errors reported.
- Press **4** for one thousand errors reported.
- *** ● Press **A** to set no maximum on the number of errors reported.

Step 7. More Custom Modifications of REPORTSTAR

After you have specified how errors should be handled by REPORT, the following prompt appears on your screen:

ARE THE MODIFICATIONS TO REPORTSTAR NOW COMPLETE?

**IF THEY ARE, ANSWER YES TO THE NEXT QUESTION.
IF YOU WISH TO MAKE ADDITIONAL PATCHES TO REPORTSTAR'S
USER AREAS, ANSWER NO TO THE NEXT QUESTION.**

OK (Y/N):

Under most circumstances, you would reply **Yes** to this prompt. However, you may want to make some slight alterations to the programs (e.g., you may not want any highlighting on the terminal screen). Also, you may need to describe your terminal or printer feature-by-feature (if you could not select a terminal or printer from the menus). In either case, you should reply **No**.

- Press **Y** if you have no need to further customize the ReportStar programs. Continue with Step 8.
- Press **N** if you want to make some further modifications, or if you must describe your terminal or printer in further detail. You will enter RINSTALL's *patcher* routine. Using the patcher requires some programming knowledge. If you are unsure of your ability, be sure to consult your dealer for guidance.

To use the patcher, you must tell RINSTALL the exact place in the program code at which you want to make a change. The ReportStar Technical Reference Manual, available from your MicroPro dealer, contains the *User Listings* for ReportStar. These listings provide the byte addresses and labels you need to change the value of a byte. The listings also describe exactly what you are changing.

Step 8. Verify Your Installation Selections

To complete the installation process, RINSTALL will ask you to verify that the selections made for terminal, printer, communications protocol, and driver are correct. You will see the message:

CONFIRM TERMINAL AND PRINTER SELECTIONS:

Below this message is a list of the selections you made on the various menus listed on your terminal screen. Below this list is the message:

OK (Y/N)

- If the list is correct, press **Y**. You have completed the installation procedure.
- If any item on the list is incorrect, press **N**. RINSTALL will redisplay Terminal Menu #1. Then you must go through the entire installation procedure again, starting with Step 2.

Modifying Your System with RINSTALL

After you have installed ReportStar for your particular system, RINSTALL is still available for you to make modifications later. This feature is valuable in case you decide to use ReportStar on another computer system.

When you are comfortable using ReportStar, you may want to change some of the program options described in Step 6. At that time, you can move quickly through Steps 2-5 by simply pressing **U** (no change) or **RETURN** at each menu. RINSTALL sets up all the responses given at the last installation session as the default responses.

If you have any special questions about how to install ReportStar for your computer system or for your particular needs, refer to the Technical Reference Manual, available from your MicroPro dealer, who is always happy to help you.

Appendix C. How to Build a Logical Expression

Introduction

What is a Logical Expression?

A logical expression is a mathematical statement that sets up conditions. The conditions in the expression are comparisons of field values and constants. The logical expression governs when certain report processes should occur.

When you run a report, ReportStar will test the conditions that you have written in the logical expression. If the expression is true, ReportStar will perform the action specified. If the expression is false (that is, the conditions of the expression have not been met), ReportStar will not perform the action.

Here is an example of a simple logical expression that you might write for ReportStar:

"End the report processing when ten records have been processed."

But a logical expression may become quite complex. For example:

"End the report processing when ten invoice records have been processed *OR* when the total of all invoices is one million dollars or more."

There are certain rules which must be followed when you write logical expressions for ReportStar. This appendix will show you those rules and will demonstrate how simple it is to put together a logical expression.

The last section of this appendix gives several examples of logical expressions written for use with ReportStar.

What Makes Up an Expression?

A logical expression always begins with a *conditional prompt*. A conditional prompt is a one or two word phrase that identifies the process controlled by the logical expression. The conditional prompt will appear on your terminal screen when ReportStar is ready to accept a logical expression.

Examples: **END WHEN, LOAD IF, PRINT WHEN**

You then write the conditions for the logical expression in the form of one or more *comparison expressions*.

In ReportStar, there are two types of comparison expressions: *numeric comparison expressions* and *string comparison expressions*.

Although the rules for and uses of these two kinds of expressions are different, both kinds are composed of the following elements:

Conditional Operands – the values that are compared or calculated in the expression. They may be constants (number or letter values), field identifiers (field names or field numbers), or a complete expression.

Examples: **24, "sav", TOTAL, #6, \$4, (3 + 2) + #6**

Conditional Operators – the components that perform actions on the operands.

Examples: **=, >, <, <>**

Where to Use Logical Expressions

As you write a report and handle datafiles, you will find several places where REPORT can read logical expressions that you write.

The following list of conditional prompts explains the use of each of the seven report processes that can be controlled by writing a logical expression:

INCLUDE IF. To control which records from a datafile will be included in the report processing; also, to control under what conditions report fields should be written to an output file.

PRINT WHEN. To control the printing of a line on the report form.

UNLESS. Logical expressions that begin with UNLESS are optional companion expressions to a field calculation. With the UNLESS expression, you can stipulate when a report field calculation should *not* be performed. After this, you can write another calculation for the field value. See the section on field value calculations in this appendix for more information.

LOAD WHEN. To control how often a report field should have a new value entered into it.

CLEAR IF. To control when a report field should be "cleared" (reset to zero).

PAGE WHEN. To control pagination in your report.

END WHEN. To set up special conditions for ending report processing (other than reaching the end of the datafiles).

Numeric Expressions

A numeric expression deals with number values. For example:

$(6 + 3)^2$ is a numeric expression equal to 81.

ALGEBRAIC EXPRESSIONS

An algebraic expression is another name for a numeric expression. It is composed of numeric operands and numeric operators.

Numeric Operands

A numeric operand *identifies* a number value (a numeric constant) or a report field in ReportStar (a numeric field ID).

Numeric Constant. A numeric constant in ReportStar is any real number value. This includes integers and fractions expressed with a decimal. Both positive and negative values are accepted. Constants may also be expressed using *scientific notation* to calculate powers of ten. That is, 5×10^2 can be written 5E2. "E" is the only non-numeral accepted as a constant by ReportStar.

Examples: **32, -43.67345, 8,451,904.1, 6.5E12**

Numeric Field ID. A numeric field ID uniquely identifies a report field that contains numeric data. There are two ways to identify such a field: with a pound sign (#) followed by the one to three digit number of the report field; or with the unique field name assigned to the field.

Examples: **#006, #2, NAME, TOTAL**

Numeric Operators

Each numeric operator *connects* only two numeric operands. The numeric operators in ReportStar are:

Addition	(+)
Subtraction	(-)
Multiplication	(*)
Division	(/)
Exponent	(^)

Combining Numeric Operands and Operators

Numeric operands and operators can be combined into quite elaborate algebraic expressions. It is important to remember that there must be an alternating sequence (operand, operator, operand) throughout the expression. All algebraic expressions must begin and end with a numeric operand.

Each operand in an algebraic expression may itself be a complete algebraic expression. Such an operand is enclosed in parentheses and followed by the operator that connects to the next operand.

Examples: $4*2$
 $(16 + 3)/12$
 $(6 + 3)^2$
 $11*((25/5-7) + (24*2/6)^3)$

NUMERIC FUNCTIONS

A numeric function is a process that returns a specific value for a single numeric operand, or for a list of numeric operands. The operand or operands on which the function is performed are also called arguments and are placed in parentheses immediately after the function name.

Note: There is one numeric function, the PAGE function (see below), which has no operands.

REPORT will first calculate the value of the arguments, then perform the *numeric function* on the result of this calculation.

Remember, the arguments can be any numeric operand: a constant, a field identifier, or an algebraic expression with several operands separated by operators.

These are the numeric functions that you can use in ReportStar:

ABS (numeric operand). The absolute value function removes the minus sign from a negative operand. It has no effect on positive or zero operands.

Examples: **ABS (6 + 3) = 9**
ABS (-13) = 13
ABS (10/5-2) = 0

INT (numeric operand). The result of the integer function on a numeric operand is the whole number portion of the operand. The decimal portion is not included. Positive and negative quantities are accepted. Note that this is not a rounding function.

Examples: **INT (3.14159) = 3**
INT (5.9) = 5
INT (-30.7) = -30

REM (numeric operand, numeric operand). The result of the REM function is the remainder left over from the division of the first numeric operand by the second numeric operand.

Note: A comma is used to separate the dividend and divisor in the REM function. This allows the use of the division operator in defining complex numeric operators for the REM function.

There is a special consideration to be made when the divisor (the second value in parentheses) is a negative number.

Given **REM(A,B)**:

If **B < 0**, then **REM(A,B) = INT(A/ABS(B))*ABS(B)-A**

If **B > = 0**, then **REM(A,B) = A-INT(A/ABS(B))*ABS(B)**

Remember this distinction or your results may be unexpected.

Examples: Given that $27/5 = 5 \frac{2}{5}$:

REM (27,5) = 2

REM (27,-5) = -2

Given that $22/2 = 11$ and that $11/4 = 2 \frac{3}{4}$

REM (22/2,4) = 3

REM (22/2,-4) = -3

MAX (operand, operand, . . . operand). The result of the maximum function is the value of the operand with the largest value that is enclosed in the parentheses. There may be two or more operands within the parentheses.

Examples: **MAX (2,4,8,16,32) = 32**

MAX ((2*8),(3 + 4),13) = 16

MIN (operand, operand, . . . operand). The result of the minimum function is the value of the operand with the smallest value that is enclosed in the parentheses. There may be two or more operands within the parentheses.

Examples: **MIN (2,4,8,16,32) = 2**

MIN ((2*8),(3 + 4),13) = 7

FLD (numeric operand). The result of the field function is the value of the field that is specified by the operand. The numeric operand is first evaluated. That value must be equal to the field number of a numeric field on the report form.

Example: **FLD (#001/2)**

The value of field #001 is first calculated (suppose it is twenty). This result is then divided by two ($20/2 = 10$). Therefore, the result of the function **FLD (#001/2)** would be equal to the value of field #010.

ERR (numeric operand). The result of the **ERR** function is the number of times that the error number specified by the operand occurs during report processing. The operand must be in the range 0-20. If the operand is 0, all errors will be counted.

Example: **ERR (2 + 4)** = the number of times that error #6 occurred in the report.

Note: This function is valid only to specify an **END REPORT** condition. That is, the example above may be used as follows:

END WHEN ERR (2 + 4) > = 10

This means the report will stop automatically if error #6 is encountered ten times.

END WHEN ERR (0) > 0

This means the report will stop automatically if any error is encountered.

FERR (numeric operand). The file error function specifies the output file in which records should be checked for errors.

Note: The **FERR** function is used only in the **INCLUDE IF** statement in the file description of an output file. This function is used to write only erroneous records into a particular output file.

Example: **INCLUDE IF FERR (002) < > 0**

This means that if an error is encountered when writing a record to output file 002, it will be written to the file in which this statement appears in the file description (see procedure 2160).

CB (numeric operand). The control break function tests whether the value of the operand is equivalent to the level of the control break occurring. The operand must have a value of 1-9.

Example: **CB(7-3)**

This expression is true when control break level 4 is occurring.

Note: The CB function is used in expressions for only two operations:

PRINT WHEN in a compound expression if the line should print at a control break and only if some other condition is met. See COMPOUND EXPRESSIONS in this appendix.

PAGE WHEN if a new page should always be started at a control break.

PAGE. There is no numeric operand for this function. The value returned is equal to the page number of the report.

Note: This function can be used only for field value calculations. See FIELD VALUE CALCULATIONS in this appendix for an explanation of *assignments*.

String Expressions

A string expression manipulates string characters in ReportStar report fields. A string character is any character that can be entered from your terminal keyboard.

Note: Type two quotation marks (") to signify a single quotation mark.

There are two types of string expressions: field strings and the string function.

FIELD STRINGS

A field string expression is made up of string operands and string operators.

String Operands

There are three types of string operands: string constants, string field ID's, and substrings.

String Constant. A string constant (also called a *literal*) is a sequence consisting of one to two-hundred-fifty-five string characters, enclosed in quotes.

Examples: "ESTABLISHMENT"; "DATE DUE"

String Field ID. Like a numeric field, a field of string characters may be identified in two ways: 1) with a dollar sign (\$) followed by the one to three digit number of the report field; or 2) with a dollar sign (\$) followed by the unique field name assigned to that field.

Examples: \$006, \$2, \$NAME

Substring. A portion of the string characters in a field may be extracted by using the substring feature of ReportStar. The string field ID is stated first. This identifies the location of the field containing the string characters to be manipulated. Two numerals follow, enclosed in parentheses and separated by a comma. The first numeral identifies the position of the first character to be extracted from the field; the second numeral identifies the length of the string to be extracted from that point.

Example: \$telephone (6,8)

This substring expression tells ReportStar to find the string field named "telephone" and to extract eight characters from it, beginning with the character at the sixth place. If the telephone field contained the characters, (405)234-4411 x253, this expression would extract the following characters: 234-4411.

This **substring** of the telephone field could then be placed in a separate report field.

String Operator

There is only one string operator, the ampersand (&), also called the "join" function. It is used to connect two character strings end to end.

Example: **\$BALANCE & \$NAME**

This result of this example would be the contents of the field BALANCE followed by the contents of the field NAME.

STRING FUNCTION

The string function is a special feature of ReportStar. The form of this function is:

\$FILE (numeric operand)

The result of the string function is the string of characters that comprise the name of the datafile currently being processed by REPORT. The numeric operand must be in the range 1-number of file descriptions in the report.

Example: **\$FILE (001)**

The result of this function is the disk drive location, a colon (:), the datafile name, a period (.) and the datafile extension of the datafile from file description 001 that is currently being processed. Note that fourteen characters will be returned.

Putting It All Together

COMPARISONS

We have said that a logical expression is composed of a conditional prompt followed by one or more numeric or string *comparison* expressions.

A *comparison expression* is simply two numeric expressions or two string expressions, connected by a *comparison operator*. If the comparison you set up is found to be true by ReportStar, the action described by the conditional prompt will be performed.

Numeric Comparisons. When a comparison is performed between two *numeric* expressions, the two number values are simply compared.

String Comparisons. To perform a comparison between two *string* expressions, the string characters are compared by their *hexadecimal values*. *Hexadecimals* are in base sixteen, unlike the base ten *decimal* system. See Appendix E of this manual for a table of *hexadecimal* values.

Characters in the strings are compared on a character-by-character basis. That is, the first character of one string is compared to the first character of the other string, then the second character of each string is compared, etc. If every comparison of characters in the two strings is true, then the expression is considered true. As soon as one character is found that violates the comparison operator, the expression is ruled false.

There is no distinction made between upper and lower case letters. Note also that a *null* character in a field (meaning that nothing was entered in that position) does not have the same value as the (*space*) character, although they may appear the same.

Comparison Operators

The following is a listing of the comparison operators used in ReportStar. In the descriptions of each operator, A is the expression on the left hand side of the operator; B is the expression on the right hand side.

- = Equal to.** This expression is true if, and only if, A is equal to B. In all other cases, the expression is considered false

Examples: $4 + 1 = 55 / 11$ True
 $2 * 6 = 4 + 2$ False (12 does not equal 6.)

- < Less than.** A comparison expression is true if the value of A is less than the value of B. It is false if the value of A is greater than or equal to B.

Examples: $2 + 3 < 2 * 3$ True
 $2 + 4 < 2 * 3$ False

- > Greater than.** A comparison expression is true if the value of A is greater than the value of B. It is false if the value of A is less than or equal to B.

- <> Not equal to.** This expression is true if, and only if, A does not equal B. The expression is false if A is equal to B.

Examples: $4 + 1 <> 55 / 11$ False
 $2 * 6 <> 2 + 4$ True

- <= Less than or equal to.** This expression is true if the value of A is less than B and also true if the value of A is equal to B. It is false if the value of A is greater than B.

Examples: $4 + 5 <= 2 * 5$ True
 $4 + 6 <= 2 * 5$ True
 $4 + 7 <= 2 * 5$ False

> = Greater than or equal to. This expression is true if the value of A is greater than B and also true if the value of A is equal to B. It is false if the value of A is less than B.

Examples: $3 * 4 > = 6 + 5$ True
 $3 * 4 > = 6 + 6$ True
 $3 * 4 > = 6 + 7$ False

COMPOUND LOGICAL EXPRESSIONS

Remember, there may be more than one comparison expression in a logical expression. If the operation (INCLUDE IF, LOAD WHEN, etc.) is dependent upon more than one condition, two or more comparison expressions may be used in the logical expression. If so, the comparison expressions are connected by *logical operators*.

The following logical operators are used in ReportStar:

.AND. Expressions containing the logical operator **AND** are true if, and only if, both expressions are true. If either expression is false, the combined expression is false.

Examples: $(1 + 2 = 3) .AND. (3/6 = 1/2)$ True
T .AND. T = T

$(1 + 2 = 4) .AND. (3/6 = 1/2)$ False
F .AND. T = F

$(1 + 2 = 4) .AND. (4/6 = 1/2)$ False
F .AND. F = F

.OR. Expressions containing the logical operator **OR** are true if either expression is true. If one expression is true, the combined expression is considered true.

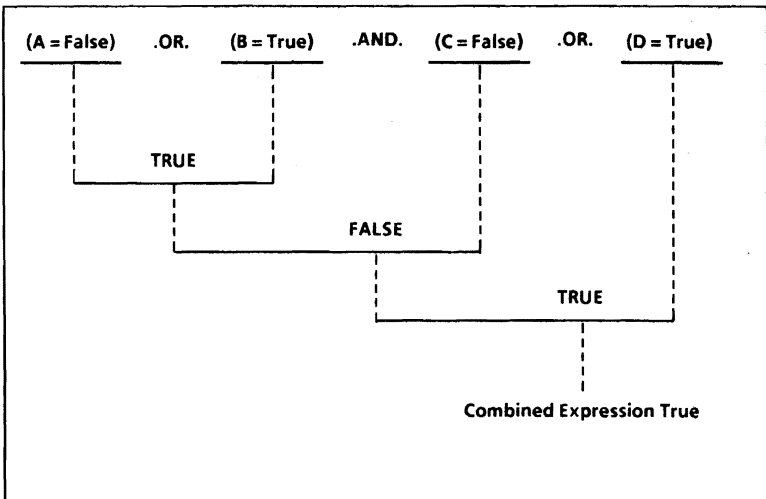
Examples: $(1 + 2 = 3) .OR. (3/6 = 1/2)$ True
 T .OR. T = T

$(1 + 2 = 4) .OR. (3/6 = 1/2)$ True
 F .OR. T = T

$(1 + 2 = 3) .OR. (4/6 = 1/2)$ True
 T .OR. F = T

$(1 + 2 = 4) .OR. (4/6 = 1/2)$ False
 F .OR. F = F

When there are more than two comparisons in a logical expression, the entire expression is always evaluated left to right. There is no hierarchy among the logical operators. You can use parentheses to alter the evaluation order (statements in parentheses will be evaluated first).



Field Value Calculations

ASSIGNMENT

An assignment is an instruction of how to calculate a field value. It takes the form of an **equal to** comparison expression. The left side of the equal sign (=) is a field ID (field name or field number). This operand appears as a prompt on your terminal screen.

You must then write an expression for the right side of the comparison. There is a slight difference between an assignment for a numeric and for a string field.

Numeric Field Assignment

ReportStar will prompt you with the numeric field ID (field name or "#" followed by the field number) followed by the equal sign. You must then write a numeric expression for REPORT to calculate the value of the field.

In Example 1 below, the numeric expression is equivalent to a constant. The value of the field TAX RATE would be .065 for each and every case. In Example 2, the field TAX would be different for each record and dependent upon the value of the fields AMOUNT CHARGED and TAX RATE.

Example 1: **TAX RATE = (.06 + .005)**

Example 2: **TAX = AMOUNT CHARGED * TAX RATE**

String Field Assignment

ReportStar will prompt you with the string field ID. You must then write a string expression which REPORT can use to assign a value to the field.

The first example below produces a new field called NAME, consisting of three previously defined fields: FIRST, MIDDLE and LAST. The second example uses the string function to place the name given to file definition #002 into the field named "FROM."

Example 1: **\$NAME = \$FIRST & \$MIDDLE& \$LAST**

Example 2: **\$FROM = \$FILE(002)**

ReportStar will provide an error message if an attempt is made to define a string field ID with a numeric expression or a numeric field ID with a string expression.

UNLESS-THEN

The UNLESS-THEN feature of field assignment allows you to write a logical expression to specify conditions under which a different assignment expression should be used. After pressing **RETURN** to enter the assignment expression, ReportStar presents the conditional prompt UNLESS. You may then write a logical expression to prevent that primary assignment from being used.

After pressing **RETURN** a second time to enter the UNLESS expression, ReportStar presents the THEN prompt, after which you may specify a second assignment expression. This procedure may be carried out as many times as the memory of your computer allows. An UNLESS-THEN series always ends with an empty UNLESS.

Examples: **#005 = #002 * 2**
 UNLESS #002 < 20
 THEN #005 = #002 * 4
 UNLESS #002 < 10
 THEN #005 = #002 * 6
 UNLESS

If there is more than one UNLESS–THEN expression pairs in a series, REPORT will evaluate each expression until it encounters one that is false. In the example above, if field #002 equals 16, REPORT finds the first UNLESS statement true (16 is less than 20). The second UNLESS expression is false (16 is *not* less than 10). Thus, the THEN expression immediately previous to the false UNLESS expression is used to calculate field #005: #005 = 16 * 4.

Again using the example above, if #002 = 6, *both* UNLESS expressions test true (6 *is* less than 10), so the second THEN expression is used: #005 = 6 * 6.

Be careful when you construct an UNLESS–THEN series. When REPORT evaluates the UNLESS expressions, it is a process of narrowing down possibilities from many to few. In our example, we started with *any* number (being multiplied by 2) and narrowed the range of values for the THEN assignments to only the numbers less than 20 (these values would be multiplied by 4). We further narrowed the range to only the numbers less than ten (to be multiplied by 6).

This process of narrowing possibilities must also be applied to compound expressions. Look carefully at the following examples:

```
#005 = #002 * 2
UNLESS $001 = "ABC".OR.$001 = "DEF".OR.$001
= "GHI"
THEN #005 = #002 * 4
UNLESS $001 = "DEF".OR.$001 = "GHI"
THEN #005 = #002 * 6
UNLESS $001 = "GHI"
THEN #005 = #002 * 8
UNLESS
```

The first UNLESS expression includes *all* the UNLESS conditions. Those that follow become more specific, eliminating one condition in each expression. Thus, if field 001 contains the letters "GHI," all the UNLESS expressions are true (except the last blank one), so the final THEN assignment is used for the calculation. If field 001 contains "ABC," the second UNLESS expression is false, so the THEN assignment immediately above the false UNLESS is used. This same process applies no matter how many UNLESS-THEN pairs are constructed.

Some Examples of Logical Expressions

END WHEN COUNT = 10

This expression (from the introduction to this appendix) references a report field named "COUNT." When the value of "COUNT" reaches 10, the report will be terminated automatically. This field is calculated with the following assignment:

COUNT = COUNT + 1

The field "COUNT" is incremented by one each time a new record is processed by REPORT. This field keeps track of how many records are used in the report.

END WHEN COUNT = 10 .OR. TOTAL > = 1000

This expression is also from the introduction. It is a compound logical expression. In addition to comparing the value of the field COUNT to a constant, it also compares the value of the field TOTAL to another constant. If either comparison tests true, the report will terminate.

PRINT WHEN TOTAL > = 1000.AND. CB (1) = 1

A line on the report will print only when two conditions are met simultaneously: The value of the field TOTAL must be at least one thousand at the same time that control break level one is occurring.

PRINT WHEN TOTAL > = 1000.AND. CB (1) = 0

Like the previous example, two conditions must be met. The value of the field TOTAL must exceed one thousand at the same time that control break level one is *not* occurring.

**COUNT = COUNT
UNLESS \$NAME = "SMITH"
THEN COUNT = COUNT + 1**

This set of field calculation expressions is designed to count only those records with the name Smith. If a record is processed that does not contain "SMITH" in the NAME field, the counter will not increase.

Appendix D. Preparing Report Index Fields for Reference Files

Introduction

This appendix supplements the procedures for setting up an index field for a reference file (procedure **2343**).

There are two ways to access datafiles with ReportStar:

When a datafile is accessed *sequentially*, each and every record is processed in order. The order may be from first record entered to last or in the sequence indicated by an index (.NDX) file.

When a datafile is accessed as a *reference* file, REPORT can use a specified report field as an index and "look up" particular data in another file, that is the *reference* file.

Data in reference files may be of any kind, but generally these files contain information which does not change often or changes only at certain well defined intervals. Typical uses for reference files are personnel records or customer names and addresses; these datafiles are not created or altered frequently.

Remember that a special report field must be established to direct ReportStar to obtain data from a reference file. This special field is called the *index field*. The data in the index field must be exactly the same as the *Key* to a specific record in the reference file.

Index Field and Key

The index field on your report can be loaded by different means. Most commonly, the index field is loaded from a sequential input file. It may also be loaded by operator entry during the report run, or it may be the result of a calculation. Whatever input method is used, the important thing to remember is that the data in the index field must *exactly* match the Key for the desired reference file record.

Take note that DataStar pads a Key field with space characters (hexadecimal code 20) before writing the Key value to the index file. If the Key field is three characters long but only two characters are entered into it, the index file will hold the two characters of the Key *plus* the space character that DataStar inserted.

This automatic padding of Key fields occurs only in the index file (.NDX). Only right-justified Key fields have edit characters recorded automatically in the datafile (.DTA). For all other fields, you must design an edit mask in ReportStar similar to the one in DataStar.

Matching the Key

The data value of the index *field* on your report must match the Key value of the index *file* (.NDX) for the reference datafile (.DTA).

If the reference file has only a single Key field, matching is relatively simple. Be certain that you pad the index field with space characters to protect the matching when the Key does not fill the field. Also be sure that the justification (right/left) of the index field is the same as the Key field in the datafile. If any edit characters have been assigned to the Key field, be sure they are also included in the index field. It will still match the value in the index file (.NDX) whether the index field is loaded from a file, by calculation, or by operator input.

If the reference file has multiple Key fields, they must all be combined into one index field on the report. This joining process is called *concatenation*.

Field values are joined together (end to end) when you use a string calculation. You must join each individual field value to the others in the proper sequence and calculate the result in the index field.

For example, suppose a simple reference file has a two level Key (two Key fields). Key Level 001 in the reference file is a customer identification number and Key Level 002 is the zip code. To extract needed data from this file (i.e., a balance due), a single report field must be assigned to contain the entire Key value (Levels 001 and 002) for the file.

The individual parts of the Key (the customer identification number and the zip code) will be loaded into separate fields on the report. A third field must be defined to contain the index. This index field will be a string calculation using the join operator (&). It might look something like this:

\$INDEX = \$CUSTID & \$ZIP

If you need to review string expressions, see Appendix C.

Remember that when you join fields to make an index, each of the discrete Key values (customer identification number and zip code) must be extended with spaces (within the index field) to match the Key in the index file. Use the substring feature (see Appendix C) to make certain that all space characters are extracted from the field that is loaded from the datafile.

Appendix E. Hexadecimal Equivalents for Logical Expressions

Use these hexadecimal values to evaluate string comparisons in ReportStar logical expressions.

ASCII	DECIMAL	HEXA DECIMAL	ASCII CODE	
^@	0	00H	"NUL"	Null Character
^A	1	01H	"SOH"	Start of Heading
^B	2	02H	"STX"	Start of Text
^C	3	03H	"ETX"	End of Text
^D	4	04H	"EOT"	End of Transmission
^E	5	05H	"ENQ"	Enquiry
^F	6	06H	"ACK"	Acknowledge
^G	7	07H	"BEL"	Bell
^H	8	08H	"BS"	Backspace
^I	9	09H	"HT"	Horizontal Tabulation
^J	10	0AH	"LF"	Line Feed
^K	11	0BH	"VT"	Vertical Tabulation
^L	12	0CH	"FF"	Form Feed
^M	13	0DH	"CR"	Carriage Return
^N	14	0EH	"SO"	Shift Out
^O	15	0FH	"SI"	Shift In
^P	16	10H	"DLE"	Data Link Escape
^Q	17	11H	"DC1"	Device Control 1
^R	18	12H	"DC2"	Device Control 2
^S	19	13H	"DC3"	Device Control 3
^T	20	14H	"DC4"	Device Control 4
^U	21	15H	"NAK"	Negative Acknowledge
^V	22	16H	"SYN"	Synchronous Idle
^W	23	17H	"ETB"	End of Transmission Block
^X	24	18H	"CAN"	Cancel
^Y	25	19H	"EM"	End of Medium
^Z	26	1AH	"SUB"	Substitute
^[	27	1BH	"ESC"	Escape
^\	28	1CH	"FS"	File Separator
^]	29	1DH	"GS"	Group Separator
^^	30	1EH	"RS"	Record Separator
^_	31	1FH	"US"	Unit Separator
	32	20H	"SP"	Space

Appendix E

Note: There is no distinction made between upper and lowercase letters in ReportStar logical expressions.

ASCII	DECIMAL	HEXA DECIMAL	ASCII	DECIMAL	HEXA DECIMAL
!	33	21H	P	80	50H
"	34	22H	Q	81	51H
#	35	23H	R	82	52H
\$	36	24H	S	83	53H
%	37	25H	T	84	54H
&	38	26H	U	85	55H
'	39	27H	V	86	56H
(	40	28H	W	87	57H
)	41	29H	X	88	58H
*	42	2AH	Y	89	59H
+	43	2BH	Z	90	5AH
,	44	2CH	[	91	5BH
-	45	2DH	\	92	5CH
.	46	2EH	]	93	5DH
/	47	2FH	^	94	5EH
			-	95	5FH
0	48	30H	'	96	60H
1	49	31H	a	97	61H
2	50	32H	b	98	62H
3	51	33H	c	99	63H
4	52	34H	d	100	64H
5	53	35H	e	101	65H
6	54	36H	f	102	66H
7	55	37H	g	103	67H
8	56	38H	h	104	68H
9	57	39H	i	105	69H
:	58	3AH	j	106	6AH
;	59	3BH	k	107	6BH
<	60	3CH	l	108	6CH
=	61	3DH	m	109	6DH
>	62	3EH	n	110	6EH
?	63	3FH	o	111	6FH
	64	40H	p	112	70H
A	65	41H	q	113	71H
B	66	42H	r	114	72H
C	67	43H	s	115	73H
D	68	44H	t	116	74H
E	69	45H	u	117	75H
F	70	46H	v	118	76H
G	71	47H	w	119	77H
H	72	48H	x	120	78H
I	73	49H	y	121	79H
J	74	4AH	z	122	7AH
K	75	4BH	{	123	7BH
L	76	4CH	|	124	7CH
M	77	4DH	~	125	7DH
N	78	4EH	~	126	7EH
O	79	4FH	DEL	127	7FH

Procedure Action Index

This index contains a list of specific procedures you can perform with ReportStar. Each entry begins with a verb denoting an action. Beneath each entry is the procedure number and page where the action is documented.

Use this index when you think of a specific action that you want to perform. Familiarizing yourself ahead of time with these index entries will save time when you want to find how to perform a specific action.

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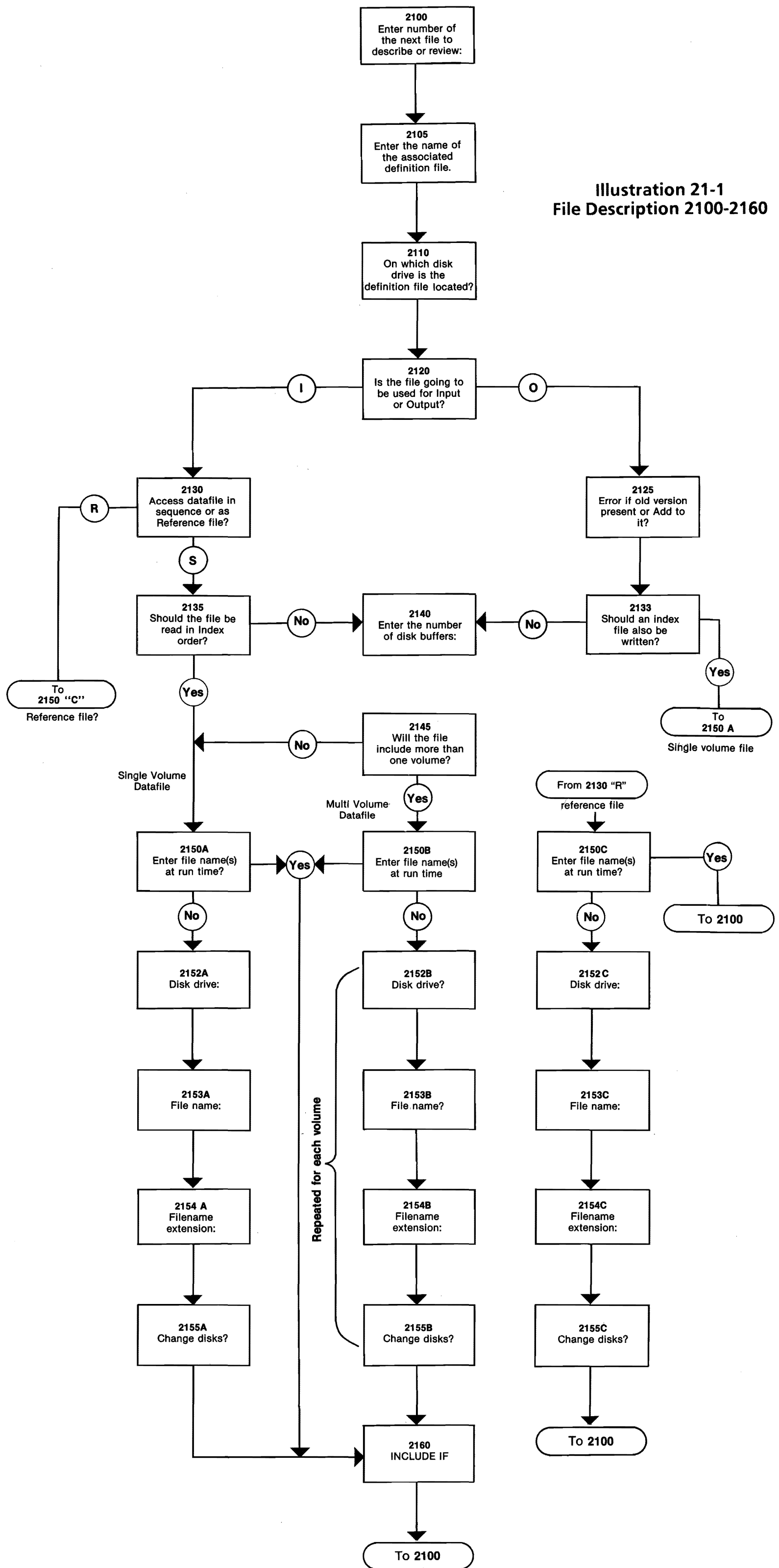
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**Illustration 23-1
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