

# Progress Report Builder Tutorial

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# Preface

## Purpose

This tutorial describes how Progress Report Builder generates reports and provides step-by-step instructions for creating eight sample reports.

## Audience

This book is intended for developers who want to use the Report Builder to generate reports. A knowledge of Progress and MS-Windows is assumed.

## Organization of This Manual

Chapter 1, "Introduction"

Describes the sample reports you can create in this tutorial and provides a preparation checklist.

Chapter 2, "Report Builder Basics"

Describes how Report Builder generates reports.

Chapter 3, "Accounts Receivable Report"

Describes how to create an accounts receivable report and introduces the five basic steps for creating a report definition.

Chapter 4, "Customer Address Report"

Describes how to create a report that displays the address information for all the customers in the Newsport database.

Chapter 5, “Mailing Labels”

Describes how to generate mailing labels.

Chapter 6, “Form Letters”

Describes how to produce form letters with Report Builder. The first form letter is a basic form letter that incorporates data from the Newsport database into the body of the letter. The second, more advanced letter uses one report definition to generate two different versions of the same letter.

Chapter 7, “Commission Report”

Describes how to create a report that computes the sales and commissions for each sales representative. It also computes the total sales and commissions, as well as bonuses and what percent of the total sales each sales representative generated.

Chapter 8, “Cross-tab Report”

Describes how to create a report that shows the sales of all the items in the Newsport database for each sales representative.

Chapter 9, “Invoice”

Describes how to create an invoice that utilizes swapped headers and swapped footers to print different information on the first and last pages of the invoice.

Chapter 10, “Green Bar Report”

Describes how to create green bar reports or reports that have alternating bars of color.

“Glossary”

## How to Use This Manual

Because it is a tutorial, each exercise builds on the knowledge of the previous exercises. Therefore, if you are unfamiliar with Report Builder, read Chapter 2, “Report Builder Basics,” then proceed through the exercises in the given order. If you are familiar with Report Builder, review the task list at the beginning of each chapter to see if the exercise covers the areas about which you want to learn.

## Typographical Conventions

This manual uses the following typographical conventions:

- **Bold typeface** indicates:
  - Commands or characters that the user types
  - That a word carries particular weight or emphasis
- *Italic typeface* indicates:
  - Progress variable information that the user supplies
  - New terms
  - Titles of complete publications
- `Monospaced typeface` indicates:
  - Code examples
  - System output
  - Operating system filenames and pathnames

The following typographical conventions are used to represent keystrokes:

- Small capitals are used for Progress key functions and generic keyboard keys.

  **END-ERROR**, **GET**, **GO**
  **ALT**, **CTRL**, **SPACEBAR**, **TAB**

- When you have to press a combination of keys, they are joined by a dash. You press and hold down the first key, then press the second key.

  **CTRL-X**

- When you have to press and release one key, then press another key, the key names are separated with a space.

  **ESCAPE H**
  **ESCAPE CURSOR-LEFT**

## Syntax Notation

The syntax for each component follows a set of conventions:

- Uppercase words are keywords. Although they are always shown in uppercase, you can use either uppercase or lowercase when using them in a procedure.

  In this example, ACCUM is a keyword:

  **SYNTAX**

  ```
  ACCUM aggregate expression
  ```

- Italics identify options or arguments that you must supply. These options can be defined as part of the syntax or in a separate syntax identified by the name in italics. In the ACCUM function above, the *aggregate* and *expression* options are defined with the syntax for the ACCUM function in the *Progress Language Reference*.

- You must end all statements (except for DO, FOR, FUNCTION, PROCEDURE, and REPEAT) with a period. DO, FOR, FUNCTION, PROCEDURE, and REPEAT statements can end with either a period or a colon, as in this example:

  ```
  FOR EACH Customer:
     DISPLAY Name.
  END.
  ```

- Square brackets ( **[ ]** ) around an item indicate that the item, or a choice of one of the enclosed items, is optional.

  In this example, STREAM *stream*, UNLESS-HIDDEN, and NO-ERROR are optional:

  **SYNTAX**

  ```
  DISPLAY [ STREAM stream ] [ UNLESS-HIDDEN ] [ NO-ERROR ]
  ```

In some instances, square brackets are not a syntax notation, but part of the language.

For example, this syntax for the INITIAL option uses brackets to bound an initial value list for an array variable definition. In these cases, normal text brackets ( [ ] ) are used:

**SYNTAX**

```
INITIAL [ constant [ , constant ] ... ]
```

**NOTE:** The ellipsis ( **...** ) indicates repetition, as shown in a following description.

- Braces ( **{ }** ) around an item indicate that the item, or a choice of one of the enclosed items, is required.

  In this example, you must specify the items BY and *expression* and can optionally specify the item DESCENDING, in that order:

  **SYNTAX**

  ```
  { BY expression [ DESCENDING ] }
  ```

  In some cases, braces are not a syntax notation, but part of the language.

  For example, a called external procedure must use braces when referencing arguments passed by a calling procedure. In these cases, normal text braces ( { } ) are used:

  **SYNTAX**

  ```
  { &argument-name }
  ```

- A vertical bar ( **|** ) indicates a choice.

  In this example, EACH, FIRST, and LAST are optional, but you can only choose one:

  **SYNTAX**

  ```
  PRESELECT [ EACH | FIRST | LAST ] record-phrase
  ```

In this example, you must select one of *logical-name* or *alias*:

**SYNTAX**

```
CONNECTED ( { logical-name | alias } )
```

- Ellipses ( **. . .** ) indicate that you can choose one or more of the preceding items. If a group of items is enclosed in braces and followed by ellipses, you must choose one or more of those items. If a group of items is enclosed in brackets and followed by ellipses, you can optionally choose one or more of those items.

  In this example, you must include two expressions, but you can optionally include more. Note that each subsequent expression must be preceded by a comma:

  **SYNTAX**

  ```
  MAXIMUM ( expression , expression [ , expression ] . . . )
  ```

  In this example, you must specify MESSAGE, then at least one of *expression* or SKIP, but any additional number of *expression* or SKIP is allowed:

  **SYNTAX**

  ```
  MESSAGE { expression | SKIP [ (n) ] } . . .
  ```

  In this example, you must specify {*include-file*, then optionally any number of *argument* or &*argument-name* = "*argument-value*", and then terminate with }:

  **SYNTAX**

  ```
  { include-file
      [ argument | &argument-name = "argument-value" ] . . . }
  ```

- In some examples, the syntax is too long to place in one horizontal row. In such cases, **optional** items appear individually bracketed in multiple rows in order, left-to-right and top-to-bottom. This order generally applies, unless otherwise specified. **Required** items also appear on multiple rows in the required order, left-to-right and top-to-bottom. In cases where grouping and order might otherwise be ambiguous, braced (required) or bracketed (optional) groups clarify the groupings.

  In this example, WITH is followed by several optional items:

  **SYNTAX**

```
WITH [ ACCUM max-length ] [ expression DOWN ]
  [ CENTERED ] [ n COLUMNS ] [ SIDE-LABELS ]
  [ STREAM-IO ]
```

  In this example, ASSIGN requires one of two choices: either one or more of *field*, or one of *record*. Other options available with either *field* or *record* are grouped with braces and brackets. The open and close braces indicate the required order of options:

  **SYNTAX**

```
ASSIGN {   { [ FRAME frame ]
               { field [ = expression ] }
               [ WHEN expression ]
           } ...
         | { record [ EXCEPT field ... ] }
       }
```

## Example Procedures

This manual provides numerous example procedures that illustrate syntax and concepts. Examples use the following conventions:

- They appear in boxes with borders.
- If they are available online, the name of the procedure appears above the left corner of the box and starts with a prefix associated with the manual that references it, as follows:
  - `e-` — *Progress External Program Interfaces*, for example, `e-ddeex1.p`
  - `lt-` — *Progress Language Tutorial* (Windows ), for example, `lt-05-s3.p`
  - `p-` — *Progress Programming Handbook*, for example, `p-br01.p`
  - `r-` — *Progress Language Reference*, for example, `r-dynbut.p`

  If the name does not start with a listed prefix, the procedure is not available online.
- If they are not available online, they compile as shown, but might not execute for lack of completeness.

### Accessing Files in Procedure Libraries

Documentation examples are stored in procedure libraries, `prodoc.pl` and `prohelp.pl`, in the `src` directory where Progress is installed.

You must first create all subdirectories required by a library before attempting to extract files from the library. You can see what directories and subdirectories a library needs by using the PROLIB -list command to view the contents of the library. See the *Progress Client Deployment Guide* for more details on the PROLIB utility.

Extracting source files from a procedure library involves running PROENV to set up your Progress environment, creating the directory structure for the files you want to extract, and running PROLIB.

1 ♦ From the Control Panel or the Progress Program Group, double-click the Proenv icon.

2 ♦ The Proenv Window appears, with the proenv prompt.

Running Proenv sets the DLC environment variable to the directory where you installed Progress (by default, `C:\Program Files\Progress`). Proenv also adds the DLC environment variable to your PATH environment variable and adds the bin directory (`PATH=%DLC%;%DLC%\bin;%PATH%`).

3 ♦ Enter the following command at the proenv prompt to create the `prodoc` directory in your Progress working directory (by default, `C:\Progress\Wrk`):

```
MKDIR prodoc
```

4 ♦ Create the `langref` directory under `prodoc`:

```
MKDIR prodoc\langref
```

5 ♦ To extract all examples in a procedure library directory, run the PROLIB utility. Note that you must use double quotes because “Program Files” contains an embedded space:

```
PROLIB "%DLC%\src\prodoc.pl" -extract prodoc\langref\*.*
```

PROLIB extracts all examples into `prodoc\langref`.

To extract one example, run PROLIB and specify the file that you want to extract as it is stored in the procedure library:

```
PROLIB "%DLC%\src\prodoc.pl" -extract prodoc/langref/r-syshlp.p
```

PROLIB extracts `r-syshlp.p` into `prodoc\langref`.

## Progress Messages

Progress displays several types of messages to inform you of routine and unusual occurrences:

- Execution messages inform you of errors encountered while Progress is running a procedure (for example, if Progress cannot find a record with a specified index field value).
- Compile messages inform you of errors found while Progress is reading and analyzing a procedure prior to running it (for example, if a procedure references a table name that is not defined in the database).
- Startup messages inform you of unusual conditions detected while Progress is getting ready to execute (for example, if you entered an invalid startup parameter).

After displaying a message, Progress proceeds in one of several ways:

- Continues execution, subject to the error-processing actions that you specify, or that are assumed, as part of the procedure. This is the most common action taken following execution messages.
- Returns to the Progress Procedure Editor so that you can correct an error in a procedure. This is the usual action taken following compiler messages.
- Halts processing of a procedure and returns immediately to the Procedure Editor. This does not happen often.
- Terminates the current session.

Progress messages end with a message number in parentheses. In this example, the message number is 200:

```
** Unknown table name table. (200)
```

Use Progress online help to get more information about Progress messages. Many Progress tools include the following Help menu options to provide information about messages:

- Choose Help→Recent Messages to display detailed descriptions of the most recent Progress message and all other messages returned in the current session.
- Choose Help→Messages, then enter the message number to display a description of any Progress message. (If you encounter an error that terminates Progress, make a note of the message number before restarting.)
- In the Procedure Editor, press the **HELP** key (**F2** or **CTRL-W**).

## Other Useful Documentation

This section lists Progress Software Corporation documentation that you might find useful. Unless otherwise specified, these manuals support both Windows **and** Character platforms and are provided in electronic documentation format on CD-ROM.

### Getting Started

*Progress Electronic Documentation Installation and Configuration Guide* (Hard copy only)

A booklet that describes how to install the Progress EDOC viewer and collection on UNIX and Windows.

*Progress Installation and Configuration Guide Version 9 for UNIX*

A manual that describes how to install and set up Progress Version 9.1 for the UNIX operating system.

*Progress Installation and Configuration Guide Version 9 for Windows*

A manual that describes how to install and set up Progress Version 9.1 for all supported Windows and Citrix MetaFrame operating systems.

*Progress Version 9 Product Update Bulletin*

A guide that provides a brief description of each new feature of the release. The booklet also explains where to find more detailed information in the documentation set about each new feature.

*Progress Application Development Environment — Getting Started* (Windows only)

A practical guide to graphical application development within the Progress Application Development Environment (ADE). This guide includes an overview of the ADE and its tools, an overview of Progress SmartObject technology, and tutorials and exercises that help you better understand SmartObject technology and how to use the ADE to develop applications.

*Progress Language Tutorial for Windows* and *Progress Language Tutorial for Character*

Platform-specific tutorials designed for new Progress users. The tutorials use a step-by-step approach to explore the Progress application development environment using the 4GL.

*Progress Master Glossary for Windows* and *Progress Master Glossary for Character* (EDOC only)

Platform-specific master glossaries for the Progress documentation set. These books are in electronic format only.

*Progress Master Index and Glossary for Windows* and *Progress Master Index and Glossary for Character* (Hard copy only)

Platform-specific master indexes and glossaries for the Progress hard-copy documentation set.

*Progress Startup Command and Parameter Reference*

A reference manual that describes the Progress startup commands and parameters in alphabetical order.

*Welcome to Progress* (Hard copy only)

A booklet that explains how Progress software and media are packaged. An icon-based map groups the documentation by functionality, providing an overall view of the documentation set. *Welcome to Progress* also provides descriptions of the various services Progress Software Corporation offers.

### Development Tools

*Progress ADM 2 Guide*

A guide to using the Application Development Model, Version 2 (ADM 2) application architecture to develop Progress applications. It includes instructions for building and using Progress SmartObjects.

*Progress ADM 2 Reference*

A reference for the Application Development Model, Version 2 (ADM 2) application. It includes descriptions of ADM 2 functions and procedures.

*Progress AppBuilder Developer's Guide* (Windows only)

A programmer's guide to using the Progress AppBuilder visual layout editor. AppBuilder is a Rapid Application Development (RAD) tool that can significantly reduce the time and effort required to create Progress applications.

*Progress Basic Database Tools* (Character only; information for Windows is in online help)

A guide for the Progress Database Administration tools, such as the Data Dictionary.

*Progress Basic Development Tools* (Character only; information for Windows is in online help)

A guide for the Progress development toolset, including the Progress Procedure Editor and the Application Compiler.

*Progress Debugger Guide*

A guide for the Progress Application Debugger. The Debugger helps you trace and correct programming errors by allowing you to monitor and modify procedure execution as it happens.

*Progress Help Development Guide* (Windows only)

A guide that describes how to develop and integrate an online help system for a Progress application.

*Progress Translation Manager Guide* (Windows only)

A guide that describes how to use the Progress Translation Manager tool to manage the entire process of translating the text phrases in Progress applications.

*Progress Visual Translator Guide* (Windows only)

A guide that describes how to use the Progress Visual Translator tool to translate text phrases from procedures into one or more spoken languages.

### Reporting Tools

*Progress Report Builder Deployment Guide* (Windows only)

An administration and development guide for generating Report Builder reports using the Progress Report Engine.

*Progress Report Builder User's Guide* (Windows only)

A guide for generating reports with the Progress Report Builder.

*Progress Results Administration and Development Guide* (Windows only)

A guide for system administrators that describes how to set up and maintain the Results product in a graphical environment. This guide also describes how to program, customize, and package Results with your own products. In addition, it describes how to convert character-based Results applications to graphical Results applications.

*Progress Results User's Guide for Windows* and *Progress Results User's Guide for UNIX*

Platform-specific guides for users with little or no programming experience that explain how to query, report, and update information with Results. Each guide also helps advanced users and application developers customize and integrate Results into their own applications.

## 4GL

*Building Distributed Applications Using the Progress AppServer*

A guide that provides comprehensive information about building and implementing distributed applications using the Progress AppServer. Topics include basic product information and terminology, design options and issues, setup and maintenance considerations, 4GL programming details, and remote debugging.

*Progress External Program Interfaces*

A guide to accessing non-Progress applications from Progress. This guide describes how to use system clipboards, UNIX named pipes, Windows dynamic link libraries, Windows dynamic data exchange, Windows ActiveX controls, and the Progress Host Language Call Interface to communicate with non-Progress applications and extend Progress functionality.

*Progress Internationalization Guide*

A guide to developing Progress applications for markets worldwide. The guide covers both internationalization—writing an application so that it adapts readily to different locales (languages, cultures, or regions)—and localization—adapting an application to different locales.

*Progress Language Reference*

A three-volume reference set that contains extensive descriptions and examples for each statement, phrase, function, operator, widget, attribute, method, and event in the Progress language.

*Progress Programming Handbook*

A two-volume handbook that details advanced Progress programming techniques.

### Database

*Progress Database Design Guide*

A guide that uses a sample database and the Progress Data Dictionary to illustrate the fundamental principles of relational database design. Topics include relationships, normalization, indexing, and database triggers.

*Progress Database Administration Guide and Reference*

This guide describes Progress database administration concepts and procedures. The procedures allow you to create and maintain your Progress databases and manage their performance.

### DataServers

Progress DataServer Guides

These guides describe how to use the DataServers to access non-Progress databases. They provide instructions for building the DataServer modules, a discussion of programming considerations, and a tutorial. Each DataServer has its own guide, for example, the *Progress DataServer for ODBC Guide*, the *Progress DataServer for ORACLE Guide*, or the *Progress/400 Product Guide*.

MERANT ODBC Branded Driver Reference

The Enterprise DataServer for ODBC includes MERANT ODBC drivers for all the supported data sources. For configuration information, see the MERANT documentation, which is available as a PDF file in *installation-path*\odbc. To read this file you must have the Adobe Acrobat Reader Version 3.1 or higher installed on your system. If you do not have the Adobe Acrobat Reader, you can download it from the Adobe Web site at: http://www.adobe.com/prodindex/acrobat/readstep.html.

### SQL-89/Open Access

*Progress Embedded SQL-89 Guide and Reference*

A guide to Progress Embedded SQL-89 for C, including step-by-step instructions on building ESQL-89 applications and reference information on all Embedded SQL-89 Preprocessor statements and supporting function calls. This guide also describes the relationship between ESQL-89 and the ANSI standards upon which it is based.

*Progress Open Client Developer's Guide*

A guide that describes how to write and deploy Java and ActiveX applications that run as clients of the Progress AppServer. The guide includes information about how to expose the AppServer as a set of Java classes or as an ActiveX server.

*Progress SQL-89 Guide and Reference*

A user guide and reference for programmers who use interactive Progress/SQL-89. It includes information on all supported SQL-89 statements, SQL-89 Data Manipulation Language components, SQL-89 Data Definition Language components, and supported Progress functions.

### SQL-92

*Progress Embedded SQL-92 Guide and Reference*

A guide to Progress Embedded SQL-92 for C, including step-by-step instructions for building ESQL-92 applications and reference information about all Embedded SQL-92 Preprocessor statements and supporting function calls. This guide also describes the relationship between ESQL-92 and the ANSI standards upon which it is based.

*Progress JDBC Driver Guide*

A guide to the Java Database Connectivity (JDBC) interface and the Progress SQL-92 JDBC driver. It describes how to set up and use the driver and details the driver's support for the JDBC interface.

*Progress ODBC Driver Guide*

A guide to the ODBC interface and the Progress SQL-92 ODBC driver. It describes how to set up and use the driver and details the driver's support for the ODBC interface.

*Progress SQL-92 Guide and Reference*

A user guide and reference for programmers who use Progress SQL-92. It includes information on all supported SQL-92 statements, SQL-92 Data Manipulation Language components, SQL-92 Data Definition Language components, and Progress functions. The guide describes how to use the Progress SQL-92 Java classes and how to create and use Java stored procedures and triggers.

### Deployment

*Progress Client Deployment Guide*

A guide that describes the client deployment process and application administration concepts and procedures.

*Progress Developer's Toolkit*

A guide to using the Developer's Toolkit. This guide describes the advantages and disadvantages of different strategies for deploying Progress applications and explains how you can use the Toolkit to deploy applications with your selected strategy.

*Progress Portability Guide*

A guide that explains how to use the Progress toolset to build applications that are portable across all supported operating systems, user interfaces, and databases, following the Progress programming model.

### WebSpeed

*Getting Started with WebSpeed*

Provides an introduction to the WebSpeed Workshop tools for creating Web applications. It introduces you to all the components of the WebSpeed Workshop and takes you through the process of creating your own Intranet application.

*WebSpeed Installation and Configuration Guide*

Provides instructions for installing WebSpeed on Windows and UNIX systems. It also discusses designing WebSpeed environments, configuring WebSpeed Brokers, WebSpeed Agents, and the NameServer, and connecting to a variety of data sources.

*WebSpeed Developer's Guide*

Provides a complete overview of WebSpeed and the guidance necessary to develop and deploy WebSpeed applications on the Web.

*WebSpeed Version 3 Product Update Bulletin*

A booklet that provides a brief description of each new feature of the release. The booklet also explains where to find more detailed information in the documentation set about each new feature.

*Welcome to WebSpeed*(Hard copy only)

A booklet that explains how WebSpeed software and media are packaged. *Welcome to WebSpeed* also provides descriptions of the various services Progress Software Corporation offers.

### Reference

*Pocket Progress* (Hard copy only)

A reference that lets you quickly look up information about the Progress language or programming environment.

*Pocket WebSpeed* (Hard copy only)

A reference that lets you quickly look up information about the SpeedScript language or the WebSpeed programming environment.

# 1

# Introduction

This chapter describes how to use this tutorial. Specifically, it provides:

- A description of each sample report
- A preparation checklist
- A description of the Newsport database

## 1.1 Description of Each Report

This tutorial shows you how to create the following sample reports:

- Accounts receivable report
- Customer address report
- Mailing labels
- Form letters
- Commission report
- Cross-tab report
- Invoices
- Green bar paper report

This tutorial provides step-by-step instructions for producing eight sample reports. These reports are not designed to show you the complete functionality of Report Builder, but rather to provide examples of reports you might want to create. All the sample reports use the Newsport database as the source for their data. Therefore, to produce the reports in this book, you must have access to this database. See the "Newsport Database" section later in this chapter for information about the Newsport database.

The sample reports start in Chapter 3, "Accounts Receivable Report," with a basic accounts receivable report, and cover progressively more complex reports in each chapter. The `Tutorial.prl` report library contains completed report definitions for each of the sample reports. See Chapter 2, "Report Builder Basics," for a description of a report library and report definitions.

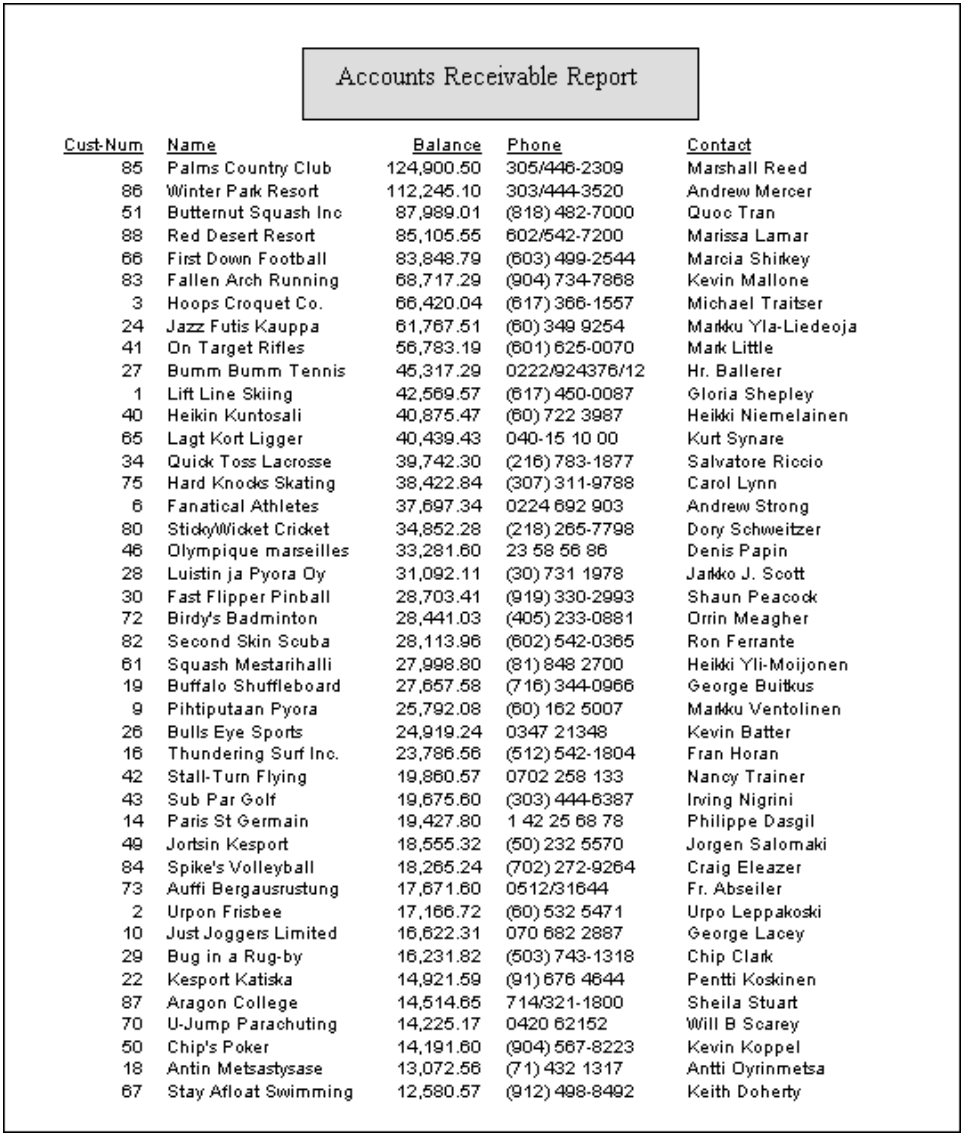
### 1.1.1 Accounts Receivable Report

Chapter 3, "Accounts Receivable Report," not only describes how to create an accounts receivable report, but also introduces the five basic steps for creating a report definition. (See Chapter 2, "Report Builder Basics," for a description of a report definition and how Report Builder uses it to create a report.)

Chapter 3, "Accounts Receivable Report," also explains many of the basic tasks you perform to create reports. You will learn how to:

- Use the Instant Layout option
- Preview a report
- Change the sort order
- Remove fields from the layout
- Insert band lines on the layout
- Insert and edit text fields
- Change a field's font, point size, and style
- Create and modify a rectangle
- Save a report definition
- Print a report

When you complete the tasks in this chapter, you will produce the report shown in Figure 1–1. You can also generate this report using the Accounts Receivable Sample report definition in the `Tutorial.prl` report library.



Accounts Receivable Report

| Cust-Num | Name | Balance | Phone | Contact |
|---|---|---|---|---|
| 85 | Palms Country Club | 124,900.50 | 305/446-2309 | Marshall Reed |
| 86 | Winter Park Resort | 112,245.10 | 303/444-3520 | Andrew Mercer |
| 51 | Butternut Squash Inc | 87,989.01 | (818) 482-7000 | Quoc Tran |
| 88 | Red Desert Resort | 85,105.55 | 602/542-7200 | Marissa Lamar |
| 66 | First Down Football | 83,848.79 | (603) 499-2544 | Marcia Shirkey |
| 83 | Fallen Arch Running | 68,717.29 | (904) 734-7868 | Kevin Mallone |
| 3 | Hoops Croquet Co. | 66,420.04 | (617) 366-1557 | Michael Traitser |
| 24 | Jazz Futis Kauppa | 61,767.51 | (60) 349 9254 | Markku Yla-Liedeoja |
| 41 | On Target Rifles | 56,783.19 | (601) 625-0070 | Mark Little |
| 27 | Bumm Bumm Tennis | 45,317.29 | 0222/924376/12 | Hr. Ballerer |
| 1 | Lift Line Skiing | 42,569.57 | (617) 450-0087 | Gloria Shepley |
| 40 | Heikin Kuntosali | 40,875.47 | (60) 722 3987 | Heikki Niemelainen |
| 65 | Lagt Kort Ligger | 40,439.43 | 040-15 10 00 | Kurt Synare |
| 34 | Quick Toss Lacrosse | 39,742.30 | (216) 783-1877 | Salvatore Riccio |
| 75 | Hard Knocks Skating | 38,422.84 | (307) 311-9788 | Carol Lynn |
| 6 | Fanatical Athletes | 37,697.34 | 0224 692 903 | Andrew Strong |
| 80 | StickyWicket Cricket | 34,852.28 | (218) 265-7798 | Dory Schweitzer |
| 46 | Olympique marseilles | 33,281.60 | 23 58 56 86 | Denis Papin |
| 28 | Luistin ja Pyora Oy | 31,092.11 | (30) 731 1978 | Jarkko J. Scott |
| 30 | Fast Flipper Pinball | 28,703.41 | (919) 330-2993 | Shaun Peacock |
| 72 | Birdy's Badminton | 28,441.03 | (405) 233-0881 | Orrin Meagher |
| 82 | Second Skin Scuba | 28,113.96 | (602) 542-0365 | Ron Ferrante |
| 61 | Squash Mestarihalli | 27,998.80 | (81) 848 2700 | Heikki Yli-Moijonen |
| 19 | Buffalo Shuffleboard | 27,657.58 | (716) 344-0966 | George Buitkus |
| 9 | Pihtiputaan Pyora | 25,792.08 | (60) 162 5007 | Markku Ventolinen |
| 26 | Bulls Eye Sports | 24,919.24 | 0347 21348 | Kevin Batter |
| 16 | Thundering Surf Inc. | 23,786.56 | (512) 542-1804 | Fran Horan |
| 42 | Stall-Turn Flying | 19,860.57 | 0702 258 133 | Nancy Trainer |
| 43 | Sub Par Golf | 19,675.60 | (303) 444-6387 | Irving Nigrini |
| 14 | Paris St Germain | 19,427.80 | 1 42 25 68 78 | Philippe Dasgil |
| 49 | Jortsin Kesport | 18,555.32 | (50) 232 5570 | Jorgen Salomaki |
| 84 | Spike's Volleyball | 18,265.24 | (702) 272-9264 | Craig Eleazer |
| 73 | Auffi Bergausrustung | 17,671.60 | 0512/31644 | Fr. Abseiler |
| 2 | Urpon Frisbee | 17,166.72 | (60) 532 5471 | Urpo Leppakoski |
| 10 | Just Joggers Limited | 16,622.31 | 070 682 2887 | George Lacey |
| 29 | Bug in a Rug-by | 16,231.82 | (503) 743-1318 | Chip Clark |
| 22 | Kesport Katiska | 14,921.59 | (91) 676 4644 | Pentti Koskinen |
| 87 | Aragon College | 14,514.65 | 714/321-1800 | Sheila Stuart |
| 70 | U-Jump Parachuting | 14,225.17 | 0420 62152 | Will B Scarey |
| 50 | Chip's Poker | 14,191.60 | (904) 567-8223 | Kevin Koppel |
| 18 | Antin Metsastysase | 13,072.56 | (71) 432 1317 | Antti Oyrinmetsa |
| 67 | Stay Afloat Swimming | 12,580.57 | (912) 498-8492 | Keith Doherty |

**Figure 1–1: Accounts Receivable Report**

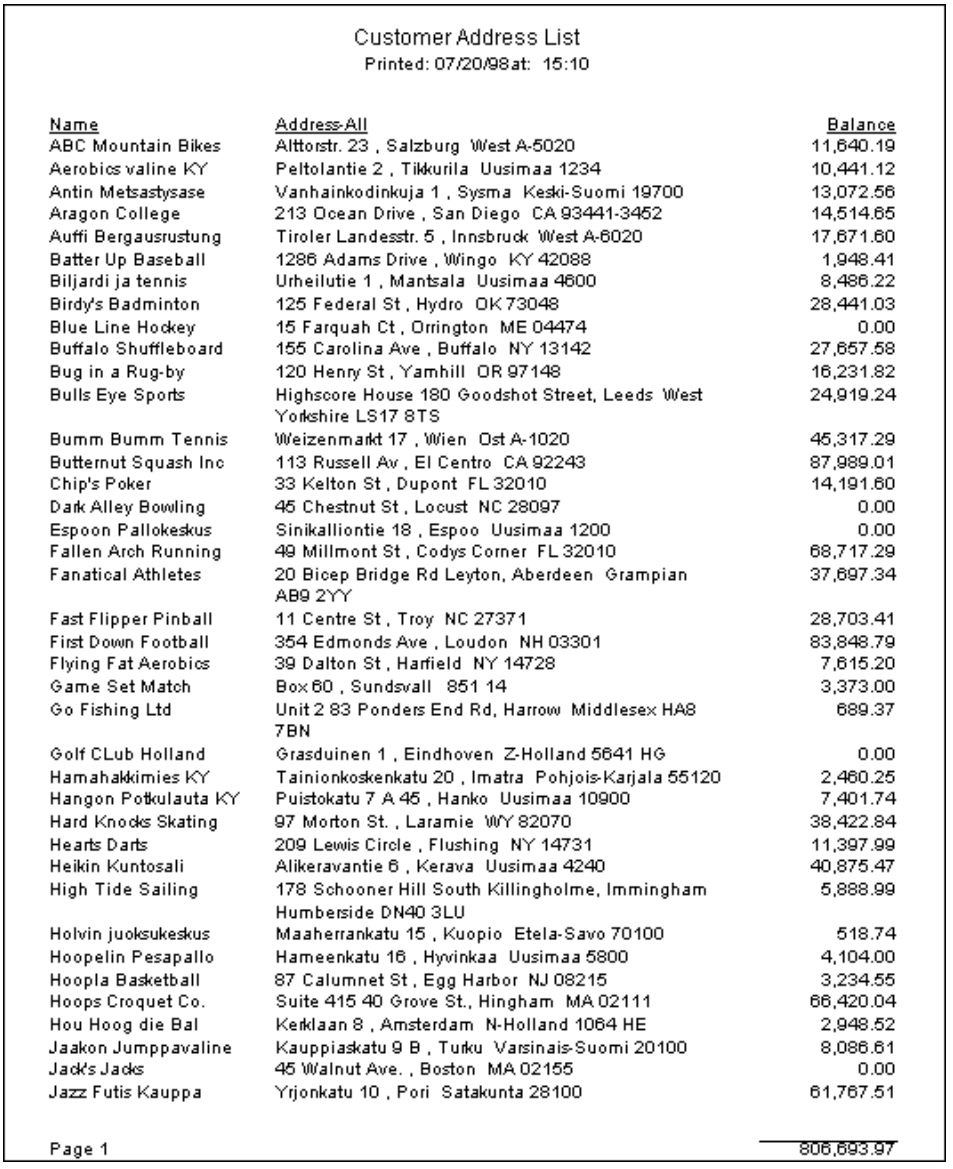
### 1.1.2 Customer Address Report

The report in Chapter 4, "Customer Address Report," displays the address information for all the customers in the Newsport database.

While creating the report, you will learn how to:

- Create a calculated field
- Create an aggregate field
- Insert a user-defined field
- Draw a line
- Adjust field width and alignment
- Specify band line justification
- Remove spaces between fields with the Merge Left option

When you complete the tasks in this chapter, you will produce the report shown in Figure 1–2. The Customer Address Sample report definition also generates this report.



Customer Address List

Printed: 07/20/98 at: 15:10

| Name | Address-All | Balance |
|---|---|---|
| ABC Mountain Bikes | Alttorstr. 23 , Salzburg West A-5020 | 11,640.19 |
| Aerobics valine KY | Peltolantie 2 , Tikkurila Uusimaa 1234 | 10,441.12 |
| Antin Metsastysase | Vanhainkodinkuja 1 , Sysma Keski-Suomi 19700 | 13,072.56 |
| Aragon College | 213 Ocean Drive , San Diego CA 93441-3452 | 14,514.65 |
| Auffi Bergausrustung | Tiroler Landesstr. 5 , Innsbruck West A-6020 | 17,671.60 |
| Batter Up Baseball | 1286 Adams Drive , Wingo KY 42088 | 1,948.41 |
| Biljardi ja tennis | Urheilutie 1 , Mantsala Uusimaa 4600 | 8,486.22 |
| Birdy's Badminton | 125 Federal St , Hydro OK 73048 | 28,441.03 |
| Blue Line Hockey | 15 Farquah Ct , Orrington ME 04474 | 0.00 |
| Buffalo Shuffleboard | 155 Carolina Ave , Buffalo NY 13142 | 27,657.58 |
| Bug in a Rug-by | 120 Henry St , Yamhill OR 97148 | 16,231.82 |
| Bulls Eye Sports | Highscore House 180 Goodshot Street, Leeds West Yorkshire LS17 8TS | 24,919.24 |
| Bumm Bumm Tennis | Weizenmarkt 17 , Wien Ost A-1020 | 45,317.29 |
| Butternut Squash Inc | 113 Russell Av , El Centro CA 92243 | 87,989.01 |
| Chip's Poker | 33 Kelton St , Dupont FL 32010 | 14,191.60 |
| Dark Alley Bowling | 45 Chestnut St , Locust NC 28097 | 0.00 |
| Espoon Pallokeskus | Sinikalliontie 18 , Espoo Uusimaa 1200 | 0.00 |
| Fallen Arch Running | 49 Millmont St , Codys Corner FL 32010 | 68,717.29 |
| Fanatical Athletes | 20 Bicep Bridge Rd Leyton, Aberdeen Grampian AB9 2YY | 37,697.34 |
| Fast Flipper Pinball | 11 Centre St , Troy NC 27371 | 28,703.41 |
| First Down Football | 354 Edmonds Ave , Loudon NH 03301 | 83,848.79 |
| Flying Fat Aerobics | 39 Dalton St , Harfield NY 14728 | 7,615.20 |
| Game Set Match | Box 60 , Sundsvall 851 14 | 3,373.00 |
| Go Fishing Ltd | Unit 2 83 Ponders End Rd, Harrow Middlesex HA8 7BN | 689.37 |
| Golf CLub Holland | Grasduinen 1 , Eindhoven Z-Holland 5641 HG | 0.00 |
| Hamahakkimies KY | Tainionkoskenkatu 20 , Imatra Pohjois-Karjala 55120 | 2,460.25 |
| Hangon Potkulauta KY | Puistokatu 7 A 45 , Hanko Uusimaa 10900 | 7,401.74 |
| Hard Knocks Skating | 97 Morton St. , Laramie WY 82070 | 38,422.84 |
| Hearts Darts | 209 Lewis Circle , Flushing NY 14731 | 11,397.99 |
| Heikin Kuntosali | Alikeravantie 6 , Kerava Uusimaa 4240 | 40,875.47 |
| High Tide Sailing | 178 Schooner Hill South Killingholme, Immingham Humberside DN40 3LU | 5,888.99 |
| Holvin juoksukeskus | Maaherrankatu 15 , Kuopio Etela-Savo 70100 | 518.74 |
| Hoopelin Pesapallo | Hameenkatu 16 , Hyvinkaa Uusimaa 5800 | 4,104.00 |
| Hoopla Basketball | 87 Calumnet St , Egg Harbor NJ 08215 | 3,234.55 |
| Hoops Croquet Co. | Suite 415 40 Grove St., Hingham MA 02111 | 66,420.04 |
| Hou Hoog die Bal | Kerklaan 8 , Amsterdam N-Holland 1064 HE | 2,948.52 |
| Jaakon Jumppavaline | Kauppiaskatu 9 B , Turku Varsinais-Suomi 20100 | 8,086.61 |
| Jack's Jacks | 45 Walnut Ave. , Boston MA 02155 | 0.00 |
| Jazz Futis Kauppa | Yrjonkatu 10 , Pori Satakunta 28100 | 61,767.51 |
| Page 1 | | 806,693.97 |

**Figure 1–2: Customer Address Report**

### 1.1.3 Mailing Labels

Although you might not consider mailing labels a type of report, you can produce them with Report Builder. See Chapter 5, "Mailing Labels," for a description of how to generate mailing labels and how to:

- Use the default Report Builder layout
- Create multiple band lines
- Display field names instead of field formats on the layout
- Specify the label size
- Adjust the page margins

When you complete the tasks in this chapter, you will produce the mailing labels shown in Figure 1–3. See the Mailing Labels Sample report definition in Chapter 5, "Mailing Labels," to see the completed report layout.




**Figure 1–3: Mailing Labels**

### 1.1.4 Form Letters

Many businesses use form letters to communicate with customers. Chapter 6, "Form Letters," shows how to produce two separate form letters with Report Builder. The first form letter is a basic form letter that incorporates data from the Newsport database into the body of the letter. The second, more advanced letter uses one report definition to generate two different versions of the same letter.

While creating these letters, you will learn how to:

- Prepare a memo file
- Define a join
- Define a filter
- Attach a memo file to a report definition
- Print different versions of the same form letter

Figure 1–4 shows the first letter you create. The Recall Form Letter Sample report definition generates this report.



07/15/95

Gloria Shepley
Lift Line Skiing
276 North Street
Boston, MA 02114

Dear Gloria Shepley,

This letter is to inform you that we are recalling our All Around Sports Swim Goggles, which is Item number: 00009, because independent testing has found that normal use of this product can possibly cause injury.

Please call your sales representative to make arrangements for returning any Swim Goggles that you have in stock. If you have sold any Swim Goggles, please attempt to retrieve them.

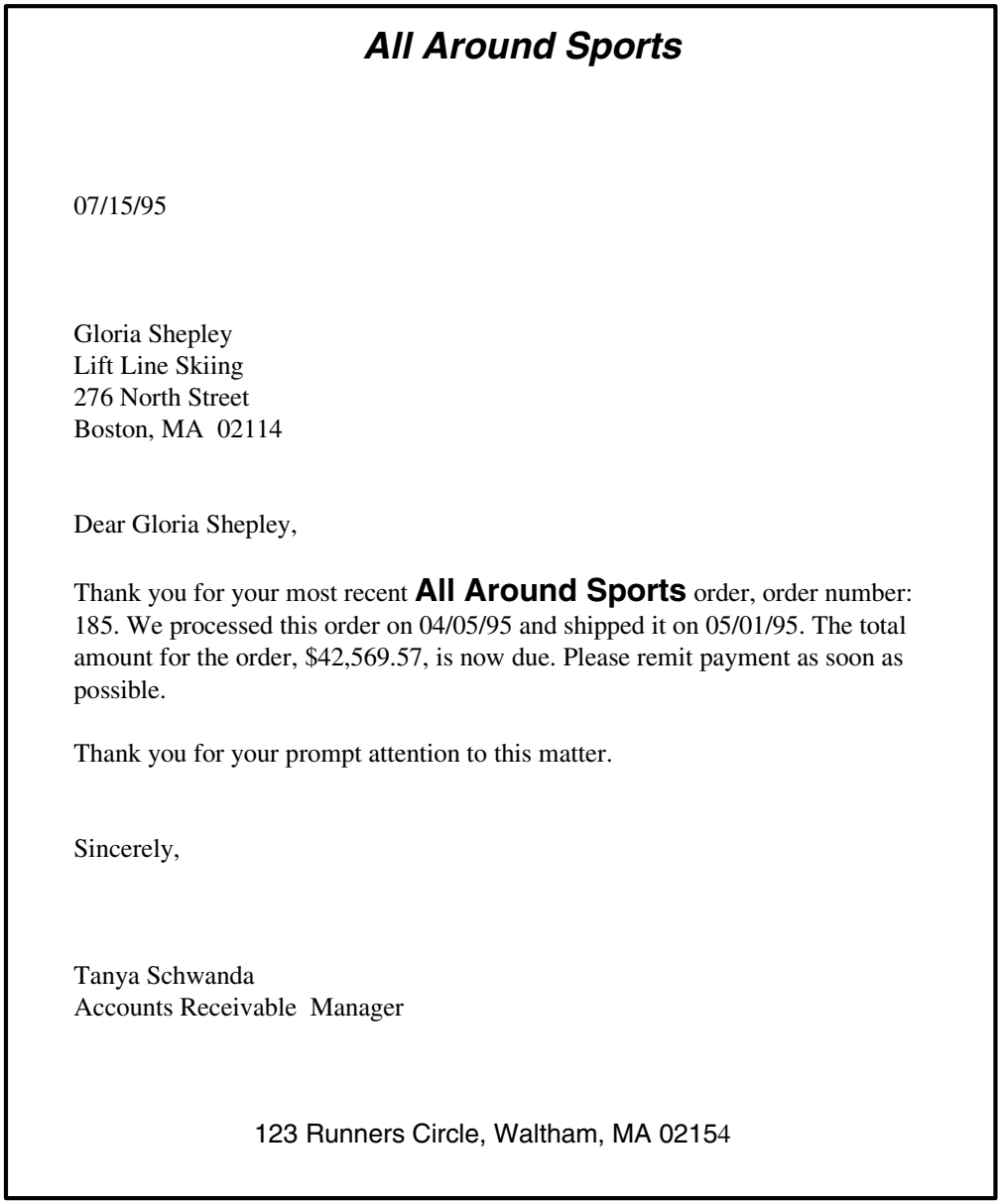
We apologize for any inconvenience or injury this product may have caused.

Sincerely,

Todd Winmill
Quality Assurance Manager

**Figure 1–4: Recall Form Letter**

Figure 1–5 shows one version of the second letter. See Chapter 6, "Form Letters," to see the other version of the letter or the Payment Letter Sample report definition.



***All Around Sports***

07/15/95

Gloria Shepley
Lift Line Skiing
276 North Street
Boston, MA 02114

Dear Gloria Shepley,

Thank you for your most recent **All Around Sports** order, order number: 185. We processed this order on 04/05/95 and shipped it on 05/01/95. The total amount for the order, $42,569.57, is now due. Please remit payment as soon as possible.

Thank you for your prompt attention to this matter.

Sincerely,

Tanya Schwanda
Accounts Receivable Manager

123 Runners Circle, Waltham, MA 02154

**Figure 1–5: Payment Notification Letter**

### 1.1.5 Commission Report

The commission report described in Chapter 7, "Commission Report," computes the sales and commissions for each sales representative. It also uses aggregate fields, calculated fields, and a user-defined function to compute the total sales and commissions, as well as bonuses and what percent of the total sales each sales representative generated.

While creating this report, you will learn how to:

- Specify a group order
- Create a group header and a group footer
- Create a user-defined function (UDF)
- Conditionally print record lines

Figure 1–6 shows the top of the first page of the commission report. You can also generate this report with the Commission Report Sample report definition.

COMMISSION REPORT

Commission and Sales for 1/1/95 to 6/30/95

Sales-Rep ARM

| Order-num | Order-Total | | Comm-Amt |
|---|---|---|---|
| 29 | 496.61 | | 24.83 |
| 128 | 10,055.51 | | 1,005.55 |
| 206 | 2,451.91 | | 245.19 |
| Sales-Rep-Total | 13,004.03 | Comm-Total | 1,275.57 |
| Percent-of-Total | 0.72 | | |

Sales-Rep BKO

| Order-num | Order-Total | Comm-Amt |
|---|---|---|
| 8 | 4,104.00 | 410.40 |
| 10 | 771.59 | 38.58 |
| 11 | 3,990.23 | 399.02 |
| 13 | 5,267.67 | 526.77 |
| 15 | 4,603.72 | 460.37 |
| 16 | 342.00 | 17.10 |
| 17 | 1,024.99 | 51.25 |
| 27 | 518.74 | 25.94 |
| 28 | 5,655.20 | 565.52 |
| 30 | 7,108.09 | 710.81 |
| 31 | 5,721.46 | 572.15 |
| 34 | 4,835.33 | 483.53 |
| 37 | 3,069.04 | 306.90 |
| 48 | 6,428.08 | 642.81 |
| 50 | 446.09 | 22.30 |
| 51 | 3,110.99 | 311.10 |
| 53 | 2,610.89 | 261.09 |
| 56 | 435.87 | 21.79 |
| 61 | 5,200.38 | 520.04 |
| 64 | 26,912.81 | 2,691.28 |
| 65 | 4,193.10 | 419.31 |
| 68 | 1,005.00 | 50.25 |
| 74 | 1,550.79 | 77.54 |
| 75 | 950.40 | 47.52 |
| 81 | 4,502.45 | 450.25 |
| 84 | 4,975.62 | 497.56 |

Page 1

**Figure 1–6: Commission Report**

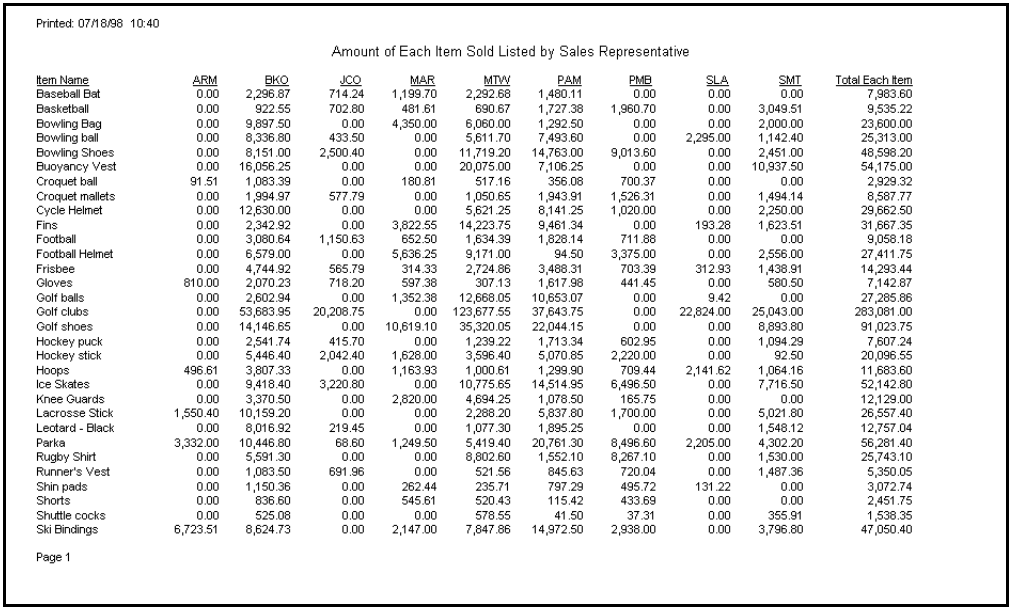
### 1.1.6 Cross-tab Report

Cross-tab reports display totals for both rows and columns. The report in Chapter 8, "Cross-tab Report," shows the sales of all the items in the Newsport database for each sales representative.

While creating this report you will learn how to:

- Change the paper size
- Change the page orientation
- Change the number of digits in a numeric field

Figure 1–7 shows the first page of the report you create in Chapter 8, "Cross-tab Report,"



Printed: 07/18/98 10:40

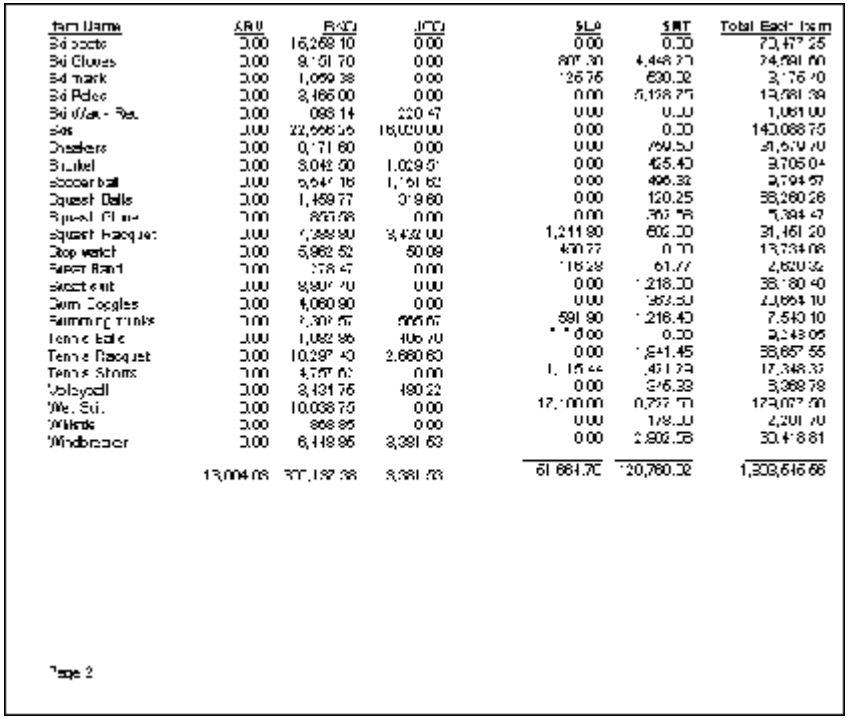
Amount of Each Item Sold Listed by Sales Representative

| Item Name | ARM | BKO | JCO | MAR | MTW | PAM | PMB | SLA | SMT | Total Each Item |
|---|---|---|---|---|---|---|---|---|---|---|
| Baseball Bat | 0.00 | 2,296.87 | 714.24 | 1,199.70 | 2,292.68 | 1,480.11 | 0.00 | 0.00 | 0.00 | 7,983.60 |
| Basketball | 0.00 | 922.55 | 702.80 | 481.61 | 690.67 | 1,727.38 | 1,960.70 | 0.00 | 3,049.51 | 9,535.22 |
| Bowling Bag | 0.00 | 9,897.50 | 0.00 | 4,350.00 | 6,060.00 | 1,292.50 | 0.00 | 0.00 | 2,000.00 | 23,600.00 |
| Bowling ball | 0.00 | 8,336.80 | 433.50 | 0.00 | 5,611.70 | 7,493.60 | 0.00 | 2,295.00 | 1,142.40 | 25,313.00 |
| Bowling Shoes | 0.00 | 8,151.00 | 2,500.40 | 0.00 | 11,719.20 | 14,763.00 | 9,013.60 | 0.00 | 2,451.00 | 48,598.20 |
| Buoyancy Vest | 0.00 | 16,056.25 | 0.00 | 0.00 | 20,075.00 | 7,106.25 | 0.00 | 0.00 | 10,937.50 | 54,175.00 |
| Croquet ball | 91.51 | 1,083.39 | 0.00 | 180.81 | 517.16 | 356.08 | 700.37 | 0.00 | 0.00 | 2,929.32 |
| Croquet mallets | 0.00 | 1,994.97 | 577.79 | 0.00 | 1,050.65 | 1,943.91 | 1,526.31 | 0.00 | 1,494.14 | 8,587.77 |
| Cycle Helmet | 0.00 | 12,630.00 | 0.00 | 0.00 | 5,621.25 | 8,141.25 | 1,020.00 | 0.00 | 2,250.00 | 29,662.50 |
| Fins | 0.00 | 2,342.92 | 0.00 | 3,822.55 | 14,223.75 | 9,461.34 | 0.00 | 193.28 | 1,623.51 | 31,667.35 |
| Football | 0.00 | 3,080.64 | 1,150.63 | 652.50 | 1,634.39 | 1,828.14 | 711.88 | 0.00 | 0.00 | 9,058.18 |
| Football Helmet | 0.00 | 6,579.00 | 0.00 | 5,636.25 | 9,171.00 | 94.50 | 3,375.00 | 0.00 | 2,556.00 | 27,411.75 |
| Frisbee | 0.00 | 4,744.92 | 565.79 | 314.33 | 2,724.86 | 3,488.31 | 703.39 | 312.93 | 1,438.91 | 14,293.44 |
| Gloves | 810.00 | 2,070.23 | 718.20 | 597.38 | 307.13 | 1,617.98 | 441.45 | 0.00 | 580.50 | 7,142.87 |
| Golf balls | 0.00 | 2,602.94 | 0.00 | 1,352.38 | 12,668.05 | 10,653.07 | 0.00 | 9.42 | 0.00 | 27,285.86 |
| Golf clubs | 0.00 | 53,683.95 | 20,208.75 | 0.00 | 123,677.55 | 37,643.75 | 0.00 | 22,824.00 | 25,043.00 | 283,081.00 |
| Golf shoes | 0.00 | 14,146.65 | 0.00 | 10,619.10 | 35,320.05 | 22,044.15 | 0.00 | 0.00 | 8,893.80 | 91,023.75 |
| Hockey puck | 0.00 | 2,541.74 | 415.70 | 0.00 | 1,239.22 | 1,713.34 | 602.95 | 0.00 | 1,094.29 | 7,607.24 |
| Hockey stick | 0.00 | 5,446.40 | 2,042.40 | 1,628.00 | 3,596.40 | 5,070.85 | 2,220.00 | 0.00 | 92.50 | 20,096.55 |
| Hoops | 496.61 | 3,807.33 | 0.00 | 1,163.93 | 1,000.61 | 1,299.90 | 709.44 | 2,141.62 | 1,064.16 | 11,683.60 |
| Ice Skates | 0.00 | 9,418.40 | 3,220.80 | 0.00 | 10,775.65 | 14,514.95 | 6,496.50 | 0.00 | 7,716.50 | 52,142.80 |
| Knee Guards | 0.00 | 3,370.50 | 0.00 | 2,820.00 | 4,694.25 | 1,078.50 | 165.75 | 0.00 | 0.00 | 12,129.00 |
| Lacrosse Stick | 1,550.40 | 10,159.20 | 0.00 | 0.00 | 2,288.20 | 5,837.80 | 1,700.00 | 0.00 | 5,021.80 | 26,557.40 |
| Leotard - Black | 0.00 | 8,016.92 | 219.45 | 0.00 | 1,077.30 | 1,895.25 | 0.00 | 0.00 | 1,548.12 | 12,757.04 |
| Parka | 3,332.00 | 10,446.80 | 68.60 | 1,249.50 | 5,419.40 | 20,761.30 | 8,496.60 | 2,205.00 | 4,302.20 | 56,281.40 |
| Rugby Shirt | 0.00 | 5,591.30 | 0.00 | 0.00 | 8,802.60 | 1,552.10 | 8,267.10 | 0.00 | 1,530.00 | 25,743.10 |
| Runner's Vest | 0.00 | 1,083.50 | 691.96 | 0.00 | 521.56 | 845.63 | 720.04 | 0.00 | 1,487.36 | 5,350.05 |
| Shin pads | 0.00 | 1,150.36 | 0.00 | 262.44 | 235.71 | 797.29 | 495.72 | 131.22 | 0.00 | 3,072.74 |
| Shorts | 0.00 | 836.60 | 0.00 | 545.61 | 520.43 | 115.42 | 433.69 | 0.00 | 0.00 | 2,451.75 |
| Shuttle cocks | 0.00 | 525.08 | 0.00 | 0.00 | 578.55 | 41.50 | 37.31 | 0.00 | 355.91 | 1,538.35 |
| Ski Bindings | 6,723.51 | 8,624.73 | 0.00 | 2,147.00 | 7,847.86 | 14,972.50 | 2,938.00 | 0.00 | 3,796.80 | 47,050.40 |

Page 1

**Figure 1–7: Cross-tab Report—Page 1**

Figure 1–8 shows the second page of this report you create in Chapter 8, “Cross-tab Report.”



| Item Name | ARV | RKO | JCO | SLA | SMT | Total Each Item |
|---|---|---|---|---|---|---|
| Bid boots | 0.00 | 16,268.10 | 0.00 | 0.00 | 0.00 | 70,477.25 |
| Bid Gloves | 0.00 | 9,151.70 | 0.00 | 807.30 | 4,448.20 | 24,591.60 |
| Bid mask | 0.00 | 1,059.38 | 0.00 | 126.76 | 630.02 | 3,176.40 |
| Bid Poles | 0.00 | 3,465.00 | 0.00 | 0.00 | 5,128.75 | 19,581.39 |
| Bid Wax - Red | 0.00 | 098.14 | 220.47 | 0.00 | 0.00 | 1,061.00 |
| Bks | 0.00 | 22,666.56 | 16,020.00 | 0.00 | 0.00 | 140,088.75 |
| Cheekers | 0.00 | 0,171.60 | 0.00 | 0.00 | 769.50 | 31,679.70 |
| Bucket | 0.00 | 3,042.50 | 1,029.51 | 0.00 | 425.40 | 9,705.04 |
| Soccer ball | 0.00 | 5,647.16 | 1,161.62 | 0.00 | 496.32 | 9,794.57 |
| Squash Balls | 0.00 | 1,459.77 | 319.60 | 0.00 | 120.25 | 38,260.26 |
| Squash Glove | 0.00 | 855.58 | 0.00 | 0.00 | 362.58 | 5,394.47 |
| Squash Racquet | 0.00 | 7,388.80 | 3,432.00 | 1,211.80 | 602.00 | 31,461.20 |
| Stop watch | 0.00 | 5,962.52 | 50.09 | 450.77 | 0.00 | 13,734.08 |
| Sweat Band | 0.00 | 278.47 | 0.00 | 16.28 | 61.77 | 2,620.32 |
| Sweat suit | 0.00 | 8,807.70 | 0.00 | 0.00 | 1,218.00 | 38,180.40 |
| Swim Goggles | 0.00 | 4,060.90 | 0.00 | 0.00 | 363.50 | 23,664.10 |
| Swimming trunks | 0.00 | 2,302.57 | 566.67 | 591.90 | 1,216.40 | 7,540.10 |
| Tennis Balls | 0.00 | 1,082.86 | 406.70 | 0.00 | 0.00 | 9,243.05 |
| Tennis Racquet | 0.00 | 10,297.40 | 2,660.60 | 0.00 | 1,941.45 | 38,657.55 |
| Tennis Shorts | 0.00 | 4,757.62 | 0.00 | 1,115.44 | 421.29 | 17,348.32 |
| Volleyball | 0.00 | 3,431.76 | 490.22 | 0.00 | 376.33 | 8,368.78 |
| Wet Suit | 0.00 | 10,038.75 | 0.00 | 17,100.00 | 0,727.50 | 179,077.50 |
| Wikets | 0.00 | 868.85 | 0.00 | 0.00 | 178.00 | 2,201.70 |
| Windbreaker | 0.00 | 6,448.95 | 3,381.53 | 0.00 | 2,902.58 | 30,418.81 |
| | 13,004.08 | 307,187.38 | 3,381.53 | 61,664.70 | 120,760.02 | 1,303,646.66 |

Page 2

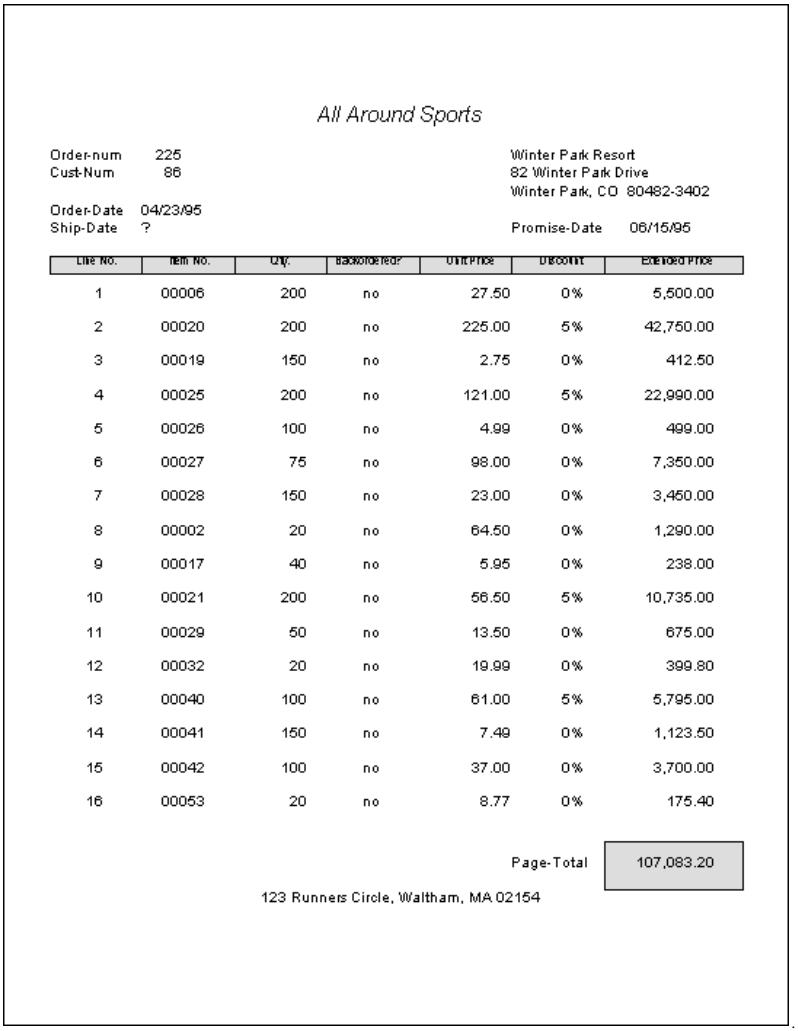
**Figure 1–8: Cross-tab Report—Page 2**

You can also use the Item/Sales Cross-tab Sample report definition to see this report.

### 1.1.7 Invoices

Chapter 9, "Invoice," describes how to create an invoice that utilizes swapped headers and swapped footers to print different information on the first and last pages of the invoice. In this chapter you will not only use the knowledge you have gained in the previous tutorial chapters, but also learn how to create and use swapped headers and swapped footers.

The Invoice Report Sample report definition generates the customer invoice that appears in Figure 1–9 and Figure 1–10. Figure 1–9 shows the first page of a customer invoice and Figure 1–10 shows the second page. Notice the difference between the information on the two pages.



*All Around Sports*

Order-num 225
Cust-Num 86

Order-Date 04/23/95
Ship-Date ?

Winter Park Resort
82 Winter Park Drive
Winter Park, CO 80482-3402

Promise-Date 06/15/95

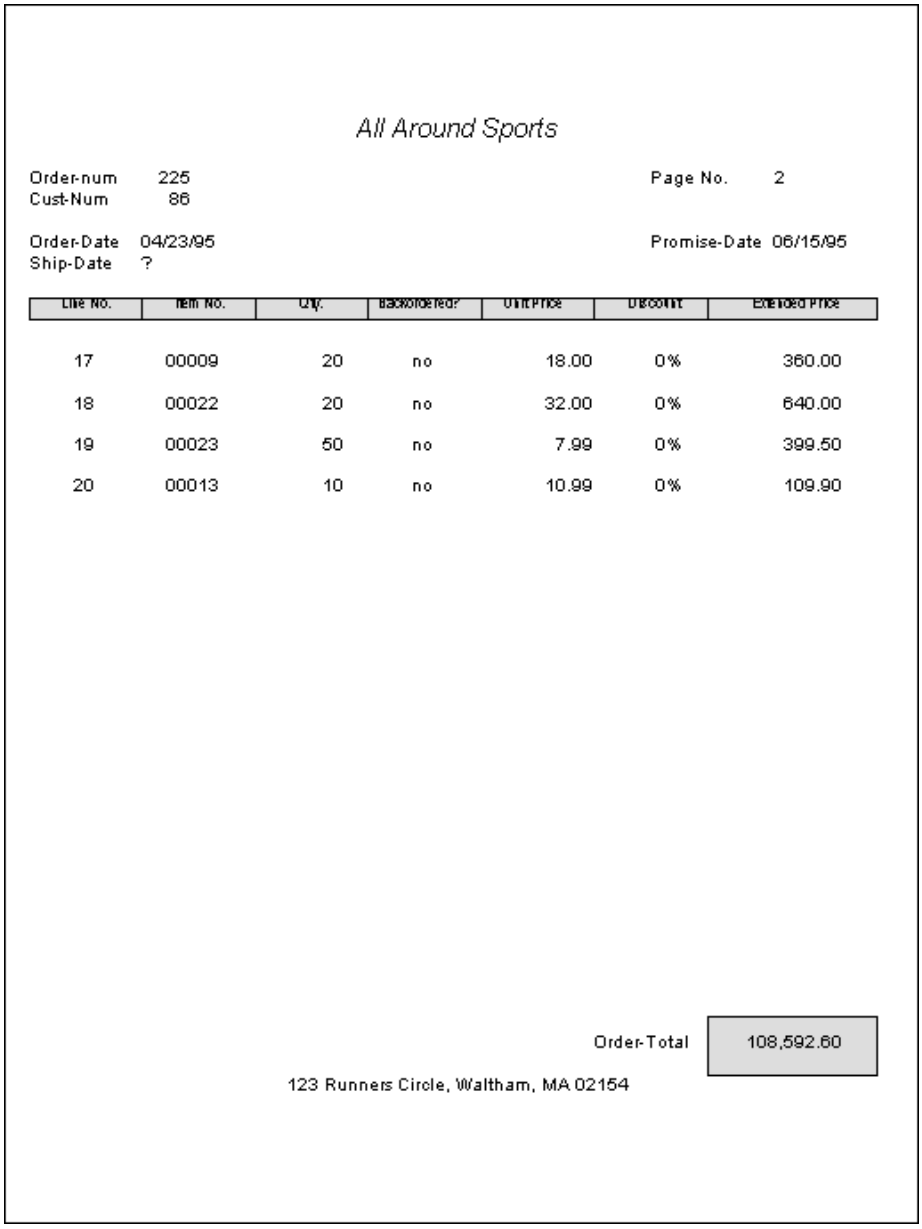
| Line No. | Item No. | Qty. | Backordered? | Unit Price | Discount | Extended Price |
|---|---|---|---|---|---|---|
| 1 | 00006 | 200 | no | 27.50 | 0% | 5,500.00 |
| 2 | 00020 | 200 | no | 225.00 | 5% | 42,750.00 |
| 3 | 00019 | 150 | no | 2.75 | 0% | 412.50 |
| 4 | 00025 | 200 | no | 121.00 | 5% | 22,990.00 |
| 5 | 00026 | 100 | no | 4.99 | 0% | 499.00 |
| 6 | 00027 | 75 | no | 98.00 | 0% | 7,350.00 |
| 7 | 00028 | 150 | no | 23.00 | 0% | 3,450.00 |
| 8 | 00002 | 20 | no | 64.50 | 0% | 1,290.00 |
| 9 | 00017 | 40 | no | 5.95 | 0% | 238.00 |
| 10 | 00021 | 200 | no | 56.50 | 5% | 10,735.00 |
| 11 | 00029 | 50 | no | 13.50 | 0% | 675.00 |
| 12 | 00032 | 20 | no | 19.99 | 0% | 399.80 |
| 13 | 00040 | 100 | no | 61.00 | 5% | 5,795.00 |
| 14 | 00041 | 150 | no | 7.49 | 0% | 1,123.50 |
| 15 | 00042 | 100 | no | 37.00 | 0% | 3,700.00 |
| 16 | 00053 | 20 | no | 8.77 | 0% | 175.40 |

Page-Total 107,083.20

123 Runners Circle, Waltham, MA 02154

**Figure 1–9: Invoice—Page 1**

Figure 1–10 shows the second page of the invoice. Notice the difference in the header information.



*All Around Sports*

Order-num 225 Page No. 2
Cust-Num 86

Order-Date 04/23/95 Promise-Date 06/15/95
Ship-Date ?

| Line No. | Item No. | Qty. | Backordered? | Unit Price | Discount | Extended Price |
|---|---|---|---|---|---|---|
| 17 | 00009 | 20 | no | 18.00 | 0% | 360.00 |
| 18 | 00022 | 20 | no | 32.00 | 0% | 640.00 |
| 19 | 00023 | 50 | no | 7.99 | 0% | 399.50 |
| 20 | 00013 | 10 | no | 10.99 | 0% | 109.90 |

Order-Total 108,592.60

123 Runners Circle, Waltham, MA 02154

**Figure 1–10: Invoice—Page 2**

### 1.1.8 Green Bar Report

Chapter 10, "Green Bar Report," describes how to create green bar reports or reports that have alternating bars of color. Many people find reports with shaded bars or rows easier to read. Figure 1–11 shows the green bar report you create in this chapter. The Green Bar Report Sample generates this report.



Accounts Receivable Report

| Cust-Num | Name | Balance | Phone | Contact |
|---|---|---|---|---|
| 85 | Palms Country Club | 124,900.50 | 305/446-2309 | Marshall Reed |
| 86 | Winter Park Resort | 112,245.10 | 303/444-3520 | Andrew Mercer |
| 51 | Butternut Squash Inc | 87,989.01 | (818) 482-7000 | Quoc Tran |
| 88 | Red Desert Resort | 85,105.55 | 602/542-7200 | Marissa Lamar |
| 66 | First Down Football | 83,848.79 | (603) 499-2544 | Marcia Shirkey |
| 83 | Fallen Arch Running | 68,717.29 | (904) 734-7868 | Kevin Mallone |
| 3 | Hoops Croquet Co. | 66,420.04 | (617) 366-1557 | Michael Traitser |
| 24 | Jazz Futis Kauppa | 61,767.51 | (60) 349 9254 | Markku Yla-Liedeoja |
| 41 | On Target Rifles | 56,783.19 | (601) 625-0070 | Mark Little |
| 27 | Bumm Bumm Tennis | 45,317.29 | 0222/924376/12 | Hr. Ballerer |
| 1 | Lift Line Skiing | 42,569.57 | (617) 450-0087 | Gloria Shepley |
| 40 | Heikin Kuntosali | 40,875.47 | (60) 722 3987 | Heikki Niemelainen |
| 65 | Lagt Kort Ligger | 40,439.43 | 040-15 10 00 | Kurt Synare |
| 34 | Quick Toss Lacrosse | 39,742.30 | (216) 783-1877 | Salvatore Riccio |
| 75 | Hard Knocks Skating | 38,422.84 | (307) 311-9788 | Carol Lynn |
| 6 | Fanatical Athletes | 37,697.34 | 0224 692 903 | Andrew Strong |
| 80 | StickyWicket Cricket | 34,852.28 | (218) 265-7798 | Dory Schweitzer |
| 46 | Olympique marseilles | 33,281.60 | 23 58 56 86 | Denis Papin |
| 28 | Luistin ja Pyora Oy | 31,092.11 | (30) 731 1978 | Jarkko J. Scott |
| 30 | Fast Flipper Pinball | 28,703.41 | (919) 330-2993 | Shaun Peacock |
| 72 | Birdy's Badminton | 28,441.03 | (405) 233-0881 | Orrin Meagher |
| 82 | Second Skin Scuba | 28,113.96 | (602) 542-0365 | Ron Ferrante |
| 61 | Squash Mestarihalli | 27,998.80 | (81) 848 2700 | Heikki Yli-Moijonen |
| 19 | Buffalo Shuffleboard | 27,657.58 | (716) 344-0966 | George Buitkus |
| 9 | Pihtiputaan Pyora | 25,792.08 | (60) 162 5007 | Markku Ventolinen |
| 26 | Bulls Eye Sports | 24,919.24 | 0347 21348 | Kevin Batter |
| 16 | Thundering Surf Inc. | 23,786.56 | (512) 542-1804 | Fran Horan |
| 42 | Stall-Turn Flying | 19,860.57 | 0702 258 133 | Nancy Trainer |
| 43 | Sub Par Golf | 19,675.60 | (303) 444-6387 | Irving Nigrini |
| 14 | Paris St Germain | 19,427.80 | 1 42 25 68 78 | Philippe Dasgil |
| 49 | Jortsin Kesport | 18,555.32 | (50) 232 5570 | Jorgen Salomaki |
| 84 | Spike's Volleyball | 18,265.24 | (702) 272-9264 | Craig Eleazer |
| 73 | Auffi Bergausrustung | 17,671.60 | 0512/31644 | Fr. Abseiler |
| 2 | Urpon Frisbee | 17,166.72 | (60) 532 5471 | Urpo Leppakoski |
| 10 | Just Joggers Limited | 16,622.31 | 070 682 2887 | George Lacey |
| 29 | Bug in a Rug-by | 16,231.82 | (503) 743-1318 | Chip Clark |
| 22 | Kesport Katiska | 14,921.59 | (91) 676 4644 | Pentti Koskinen |
| 87 | Aragon College | 14,514.65 | 714/321-1800 | Sheila Stuart |
| 70 | U-Jump Parachuting | 14,225.17 | 0420 62152 | Will B Soarey |
| 50 | Chip's Poker | 14,191.60 | (904) 567-8223 | Kevin Koppel |
| 18 | Antin Metsastysase | 13,072.56 | (71) 432 1317 | Antti Oyrinmetsa |
| 67 | Stay Afloat Swimming | 12,580.57 | (912) 498-8492 | Keith Doherty |

Page 1

**Figure 1–11: Green Bar Report**

## 1.2 Before You Begin

Before you start creating any of the sample reports in this tutorial, you must:

- Confirm that you have a version of Progress that allows you to connect to a local database.
- Confirm that Progress Report Builder is properly installed on your PC.
- Confirm that your PC has a printer driver installed. If it does not, Report Builder will not have access to the necessary font information.
- Create a directory to be the working directory for all the tutorial samples.
- Create a directory named `rbtutor`. Copy the files listed in Table 1–1 from `$DLC\SRC\aderb` from the installation media into the `rbtutor` directory.

**Table 1–1: Required Files** *(1 of 2)*

| Filename | Description |
|---|---|
| `newsport.db`[1] | Newsport database data file containing the database definition and data. |
| `newsport.bi`[1] | Newsport database before-image file containing the before-image information. |
| `newsport.lg`[1] | Newsport database event log file containing the history of significant database events. |
| `Tutorial.prl` | Report library containing the report definitions for the sample reports in this tutorial. |
| `Formlet1.txt` | Unprepared text file for the Recall form letter sample report described in Chapter 6, "Form Letters." |

**Table 1–1: Required Files** *(2 of 2)*

| Filename | Description |
|---|---|
| `Formlet2.txt` | Unprepared text file for the Payment form letter sample report described in Chapter 6, "Form Letters." |
| `Recall.txt` | Prepared text file for the Recall form letter sample report described in Chapter 6, "Form Letters." |
| `Payment.txt` | Prepared text file for the Payment form letter sample report described in Chapter 6, "Form Letters." |

[1] See the *Progress Database Administration Guide and Reference* for more information about the database files

If you need assistance with any of these tasks, consult your system administrator.

## 1.3 Newsport Database

The Newsport database is a demonstration database that contains customer and order information for the All Around Sports company. Table 1–2 describes the tables in the Newsport database.

**Table 1–2: Tables in the Newsport Database** *(1 of 2)*

| Table | Contents |
|---|---|
| Customer | Customer information, such as customer name, address, phone number, and credit limit. |
| Invoice | Accounting information, such as order number, invoice number, and billing total. |
| Item | Inventory information, such as item name, catalog description, and price. |
| Local–Default | Information for working with international customers, such as country name, currency, and postal format. |
| Order | Order form information, such as order date, shipping date, postal carrier, and warehouse from which the order was shipped. |
| Order–Line | Information relevant to a request for one item in a particular order, such as item number, quantity, price, and associated order number. |

**Table 1–2: Tables in the Newsport Database** *(2 of 2)*

| Table | Contents |
|---|---|
| Ref–Call | Customer call information, such as call number and reason for call. |
| Salesrep | Sales representative information, such as name, region, and monthly quota. |
| Shipping–Charges | Shipping charges information, such as the warehouse region, destination state, and price per pound for shipping goods from the regions to specific states. |
| State | State information, such as state name, abbreviation, and region. |

With this database, All Around Sports can take, process, bill, and ship orders. It also allows the company to keep inventory information up to date. All the sample reports in this tutorial use the Newsport database and will not provide the same output with another database. However, you can apply the skills and concepts that you learn in the sample reports to create reports for other databases.

# 2

# Report Builder Basics

This chapter introduces you to Report Builder. Specifically, it describes:

- How Report Builder generates reports
- Starting Report Builder
- The Report Builder main window
- Connecting to the Newsport database
- Exiting Report Builder

## 2.1 How Report Builder Generates Reports

Before you can produce a report using Report Builder, you must first connect to the databases that contain the data you want to display. Then you use Report Builder to create the report definition. The *report definition* defines the report characteristics that tell Report Builder where to find the data and how to display and print the data. Although Report Builder displays the data in the database according to the information in the report definition, it does not change or store the data itself in the report definition. Figure 2–1 illustrates how Report Builder uses database information to create the report definition.

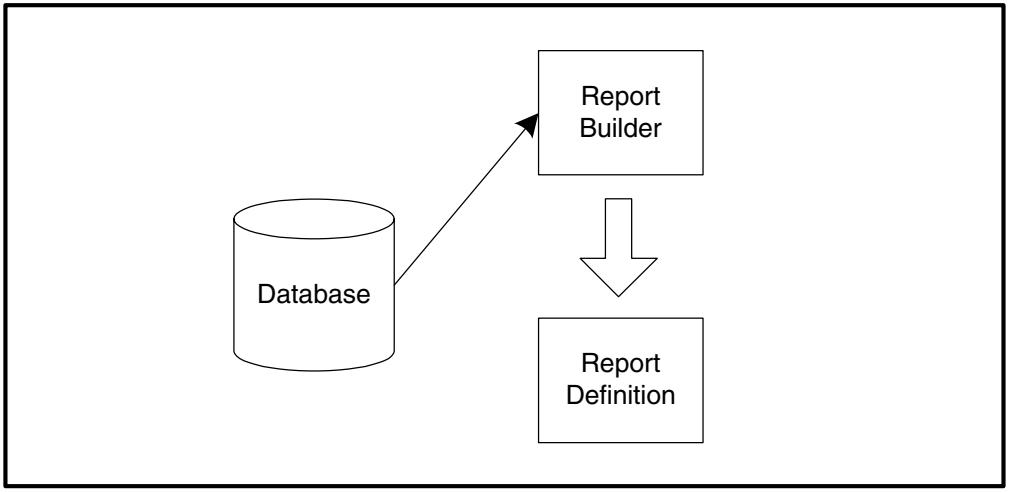



**Figure 2–1: Creating a Report Definition**

The first step in creating a report definition is to specify the master table from which to draw the report data. The *master table* is the database table that Report Builder uses as the initial source of data for the report.

The next step is to determine whether you have to access data in other database tables. To access fields in another database table, you must join that table to the master table. When you *join* the table, you establish a connection to the master table or another related table through common fields. All tables that you join to the master table are called *related tables*. You can join tables directly to the master table or through other related tables.

Figure 2–2 illustrates how Report Builder joins tables.

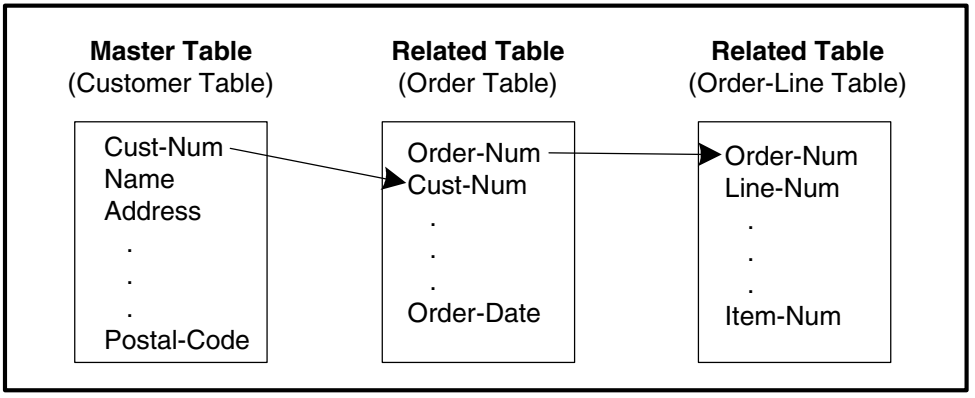



**Figure 2–2: Joining on a Common Field**

When you join a table, you gain access to all the data in the table. However, to use the data from the database tables in the report, you must specify how to present the data in the report definition.

When you create the report definition, you not only specify what database tables you want to access, but also how you want to arrange, analyze, and format the data. For example, by default Report Builder displays records in the order in which they are read from the database. However, you can change the sort order in the report definition to display the data in another order. Regardless of how you present the data, Report Builder does not change the data in the database. For example, if you change the sort order and field formats in a report, the changes do not affect the actual schema or data.

You can manipulate the data to produce different types of reports. As you design a report, you can move text and data around the report layout, create calculated fields that analyze the data, and apply fonts and styles to different areas of the report. You can also preview the report to see how Report Builder will present the data.

Once you finish the report definition, Report Builder generates the report. Figure 2–3 shows how Report Builder uses the database and report definition to produce a report.

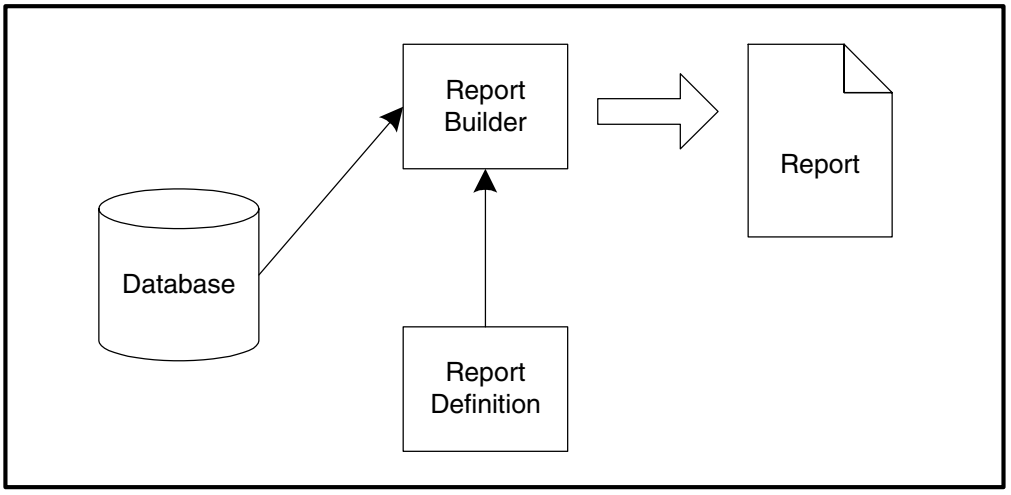



**Figure 2–3: How Report Builder Generates a Report**

Report Builder accesses the database and presents the data according to the criteria in the report definition.

You must save the report definition if you want to generate the report in a future session. When you save a report definition, Report Builder stores the definition in a file called a report library. A *report library* is an operating system file that can contain one or more report definitions. You can assign a report library any eight-character name, and Report Builder automatically appends the `.prl` extension. This extension identifies the library as a Progress report library. Figure 2–4 shows how Report Builder stores report definitions in a report library.

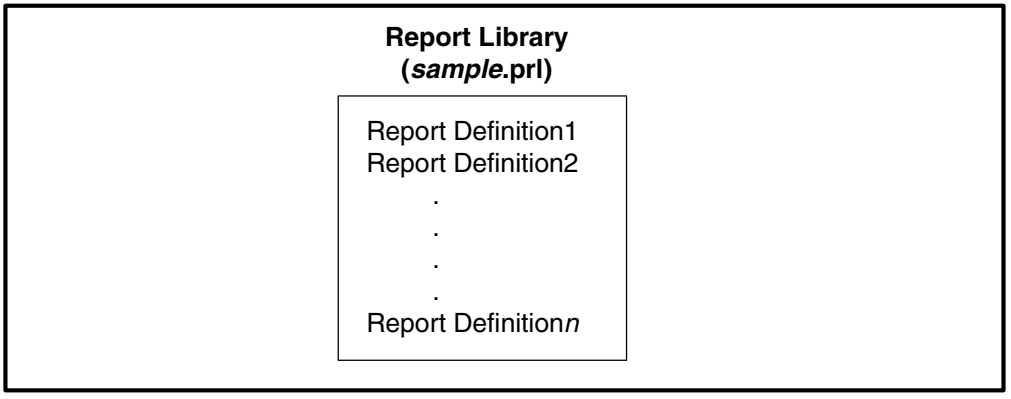



**Figure 2–4: How Report Libraries Store Report Definitions**

When you save a report definition in a report library, Report Builder saves all the information relevant to the report. This information includes the location of the databases and tables from which the data is drawn, join, filter, sort order, and group order information, and the report layout. Because it contains all the information needed to generate the report, you can use the report definition to generate the report at any time.

## 2.2 Starting Report Builder

There are three ways to start Report Builder:

- Choose the Report Builder icon from the ADE desktop.
- Choose the Report Builder icon from a Windows program group. Progress creates a Report Builder icon automatically when you install Report Builder. However, you can modify the path in the Command Line field using the following syntax:

```
prorb32.exe parameters
```

  See the Report Builder administration appendix in the *Progress Report Builder User's Guide* for a complete description of the parameters you can specify in the Command Line field.

- Choose Tools→ Report Builder from the ADE desktop main menu, or from the menu of any other Progress tool except Results.

## 2.3 The Report Builder Main Window

When you start Report Builder, the window shown in Figure 2–5 appears.

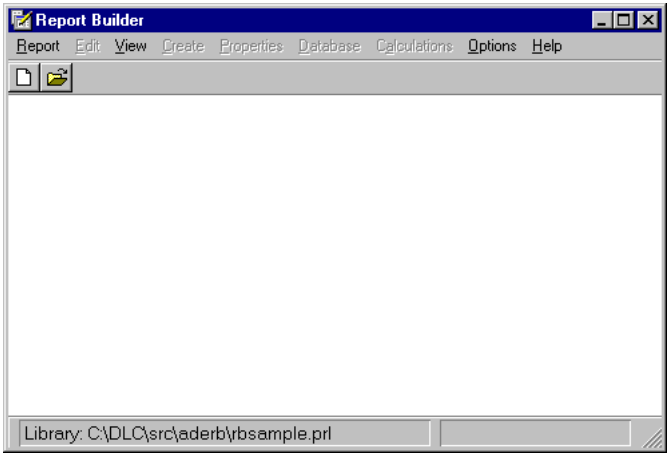



**Figure 2–5: Report Builder Main Window**

Figure 2–6 shows how the Report Builder main window appears with a report definition open.

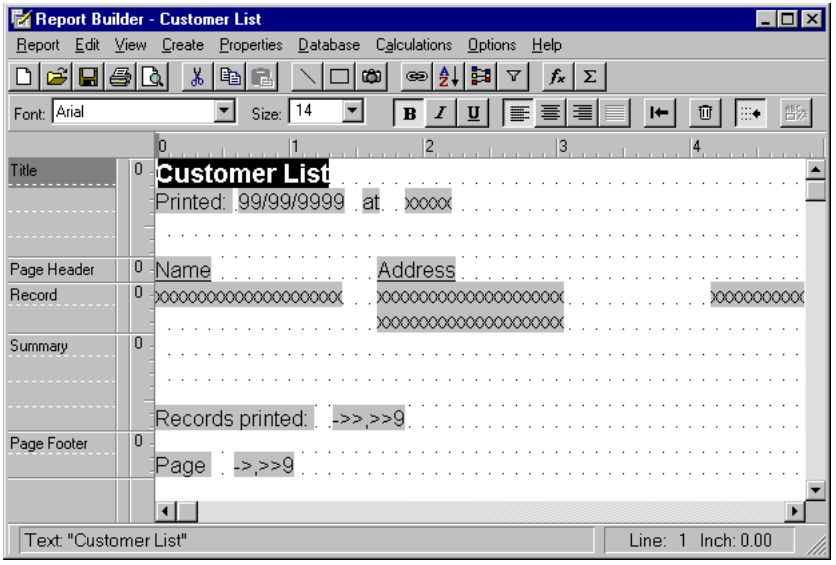



**Figure 2–6: Main Window Showing Report Definition**

The Report Builder main window has the following user-interface elements:

- **Title Bar—**Displays the report name.
- **Menu Bar—**Provides access to the menu options. See the "Menu Bar" section for a description of each option.
- **Tool Bar—**Contains buttons that perform many of the actions available from the menu bar. See the "Tool Bar" section for a complete description of the tool bar and its buttons.
- **Format Bar—**Provides quick access to fonts, styles, effects, and alignment options.
- **Horizontal and Vertical Rulers—**Help you align fields and text in a report.
- **Band Lines—**Control the placement of data in a report. See the "Bands and Band Lines" section for a complete description of the different types of band lines and where they present data.
- **Band Line Label—**Identify the band line type.
- **Band Line Status Area—**Indicates whether the band line is a fixed height and whether it prints only when it meets a specified condition. If a band line is a fixed height, up and down arrows appear in the status area. If you specify a condition upon which to print a band line, a question mark appears in the status area.
- **Band Area—**Identifies the type of each band line on the layout.
- **Layout Area—**The area where you create a report layout. The *report layout* is the schematic representation of the report that contains the fields, text, and any lines, rectangles, or images that will appear in the report.
- **Status Bar—**Displays information about the currently highlighted field.
- **Cursor Locator—**Identifies the position of the edit cursor in the layout.
- **Horizontal and Vertical Scroll Bar—**Allows scrolling to the components of the band and layout areas.

The following sections describe some of the Report Builder window features in more detail. For more information about any Report Builder feature, see the *Progress Report Builder User's Guide*.

### 2.3.1 Menu Bar

Table 2–1 describes the menus you can access from the menu bar.

**Table 2–1: Report Builder Menus**

| Menu | Description |
|---|---|
| Report | Manipulates report definitions, database connections, and exits Report Builder. |
| Edit | Modifies report elements. |
| View | Controls layout options, such as displaying or hiding the tool bar, format bar, grid, and rulers. |
| Create | Inserts band lines, lines, rectangles, and images. |
| Properties | Controls and displays the attributes of fields, band lines, lines, rectangles, and images. |
| Database | Specifies the tables from which Report Builder draws data for the report, sort and group data, and filter records. |
| Calculations | Creates and edits calculated fields, aggregate fields, and user-defined functions. |
| Options | Specifies window preferences, default settings, and default directories. |
| Help | Accesses the Report Builder online help system. |

#### Selecting Menu Options

There are three ways to choose options from the menu bar:

- Choose the option with the mouse.
- Press **ALT** and the underlined letter in the option.
- Press **F10**, use the cursor keys to highlight the option, then press **ENTER**.

You can access many Report Builder features using the tool bar and format bar. See the following sections for descriptions of each.

### 2.3.2 Tool Bar

The tool bar allows you to access menu bar options by simply choosing a button. Choosing a button either executes a Report Builder command or opens a dialog box in which you can select or change various options.

To see what each button does, move your mouse pointer over the button. Report Builder displays a brief description of the button's function. Figure 2–7 shows the full selection of tool bar buttons.



**Figure 2–7: Tool Bar**

Use the View menu to control display of the tool bar. Choose View→ Tool Bar to hide or display the bar. A check mark appears beside the menu item when the tool bar is displayed.

### 2.3.3 Format Bar

The format bar provides a quick way to format fields and text in your report. After you select one or more items on the report layout, you can specify font, point size, style, effect, and alignment by using the drop-down list boxes and buttons on this bar.

Figure 2–8 shows an example of the format bar.




**Figure 2–8: Format Bar**

Use the View menu to control display of the format bar. Choose View→ Format Bar to hide or display the format bar. A check mark appears beside the menu item when the format bar is displayed.

Report Builder assigns a default alignment to each field when it is inserted on the layout. A field's default alignment depends on its data type. Table 2–2 lists the default alignment by data type.

**Table 2–2: Default Field Alignment**

| Data Type | Alignment |
|---|---|
| NUMERIC | Right-aligned. |
| MEMO | Word-wrapped, left-aligned. |
| All others | Left-aligned. |

There are three ways to determine the alignment of any field:

- Select the field, then choose Properties→ Alignment to open the Alignment dialog box.
- Select the field, then press **F4** to open the Field Properties dialog box.
- Double-click on the field to open the Field Properties dialog box.

See the *Progress Report Builder User's Guide* for more information about fields.

### 2.3.4 Horizontal and Vertical Rulers

Horizontal and vertical rulers help you place fields and text at specific positions on the report layout. For example, if you type a column heading on the layout immediately under the 1-inch position on the horizontal ruler, the column heading will begin printing 1 inch from the left margin of the report.

Figure 2–9 shows an empty report layout with both rulers visible. Notice that the numbers on the vertical ruler restart at zero for each type of band line.

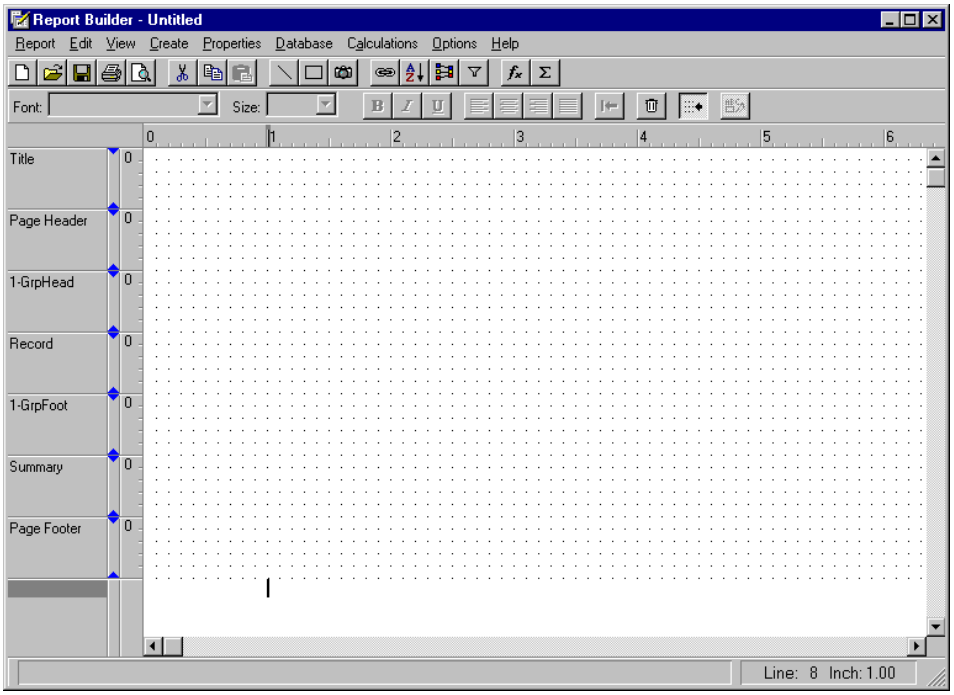



**Figure 2–9: Empty Report Layout, Rulers and Grids Showing**

Settings for the horizontal and vertical ruler scales determine the grid display (when the grid is turned on). Grid dots are spaced according to the Units per inch settings specified for the rulers. To change the calibration of the ruler lines, double-click on either ruler to open the Ruler dialog box shown in Figure 2–10:

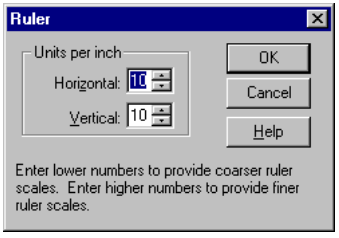



**Figure 2–10: Rulers Dialog**

By default, both rulers have 10 units per inch. To change ruler spacing, in the Units per inch field enter a number from 4 to 30, which represent the number of ruler divisions per inch, then choose OK. For example, if you set Units per inch for the horizontal ruler to 4, the horizontal ruler scale and grid markings are arranged in .25-inch increments.

**NOTE:** Although you can specify to run Report Builder using centimeters as the unit of measurement by changing the measurement setting in the International section of the MS-Windows control panel, the horizontal and vertical rulers will still use inches.

### 2.3.5 Bands and Band Lines

*Bands* are areas on the report layout that control where Report Builder displays and prints data. Bands consist of one or more band lines. *Band lines* are horizontal bars within each band that control how and where data appears.

The band area on the Report Builder main window identifies the band type. There are seven types of bands. Each type of band displays data in a different place on the report and with a different frequency. Table 2–3 describes the different band types.

**Table 2–3: Band Types**

| Band | Location in Report Output |
|---|---|
| Title | Once per report at the beginning of the first page or on a separate title page. |
| Page header | At the top of each page or after the title on the first page. |
| Group header | Before each group of records. See the sorting and group chapter in *Progress Results User's Guide for Windows* for information about group headers. |
| Record | Once each record. Note that the record band might display as a single line on the layout, but the printed report will have many record lines--one for each record in the table. |
| Group footer | After each group of records. See the sorting and group chapter in *Progress Results User's Guide for Windows* for information about group footers. |
| Summary | Once per report at the end of the last page or on a separate summary page. |
| Page footer | At the bottom of each page. |

Bands always appear on the report layout in the order shown in Table 2-3. Because the band position on the layout does not necessarily indicate where the data appears on the report, do not be concerned that you cannot reorder the bands. It is the band's type, not its position, that controls where data appears in the report output.

Figure 2–11 shows how bands and band lines appear on the report layout.

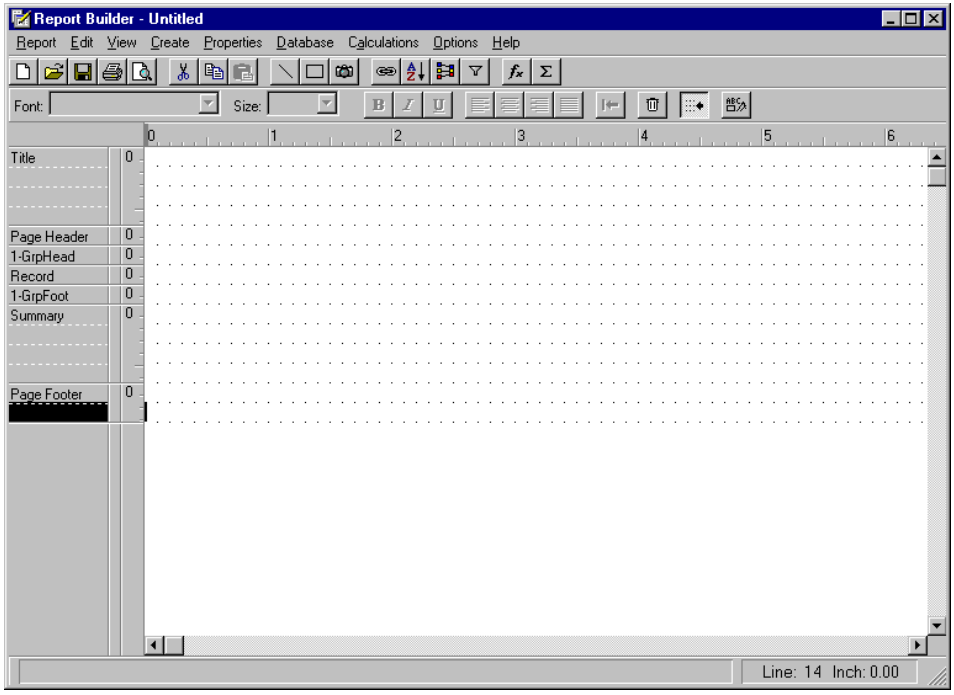



**Figure 2–11: Bands and Band Lines**

Notice that the band area contains a band label for each band, or group of band lines, on the layout. The band label applies not only to the band line where it appears, but also to all band lines below it separated by dotted lines. Dotted lines separate band lines of the same band. A solid line separates the band lines of a different type.

The narrow channel at the right edge of the band area is the band line status area. The band line status can be:

- **Default**—Band line has an automatic height and is always printed. The band line status area is blank.
- **Freeform height**—Band line is a freeform line with a fixed line height. Up and down arrow heads in the band line status area indicate the top and bottom border of any freeform line.
- **Conditional printing**—Band line prints only when a specific condition is met. A question mark indicates that a logical condition has been assigned to control printing of that line.

For a full explanation of band line height and conditional band line printing, see the bands chapter in the *Progress Report Builder User's Guide*. Figure 2–12 shows band lines with status indicators.

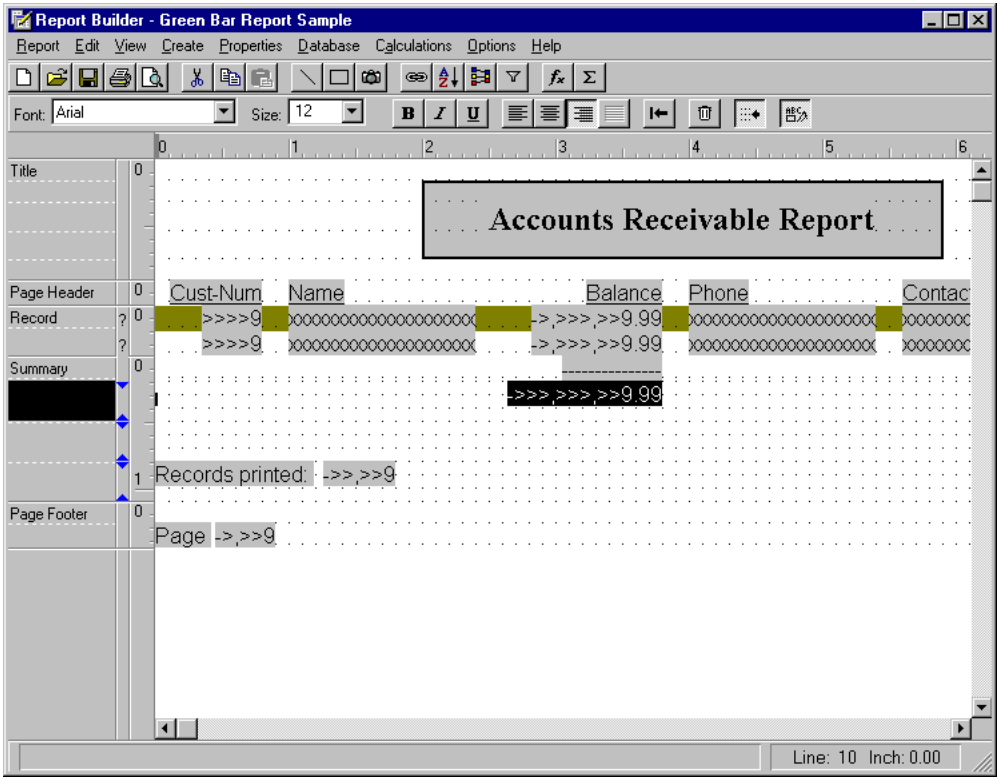



**Figure 2–12: Band Lines with Status Indicators**

The question marks on the group header and record band lines indicate that those band lines will print only when a specific condition is met. In this example, the print condition is set on the Backordered field. Report Builder will display only those records for which the Backordered field contains a false (No) value.

The arrows on the second summary band line indicate that the line has a fixed height. Because the specified height is .5 inches, the arrows are set .5 inches apart.

## 2.3.6 Layout Area

The layout area contains a combination of text fields and data fields. The text fields appear on the layout exactly as you enter them on the layout. However by default, Report Builder represents data fields with symbols that indicate the field type, such as xxxxxx for character data and 99999 for numeric data. Data fields can be database fields or user-defined fields, such as aggregate or calculated fields. (See the fields chapter in the *Progress Report Builder User's Guide* for a complete description of the different types of fields.)

By default, Report Builder indicates a field's position and width on the layout with a shaded area called the *field width indicator*. Figure 2–13 shows the default manner in which Report Builder represents fields on the report layout. Notice that Report Builder displays the text of the field labels on the page header line. This is because the labels are text fields, not data fields.

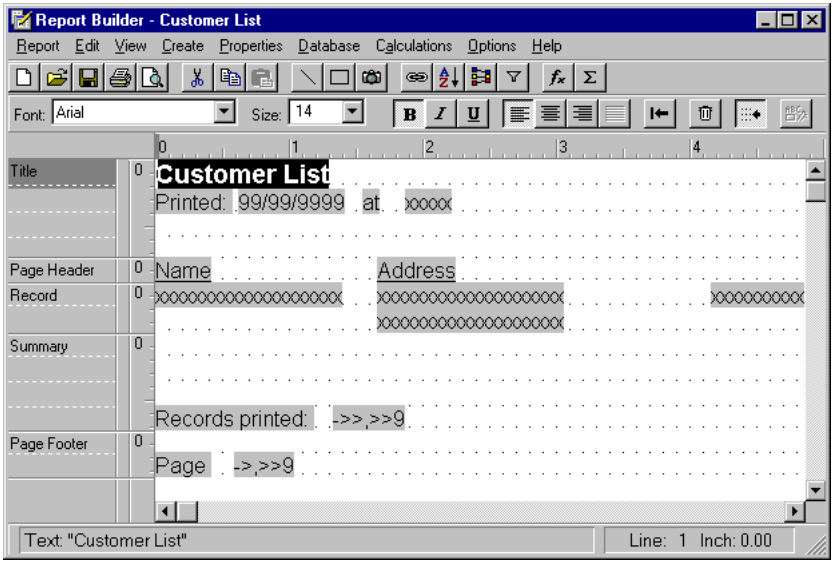



**Figure 2–13: Data Fields Represented by Format**

You can change how Report Builder represents data fields on the layout by modifying the field width indicator or displaying the actual data field names. You can modify the field width indicator by using Options→ Default Settings to change the shading color or use an outline box instead of a shaded area. If you prefer to see the actual data field names, enable the Field Names setting on the View menu.

Figure 2–14 shows the same report definition shown in Figure 2–13 with the Field Names setting enabled.

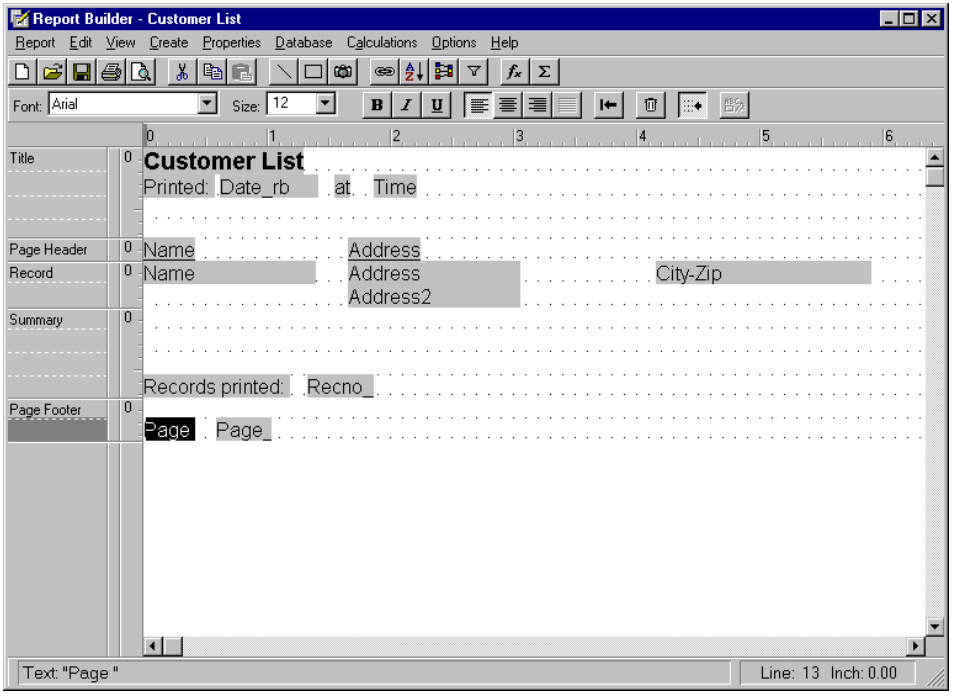



**Figure 2–14: Text and Data Fields Represented by Field Names**

In addition to text and data fields, you can also place lines, rectangles, and bitmap images on the report layout. Report Builder represents the images as they appear in the bitmap file.

Figure 2–15 shows a rectangle and a bitmap image on the report layout.

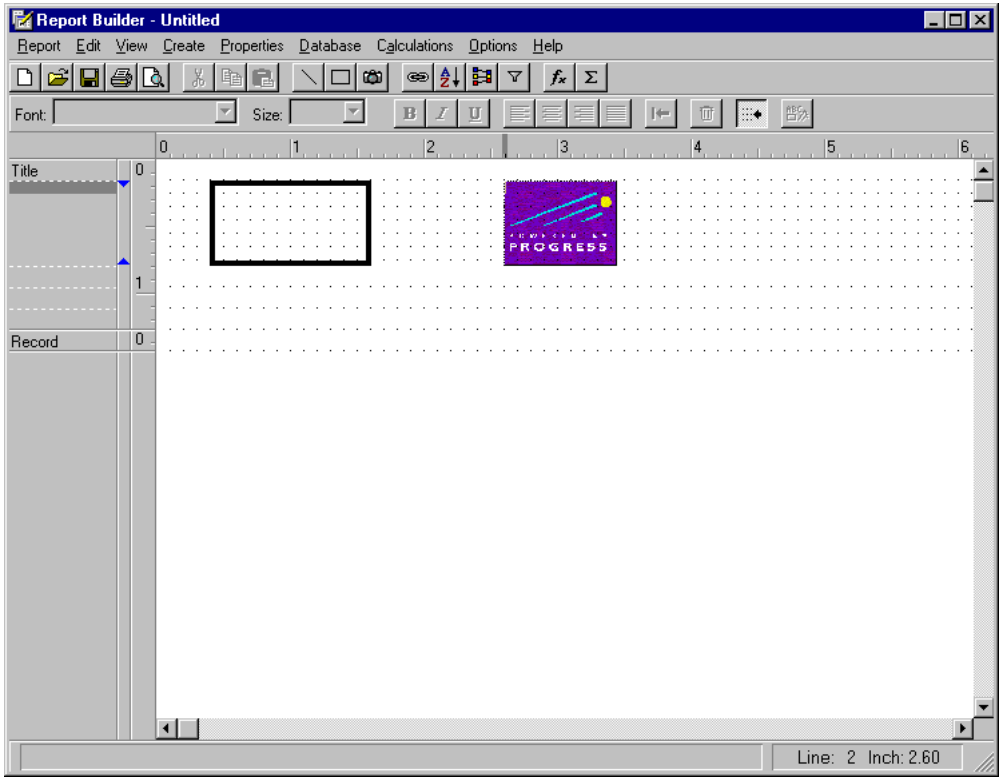



**Figure 2–15: Graphics on the Layout**

Notice that the car image is on a freeform band line. When you insert an image, Report Builder automatically converts the band line to freeform (fixed height) and resizes it to accommodate the image.

You can create report layouts containing up to a maximum of 256 lines; the maximum layout width is determined by the horizontal ruler setting and the page layout settings.

### 2.3.7 Status Bar

Near the bottom of the window, the status bar displays information about current operations and/or the position of a selected object. When you are working in the layout area, the status bar identifies the position of the edit cursor on the layout (see the "Cursor Locator" section). At other times, the status bar might contain descriptions of command options or information about the currently highlighted field.

Figure 2–16 shows a field description in the status bar.

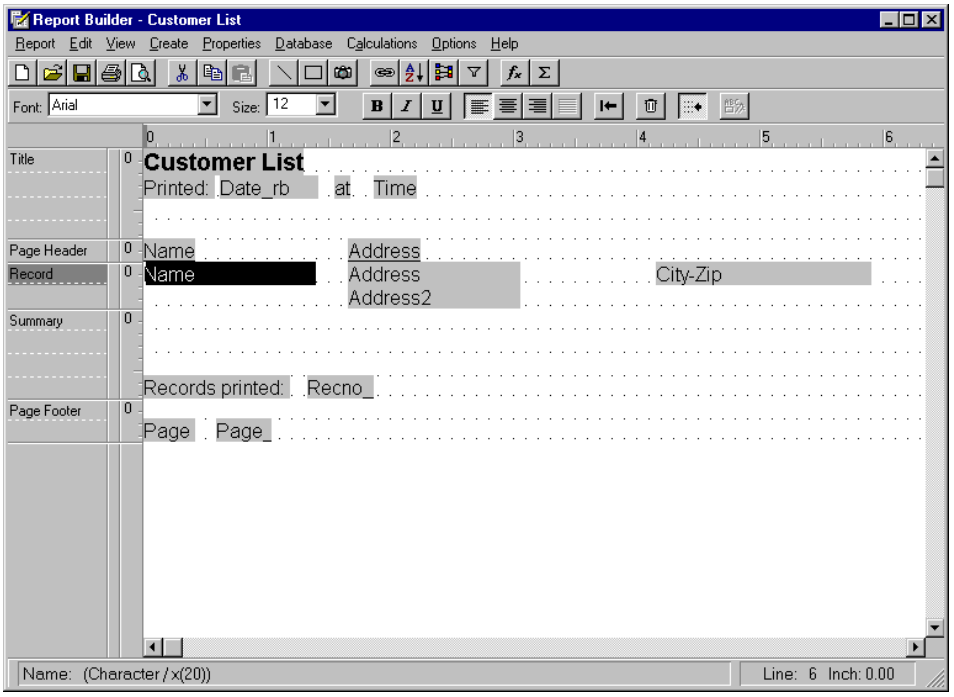



**Figure 2–16: Status Bar, Showing Field Description**

Notice that the Name field is selected. Therefore, the Name field's description appears on the bottom of the screen in the status bar.

### 2.3.8 Cursor Locator

The cursor locator identifies the location of the edit cursor on the layout by line number and position on the horizontal ruler. Figure 2–17 shows the current edit cursor position in the cursor locator.

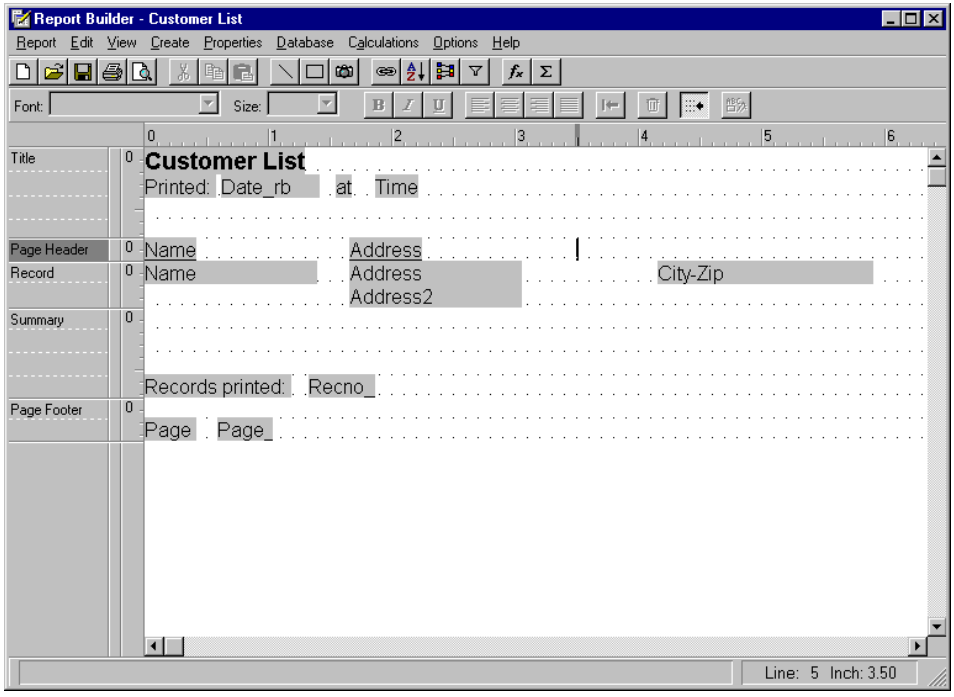



**Figure 2–17: Cursor Locator**

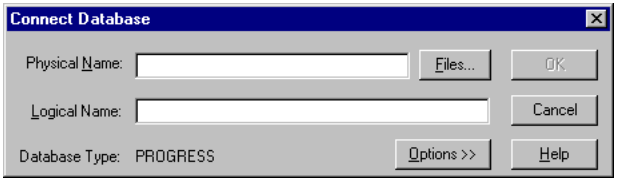
When you highlight a field, Report Builder identifies the cursor position by the field's alignment. For example, if you highlight the Balance field, the cursor locator identifies the cursor position as "Line 6 Inch 4.60." This is because the right edge of the Balance field is at the 4.60-inch mark, and the field is right-aligned. If you highlight the Name field, the cursor locator identifies the cursor position as "Line 6 Inch 0.00." The Name field is left-aligned, and it begins at the 0.0-inch mark (or the left margin).

## 2.4 Connecting to the Newsport Database

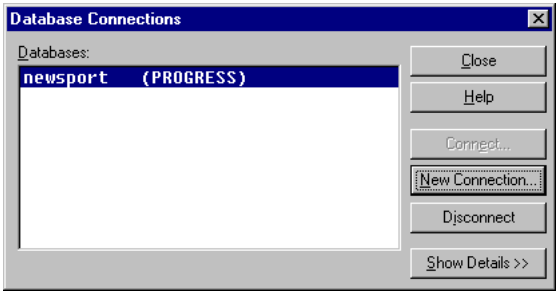
The instructions in the following chapters assume that you have started Report Builder and are connected to the Newsport database. See Chapter 1, "Introduction," for a description of the Newsport database. The reports you will create draw all their data from this database.

Follow these steps to connect to the Newsport database:

1 ♦ Choose Report→ Database Connections. The Connect Database dialog box appears:




2 ♦ Enter the full path of the Newsport database in the Physical Name field, then choose OK. After Report Builder connects to the database, the Database Connections dialog box appears:




The Database Connections dialog box lists all the databases to which you are connected. Because you connected to only one database, Newsport is the only database in the list.

3 ♦ Choose Close to return to the report layout.

## 2.5 Exiting Report Builder

To exit Report Builder, choose Report→ Exit. If you do not have a report definition open or if you have an open definition without changes, Report Builder simply terminates. However, if you have an open definition with changes, Report Builder prompts you to save the changes before it closes the definition and terminates.

# 3

# Accounts Receivable Report

In this chapter you will create a report definition for accounts receivable information from the Newsport database. Specifically, this chapter describes how to:

- Use the Instant Layout option
- Preview a report
- Change the sort order
- Remove fields from the layout
- Insert band lines on the layout
- Insert and edit text fields
- Change a field's font, point size, and style
- Create and modify a rectangle
- Save a report definition
- Print a report

## 3.1 Report Overview and Output

As you recall from Chapter 2, "Report Builder Basics," before Report Builder generates a report, you must create the report definition. There are five basic steps to follow to create a report definition:

1. Create the initial report layout—You create an initial report layout by using the Instant Layout option or by accepting the default layout.

2. Access and order the data—You access the data in the database by joining tables and specifying filters. You can order the data by sorting and grouping it.

3. Define new fields—You define calculated and aggregate fields. You can also create user-defined functions (UDFs).

4. Design the report layout—You create, edit, and delete band lines, insert and manipulate fields, and create and modify lines and rectangles. You can also import images.

5. Preview and save the report definition—You preview the report to see how it will print, then save the completed report definition.

Once you complete the report definition, you can print the report.

Notice that the first step is to create the initial report layout. Remember that to create a report definition, you must first be connected to a databases as described in Chapter 2, "Report Builder Basics." For the purposes of this tutorial, make sure that you are connected to the Newsport database.

Because the above steps are a list of **basic** steps for creating a report definition, you might not have to perform all of them to create every report. For example, to generate the Accounts Receivable report described in this chapter, you do not have to perform Step 3 because the Newsport database contains all the necessary fields.

Although previewing and saving the report definition is the last step in the list, you can, and should, save and preview the report definition many times while you are creating it. This chapter describes how to preview the report in Step 1.

The following sections provide step-by-step instructions for performing each of the steps necessary to create the Accounts Receivable definition. When you complete this chapter, you will have created the report definition that generates the report shown in Figure 3–1.

This report displays basic customer account information from the Newsport database, including the customer's balance. The Accounts Receivable Sample report definition in the `Tutorial.prl` report library generates this report. Although you can view the completed layout in the Accounts Receivable Sample report definition, you should perform all the steps in this chapter to learn how to create it yourself.

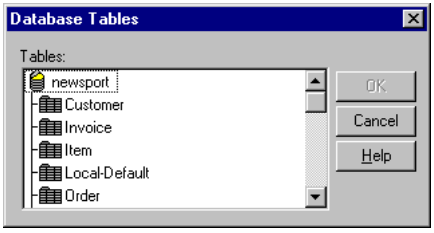
## 3.2 Creating the Initial Report Layout

The first step in generating any report is to create the initial report layout. There are two ways to create an initial report layout. You can use either the default Report Builder layout or the Instant Layout option. If you use the default layout, Report Builder provides a layout that includes only one blank record band line. In contrast, the Instant Layout option allows you to specify the fields to include in the report, then automatically formats them on the report layout.

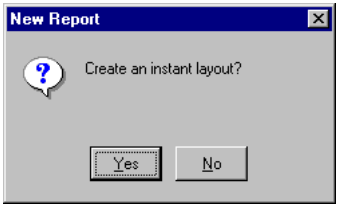
The Instant Layout option creates a basic, usable report. However, it probably will not provide all the information you need or lay out the fields in the exact manner in which you want to display the data. So, after you create a layout with the Instant Layout option, you can modify the report definition in many ways to suit the purposes of individual reports.

Follow these steps to create a report layout using the Instant Layout option.

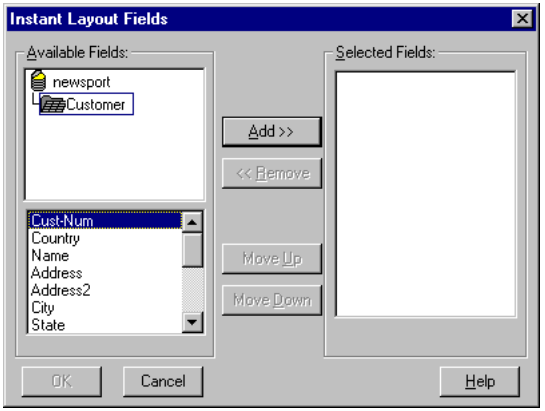
1 ♦ Choose Report→ New or the New button. The Database Tables dialog box appears:




2 ♦ Select the Customer table to specify it as the master table for the report, then choose OK. Report Builder prompts you to use the Instant Layout option:

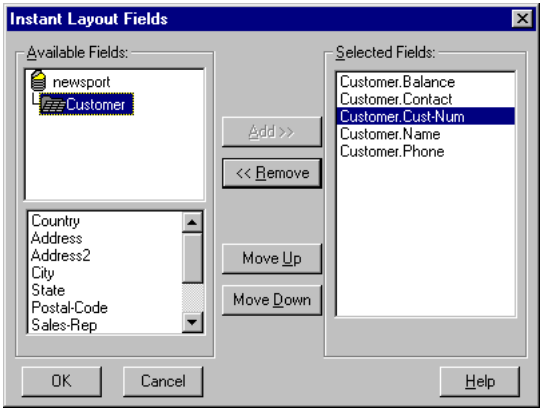


3 ♦ Choose Yes. The Instant Layout Fields dialog box lists the fields defined for the Customer table:




4 ♦ Scroll through the selection list and select Balance, then choose the Add button. Balance appears in the Selected Fields list.

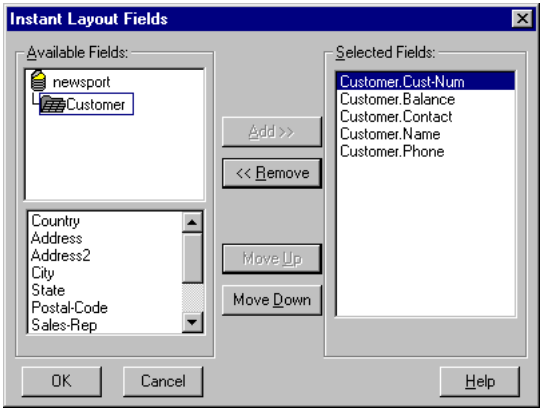
5 ♦ Select and add Contact, Cust–Num, Name, and Phone in the same manner. To select multiple fields, press and hold **CTRL** and click the fields. The Instant Layout Fields dialog box contains all five fields in the Selected Fields list:



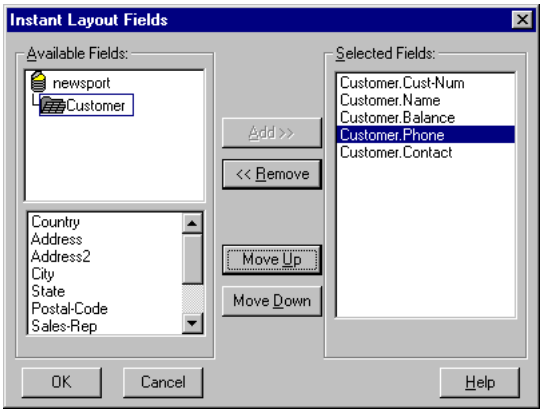
Notice that when the fields appear in the Selected Fields list, each field name is preceded by the word "Customer." This occurs because "Customer" is the name of the table in which each of these fields is defined. Report Builder attaches the table name to each field name to identify the field's origin. Because you are only selecting fields from a single table, all the fields in the list are identified by the same table name, and the identification seems unnecessary. However, when you select fields from a list that contains fields from multiple tables, the table name identifier is very useful.

Also notice the order in which the fields appear in the Selected Fields list. This order is important because Report Builder places the selected fields on the report layout in the order in which they appear in the list. Because the Accounts Receivable report displays the fields in a different order than the order in which you selected the fields, you must reorder the fields in the Selection List.

6 ♦ To place Cust–Num as the first field on the report layout, select it and choose Move Up two times. Cust–Num moves to the top of the Selected Fields list:



7 ♦ Use the Move Up and Move Down buttons to place the fields in the following order: Cust–Num, Name, Balance, Phone, and Contact. After you reorder the fields, the Instant Layout Fields dialog box looks like this:




8 ♦ Choose OK. Report Builder displays a report layout that places the selected fields from the Customer table on the report layout, as shown in Figure 3–1.

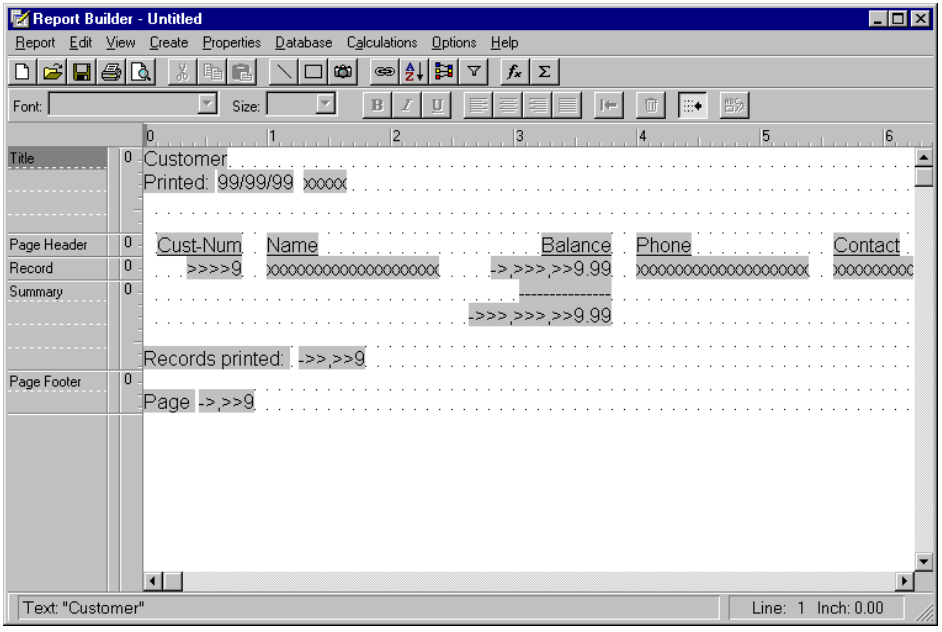



**Figure 3–1: Accounts Receivable Instant Layout**

Notice that the layout includes more fields than the five you selected from the Customer table. The Instant Layout option automatically includes the fields you specified, plus Report Builder-created calculated fields, text fields, and an aggregate field. The calculated fields display the date, time, number of records printed, and page number. The text fields display the master table name and identify the database and calculated fields. Lastly, the aggregate field computes and displays the totals for the Balance field.

The band lines on which fields appear control where Report Builder displays or prints these fields. This report uses five types of band lines as shown in the band area at the left of the window. See Chapter 2, "Report Builder Basics," if you do not know how Report Builder uses band lines. For more detailed information, see the bands chapter in the *Progress Report Builder User's Guide*.

Figure 3–2 highlights the band line labels that identify each band line type.

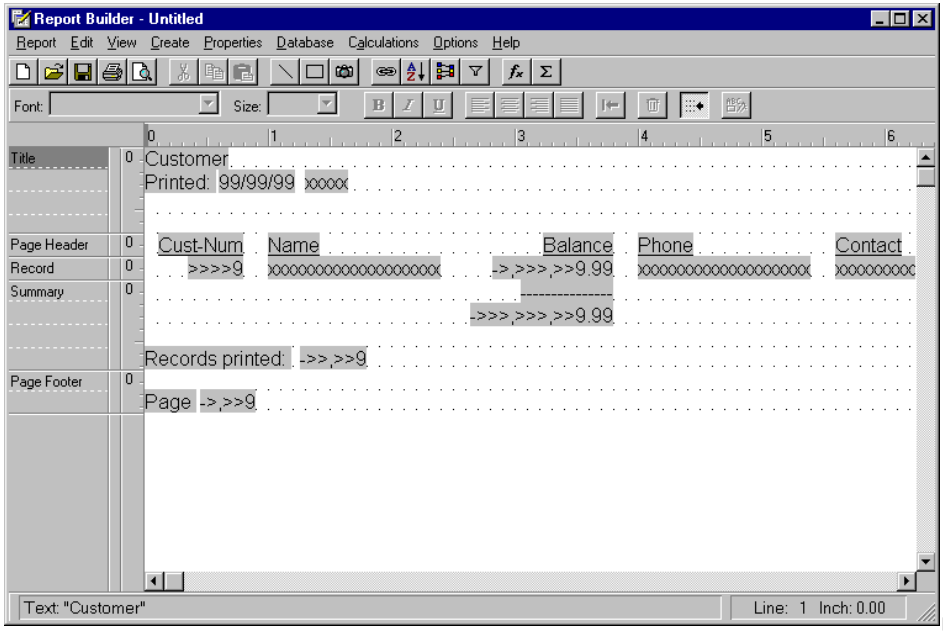



**Figure 3–2: Instant Layout with Band Line Labels**

The title band lines display the master table name, print date, and print time at the top of the first page. The page header band line includes the field labels for the specified fields and prints them after the title on the first page and at the top of each subsequent page.

The record band line contains information from each database table record for the fields you selected in the Instant Layout Fields dialog box. When you generate the report, Report Builder displays data from these fields for each record in the Newsport database. Although the record band appears as a single line on the layout, the generated report has many record lines—one for each record in the table.

The total for the Balance field and the number of records printed appear in the summary band lines, which appear at the end of the last page of the report. The page footer displays the page number at the bottom of each page, including the last page of the report.

### 3.2.1 Previewing the Report

To see how the band line types and the positions of the fields on the layout control how the information will appear, follow these steps to preview the report:

1 ♦ Choose Report→ Print Preview or the Preview button. The Preview window appears and displays the report as it will appear when printed.

By default, Report Builder displays the entire first page of the report. This is useful for seeing how Report Builder presents the information. However, if you want to read the data in the report, you can use the control buttons at the top of the window to manipulate the report display. The Preview control buttons look like this:



2 ♦ To see a close-up display of the report page, choose the Zoom In button (the third button from the left).

When Report Builder "zooms in" on the report, it cannot fit the entire page in the Preview window. Use the horizontal and vertical scroll bars to view the hidden information.

3 ♦ To exit from Preview and return to the report layout, choose the Stop button (the solid black square).

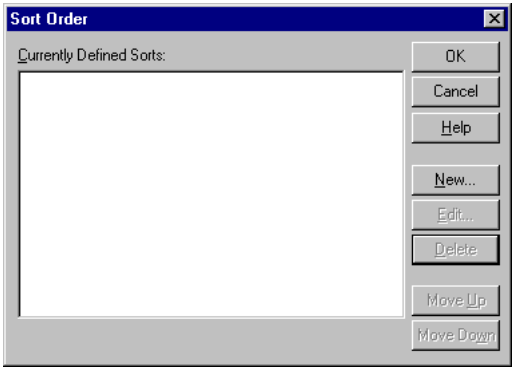
## 3.3 Accessing and Ordering Data

For this report you already have access to all the fields you need to display. However, you do want to change the order in which the data appears in the report.

By default, Report Builder displays records in the order in which they are read from the master table in the database. However, you can change the order in which Report Builder presents the data without changing the sort order in the database. For this report, you want to display the data by the customer balance in descending order.

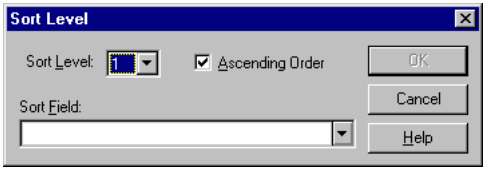
Follow these steps to change the sort order:

1 ♦ Choose Database→ Sort Order or the Sort button. The Sort Order dialog box appears:



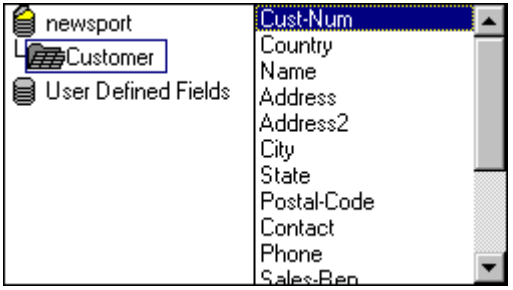

Because you have not specified a sort order, there are no fields listed in the dialog box.

2 ♦ Choose the New button to specify a new sort field. The Sort Level dialog box appears:




3 ♦ Open the drop-down list for the Sort Field.

4 ♦ Double-click on the Newsport database or select it and press **ENTER** to display a list of tables from the database that are available for this report:

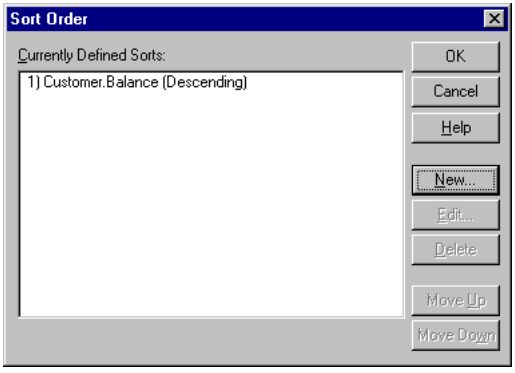



Because you have only accessed one table, Customer, it is automatically selected. The list on the right displays all the fields in the Customer table.

5 ♦ Double-click on the Balance field. Report Builder displays Balance in the Sort Field selection list.

The "x" in the Ascending toggle box indicates that Report Builder sorts the records by the customer balance from smallest to largest. However, you want to sort from largest to smallest.

6 ♦ Deactivate the Ascending toggle box to change the order to descending, then choose OK. The Sort Order dialog box reappears with the newly defined sort order:




7 ♦ Choose OK to return to the report layout.

Preview the report to verify that the sort order has changed. As Figure 3–3 shows, the first record is the company with the highest balance.

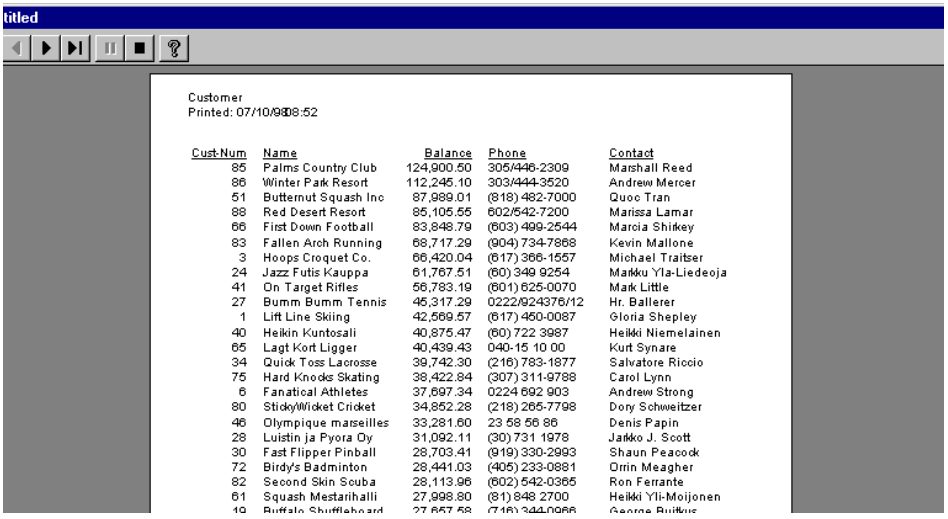



**Figure 3–3: Report Preview of New Sort Order**

## 3.4 Designing the Report Layout

Report Builder automatically formats the report layout as you specified in the Instant Layout Fields dialog box. You can customize the report further by performing the following additional tasks:

1. Replacing the title
2. Formatting the new title
3. Creating a rectangle around the title

The following sections describe each of these tasks.

### 3.4.1 Replacing the Title

First, you replace the title band lines' default contents with a more descriptive title. The current title band lines contain text fields displaying the master table name, the word "Printed," and the Report Builder calculated fields that display the print date and time.

Follow these steps to delete the current fields from the report layout and add a new text field:

1 ♦ Position the mouse pointer on the Customer text field.

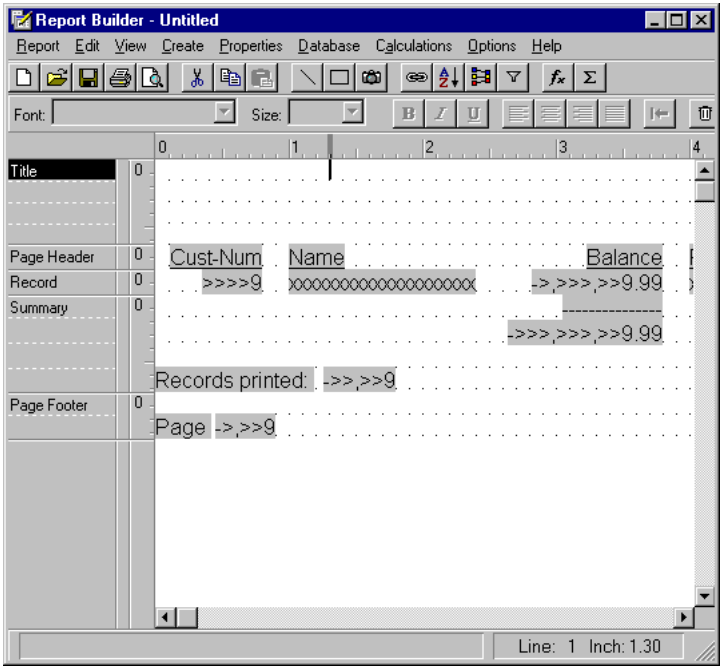
2 ♦ Press the left mouse button and drag the mouse to select the Customer and Printed: text fields and the Date_rb and Time_rb fields on the title lines. The Date_rb field is represented by "99/99/99," and Time_rb is "xxxxx".

You do not have to enclose an entire field in the box. Simply enclose a portion of each field in the box and release the mouse button to select all four fields.

The layout appears with all the fields on the first two title band lines selected.

3 ♦ Choose Edit→ Delete, the Trashcan button, or the Delete button. When Report Builder deletes calculated fields from the layout, such as Date_rb and Time_rb, it does not delete them from the report definition. It simply removes them from the report layout. The fields are still defined and can be inserted on the layout.

4 ♦ Select the first title band line by highlighting its band line label. The layout appears with the first title band line selected:




5 ♦ Choose Edit→ Insert Band Line. Report Builder inserts another title band line above the currently selected band line.

If you want to create a different type of band line or place the new band line below the currently selected band line, choose Create→ Band Line. The Create Band Line dialog box allows you to specify the band line type and placement.

6 ♦ Position the edit cursor on the third title line (leave two blank lines at the top).

7 ♦ Type **Accounts Receivable List**, then press **ENTER**.

8 ♦ To position the title, click on the text field and drag it to the right until the position indicator on the horizontal ruler is at 2.5 inches. Figure 3–4 shows how the layout should look with the new report title.

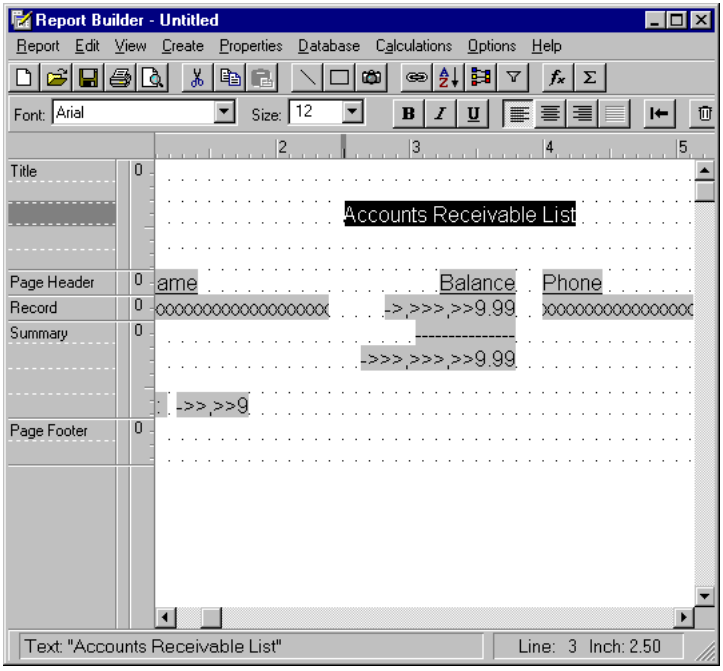



**Figure 3–4: Layout with New Report Title**

Notice that when you highlight a field, Report Builder identifies it and displays the field's type and format information in the status bar at the bottom of the window.

### 3.4.2 Formatting the Title

After you enter the text field on the layout, you can change the following characteristics:

- Text
- Font and point size
- Style

To apply these formatting characteristics to any type of field, use the Properties menu options, the format bar buttons, or the Field Properties dialog box. The following sections describe each of these techniques.

#### Editing a Text Field

You have already created a new report title, Accounts Receivable List. However, the word "report" might be a better choice than "list."

Follow these steps to change the text field:

1 ♦ Select the Accounts Receivable List text field. Note that the text string appears in the status bar.

2 ♦ Choose Properties→ Edit In Place or press **F2** to enter the text editing mode. The field is now highlighted and the edit cursor is at the end of the field.

3 ♦ Press **BACKSPACE** to delete "List."

4 ♦ Type **Report**.

5 ♦ Press **ENTER**. Report Builder exits the text editing mode; however, the field remains selected. To deselect the field, click on a blank part of the layout.

Figure 3–5 shows the edited report title.

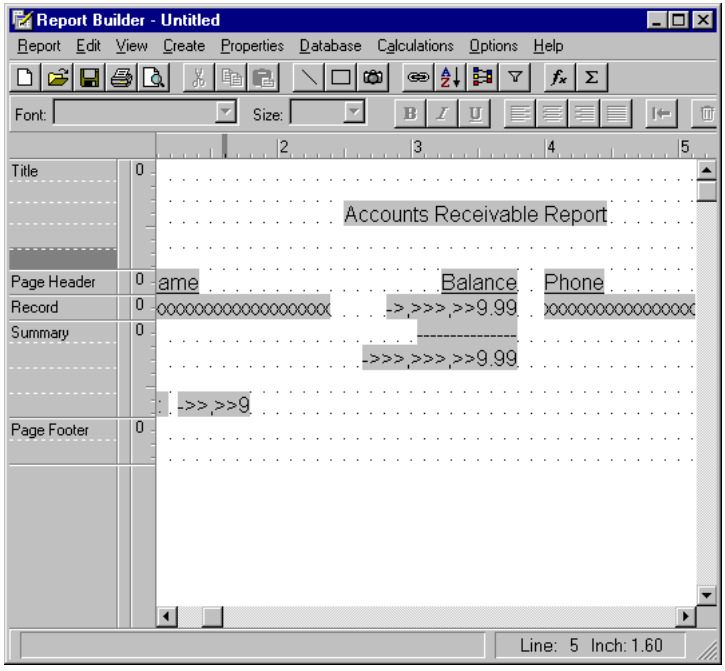



**Figure 3–5: Layout with Edited Report Title**

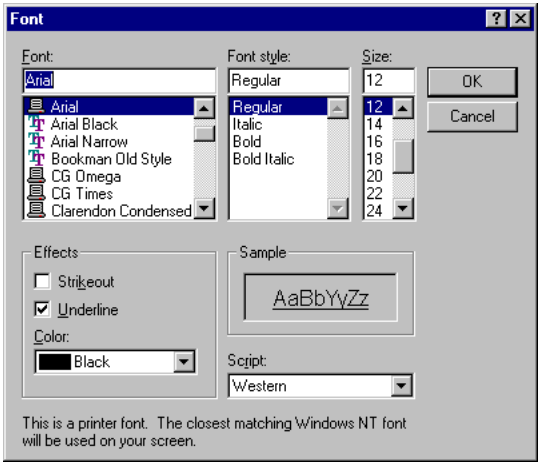
### Changing the Font

When you use the Instant Layout option, Report Builder assigns a default font and point size to every field. The default font and point size are specified with the Default Settings option of the Options menu. To make the report title stand out from the rest of the report information, change its font.

Follow these steps to apply a different font and point size to the report title using the Properties menu and the format bar:

1 ♦ Select the Accounts Receivable Report text field.

2 ♦ Choose Properties→ Font. The Font dialog box appears:




3 ♦ Select Times New Roman from the Font selection list, then choose OK. Times New Roman is a TrueType font available on most PCs. If you do not have Times New Roman, select another font, but be aware that your report output will look different than the one shown in the examples.

4 ♦ Select the Accounts Receivable Report text field again.

5 ♦ Choose 18 from the Size drop-down list on the format bar.

Figure 3–6 shows the report title in 18-point Times New Roman.

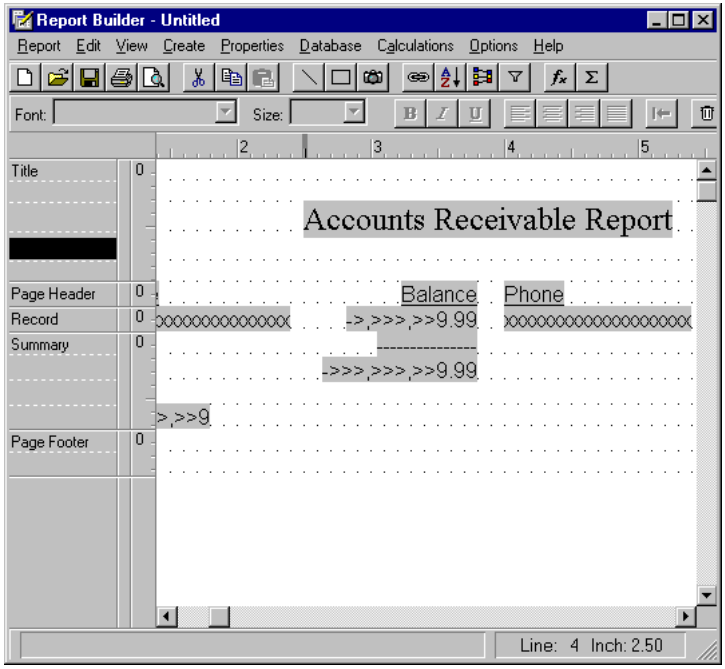
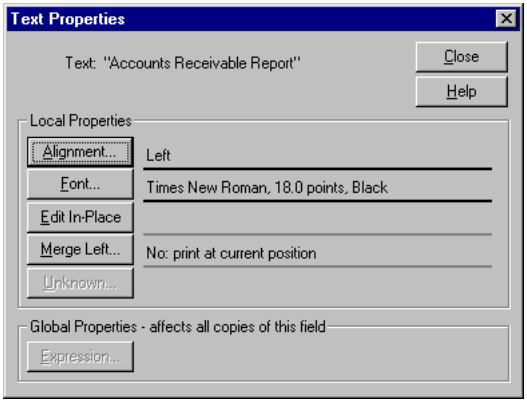



**Figure 3–6: Layout with 18-point Report Title**

### Making the Title Bold

To really make the report title eye-catching, follow these steps to use the Text Properties dialog box to make the field bold:

1 ♦ Select the Accounts Receivable Report text field, then press **F4** or double-click on the field. The Text Properties dialog box appears:




If this field is a database or user-defined field, the Field Properties dialog box appears.

2 ♦ Choose the Font button. The Font dialog box appears.

3 ♦ Choose Bold, then choose OK. Report Builder applies the new style and returns you to the Text Properties dialog box.

4 ♦ Choose Close to exit the Text Properties dialog box and return to the report layout.

The text field is now in 18-point boldface Times New Roman. Figure 3–7 shows how the report title now appears on the report layout.

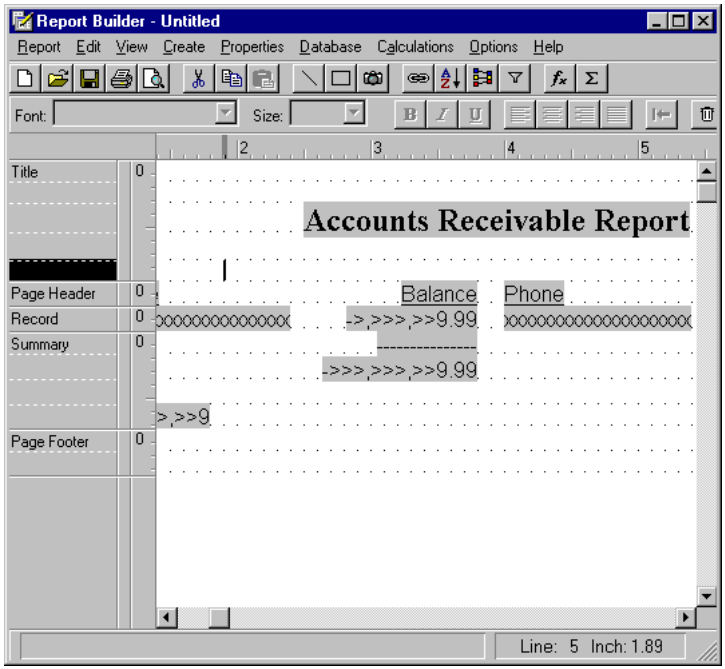



**Figure 3–7: Layout with Bolded Report Title**

The changes you made to the report title made a difference in how it appears. It definitely is more noticeable in the larger, bold font. However, you can still do more to emphasize it, such as drawing a shaded rectangle around it.

### 3.4.3 Creating a Rectangle Around the Title

Changing the title's font and point size made it much more noticeable, Now you will emphasize it even more by drawing a rectangle around the title, changing the rectangle border thickness, and adding shading.

The following sections describe these tasks.

#### Drawing a Rectangle

Follow these steps to draw a rectangle around the report title:

1 ♦ Choose the rectangle button on the tool bar. The cursor changes to a crosshair and a rectangle outline.

2 ♦ Position the crosshair above and to the left of the title, then drag the mouse to the lower right. By default, the Snap To Grid option is enabled, which means that the rectangle outline aligns to the ruler increments.

A rectangle now surrounds the report title. Figure 3–8 shows the layout with the rectangle.

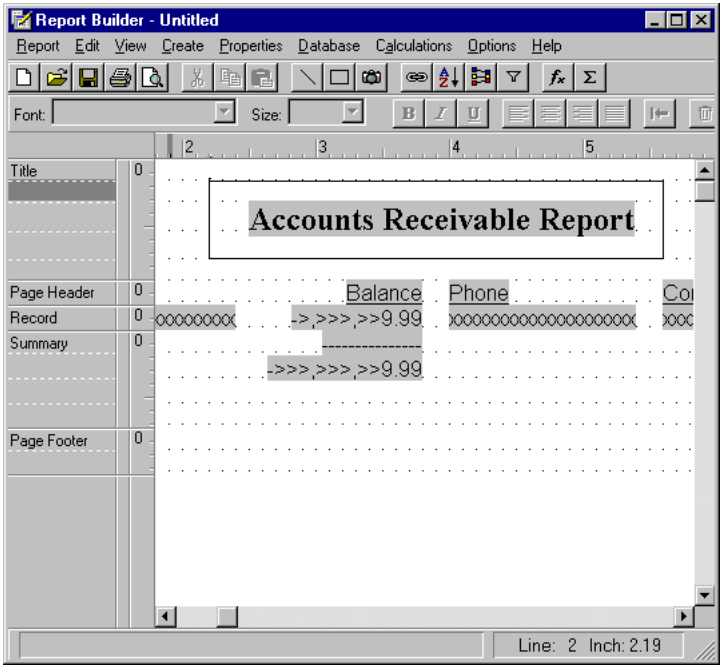
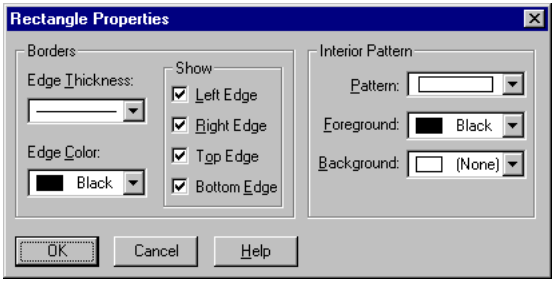



**Figure 3–8: Layout with a Rectangle Around the Report Title**

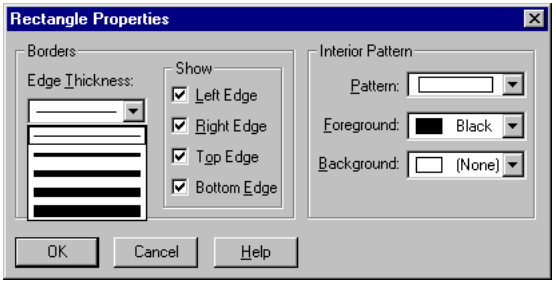
### Specifying Border Thickness and Shading the Rectangle's Background

By default, a rectangle has the thinnest black border on all sides and no background shading. Follow these steps to change the border thickness and add shading to the background:

1 ♦ Double-click on the rectangle border. The Rectangle Properties dialog box appears:




2 ♦ Select the second border option from the Edge Thickness drop-down list:




3 ♦ Select Silver from the Background drop-down list, then choose OK to return to the report layout.

Figure 3–9 shows how the report layout appears with a shaded rectangle around the title.

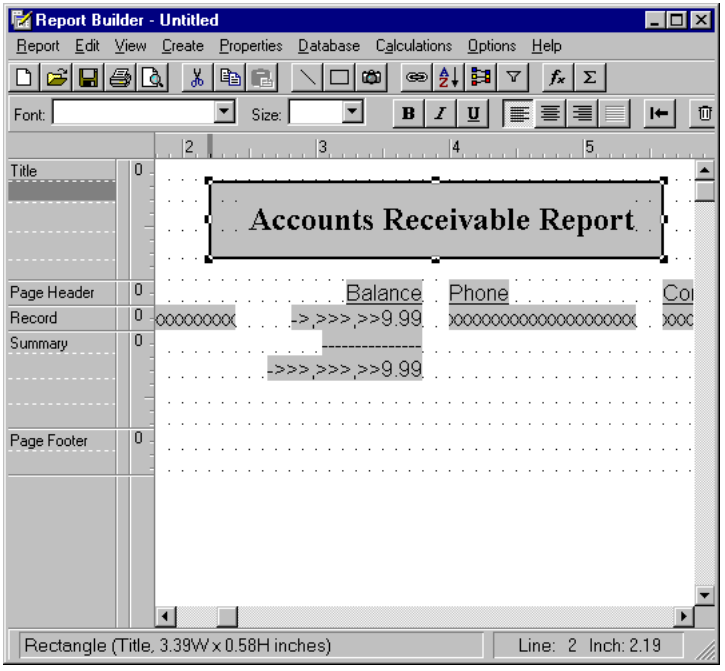



**Figure 3–9: Completed Accounts Receivable Layout**

If the report layout does not look like this, open the Accounts Receivable Sample report definition in the `Tutorial.prl` report library to see how it should look.

## 3.5 Previewing and Saving the Report Definition

The final step in creating the report definition is to preview the report to verify that the data appears in the desired format, then save the definition so you can generate the report again at a later time.

### 3.5.1 Previewing the Completed Report Definition

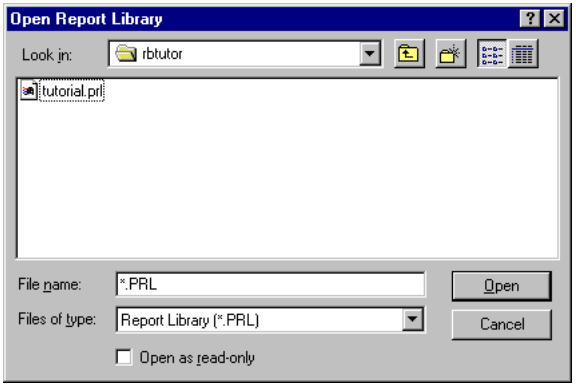
Preview the report. It should look similar to the one shown in Figure 1–1. If not, note the differences. If the differences are in field position, simply reposition the fields. However, if Report Builder displays different data, review the exercise to determine how to make the reports match.

### 3.5.2 Saving the Report Definition

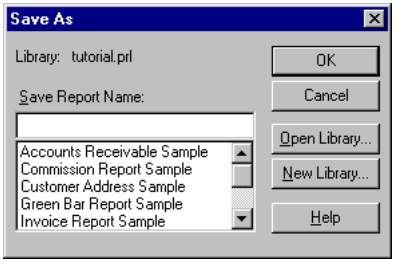
When you save a report definition, Report Builder saves it to a report library. If you have already opened a report library, Report Builder saves the report definition there by default. If you have not already opened a library, Report Builder prompts you to open or create one. If you have already opened a library, you can save the report into that library or another one.

Follow these steps to save the completed report layout:

1 ♦ Choose Report→ Save or the Save button. The Open Report Library dialog box appears:




2 ♦ Specify the `Tutorial.prl` report library, then choose OK to accept the report library name. The Save As dialog box appears:




The report library name, `TUTORIAL.PRL` appears at the top of the dialog box. Notice that there are already several report definitions in `Tutorial.prl`, including Accounts Receivable Sample. These are the report definitions for all the sample reports in this tutorial.

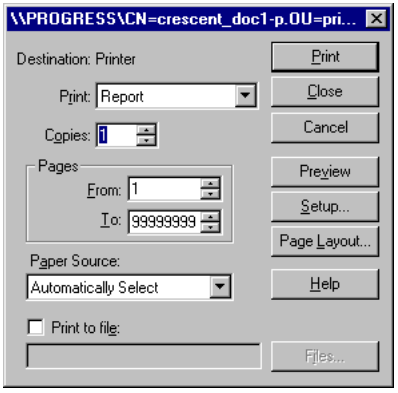
3 ♦ In the Save Report Name field, type **Accounts Receivable Sample**. The report name can consist of any characters except commas and can contain up to 32 characters.

4 ♦ Choose OK. Report Builder saves the report definition as "Accounts Receivable Sample" in the `Tutorial.prl` library and returns to the report layout window.

## 3.6 Printing the Report

After you complete the report definition, you print the report. Follow these steps to print the report:

1 ♦ Choose Report→ Print or the Print button. If you select the Print button, Report Builder sends the report directly to the default printer. If you choose the Print option, the Print dialog box appears:




2 ♦ If you are sending the report to a printer, specify the number of copies to print. The default is 1. The maximum is 9,999.

3 ♦ Specify the range of pages to print. The defaults are 1 to 99,999,999. You can specify any numbers within the range. However, if you specify a beginning number that is beyond the number of pages in the report, Report Builder does not print any pages. If you specify an ending number that is beyond the number of pages in the report, Report Builder prints the beginning page through the end of the report.

4 ♦ Choose OK. Report Builder sends the report to the default printer for your machine. If you want to know what printer is the default printer, choose Report→ Print Setup or Setup in the Print dialog box. The Printer Setup dialog box lists the available printers and the currently selected printer.

Report Builder saves these settings with the report definition and overrides any corresponding Windows default settings.

## 3.7 Summary

After performing the steps in this chapter, you should know how to perform all the tasks in the following checklist:

- Use the Instant Layout option.
- Preview a report.
- Change the sort order.
- Remove fields from the layout.
- Insert band lines on the layout.
- Insert and edit text fields.
- Change a field's font, point size, and style.
- Create and modify a rectangle.
- Save a report definition.
- Print the report.

To create the reports described in the following chapters, you must be able to perform these tasks. If you are not confident that you know how to perform a particular task, return to the section that describes that task and review the steps.

# 4

# Customer Address Report

In this chapter you will learn how to create a customer address report that displays address information for all the customers in the Newsport database. Instead of using all the address information fields individually, this report uses one calculated field.

Specifically, this chapter describes how to:

- Create a calculated field
- Create an aggregate field
- Insert a user-defined field
- Draw a line
- Adjust field width and alignment
- Specify band line justification
- Remove spaces between fields with the Merge Left option

## 4.1 Report Overview and Output

As you did in Chapter 3, "Accounts Receivable Report," you will again perform the following five basic steps to create the report definition:

1. Create the initial report layout.
2. Access and order the data.
3. Define new fields.
4. Design the report layout.
5. Preview and save the report definition.

Follow the step-by-step instructions provided in this chapter to create the report definition for the Customer Address report. Figure 1–2 shows the first page of the Customer Address report.

For this report, you attempt to fit the address information onto one line; therefore, the information does not appear in the standard address format. The Customer Address Sample report definition in the `Tutorial.prl` report library creates this report. However, you should perform the steps in this chapter to learn the new tasks.

To perform the tasks in this chapter, you must:

- Connect to the Newsport database.
- Know how to perform the tasks described in Chapter 3, "Accounts Receivable Report." If you have difficulty performing any task for creating the Customer Address report, see Chapter 3, "Accounts Receivable Report," for a complete description of the task.

Although this exercise directs you to preview the report at specific steps, you can preview it at any point during the creation of the report definition.

## 4.2 Creating the Initial Report Layout

As you did in the first report, you create the report definition using the Instant Layout option. Follow these steps to use the Instant Layout option:

1 ♦ Choose Report→ New or the New button. The Database Tables dialog box appears.

2 ♦ Select the Customer table to specify it as the master table, then choose OK. Report Builder prompts you to use the Instant Layout option.

3 ♦ Choose Yes. The Instant Layout Fields dialog box lists the fields defined for the Customer table.

4 ♦ Select and add the Name field, then the Balance field.

5 ♦ Choose OK. Report Builder displays a report layout that places the selected fields from the Customer table on the report layout, as shown in Figure 4–1.

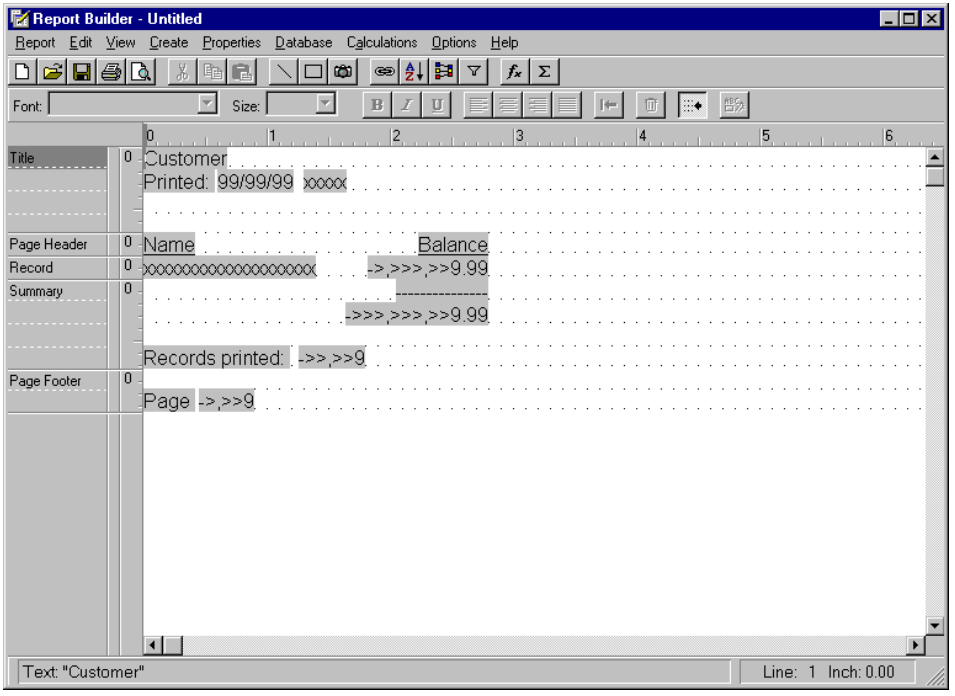



**Figure 4–1: Customer Address Instant Layout**

Notice that the Instant Layout option creates the same default band lines and fields as it does in the Accounts Receivable report. The Instant Layout includes the default fields that display report information (master table name, print date and time, number of records printed, and page number.) Because Report Builder automatically provides aggregate fields to compute the totals for all numeric fields that contain decimal places you select for the Instant Layout, this report layout includes the GrSum1 aggregate field for the Balance field. Notice that Report Builder also includes a "total line" text field in the summary band to properly format the Balance field total information.

## 4.3 Accessing and Ordering the Data

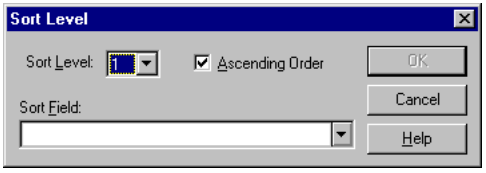
Because the Customer table contains all the information you need for this report, you do not have to access any other tables. However, you can change the order in which Report Builder displays the customer information.

For this report, you want to list the customer information in alphabetical order by customer name. To do this, you sort by the Name field.

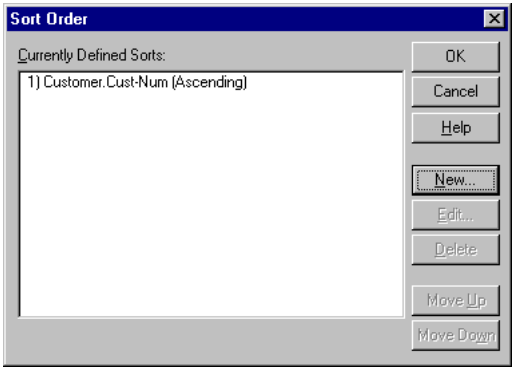
Follow these steps to specify the record sort order:

1 ♦ Choose Database→ Sort Order or the Sort button. The Sort Order dialog box appears. Because you have not specified a sort order, there are no fields listed in the dialog box.

2 ♦ Choose the Sort button to specify a sort order. The Sort Level dialog box appears:



3 ♦ Choose the Name field. Report Builder displays Name in the Sort Field selection list. The Sort Order dialog box reappears with the newly defined sort order:




4 ♦ Choose OK to return to the report layout.

## 4.4 Defining the New Fields

When you created the report definition, you selected only the Name and Balance fields. However, to generate the report output shown in Figure 1–2, you must create two user-defined fields:

- A calculated field to format the customer address
- An aggregate field to total the amount owed by all the customers listed on a page

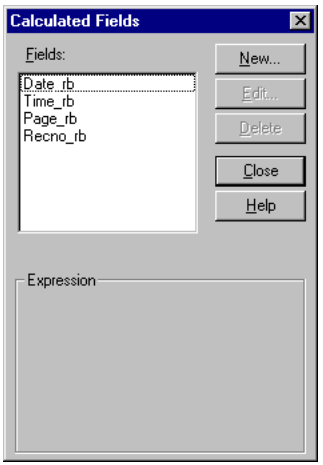
The following sections describe how to create these fields.

### 4.4.1 Creating the Address–All Calculated Field

To display a customer's complete address using the data in the Address, Address2, City, State, and Postal–Code fields, you can either use each individual field or create a calculated field that incorporates all five fields. The typical address format contains multiple lines with several address components on each line. If you simply insert the fields on the layout, Report Builder places them in individual columns. To properly format the fields, you would have to create individual text fields to insert the necessary spaces and punctuation, then apply the merge left option to all the fields. However, you can create a calculated field that adds the appropriate punctuation and spacing.

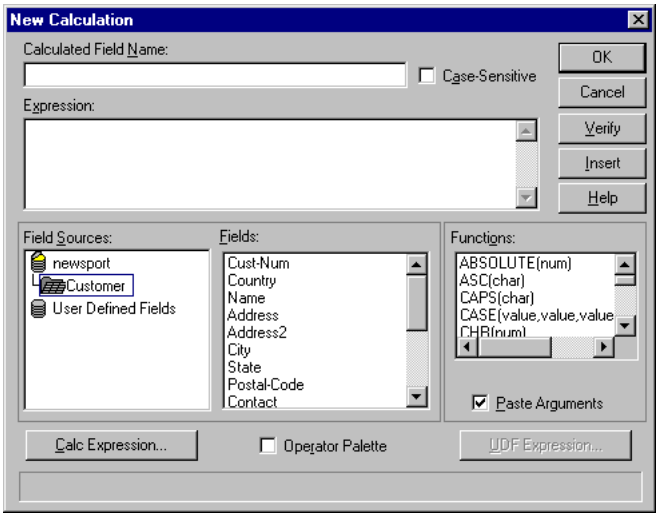
Follow these steps to create the Address–All calculated field:

1 ♦ Choose Calculations→ Calculated Field. The Calculated Fields dialog box appears:




It lists the default calculated fields that Report Builder created with the Instant Layout option.

2 ♦ Choose the New button. The New Calculation dialog box appears:




3 ♦ Type **Address–All** in the Calculated Field Name field.

4 ♦ Type the following expression in the Expression field:

**Address + ” ” + Address2 + ”, ” + City + ”, ” + State + ” ” + Postal–Code**

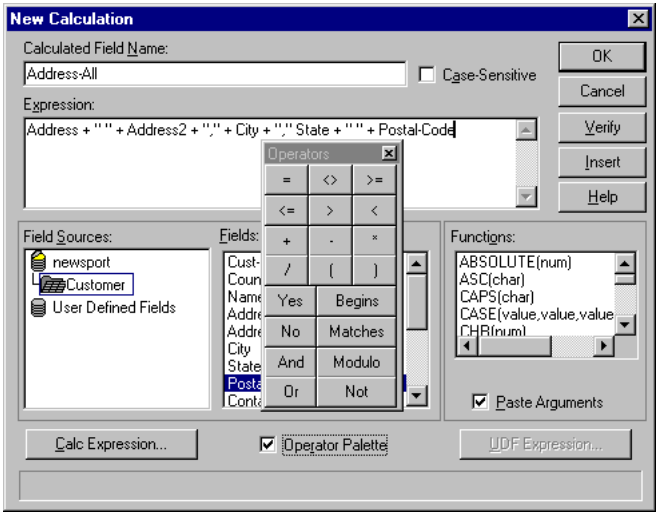
This expression joins each of the database fields and text strings together into a single field. Each set of quotation marks includes a blank space. For the quotation marks that also include a comma, enter the blank space after the comma. Also, be sure to enter a space between each field, text string, and operator.

There are several ways to create this expression:

- Type each field name, text, and operator.
- Select the fields from the Fields selection list, then choose Insert or double-click on the fields.
- Activate the Operator Palette toggle box, then choose the appropriate operator.

See the *Progress Report Builder User’s Guide* for a complete explanation of calculated field expressions and operators.

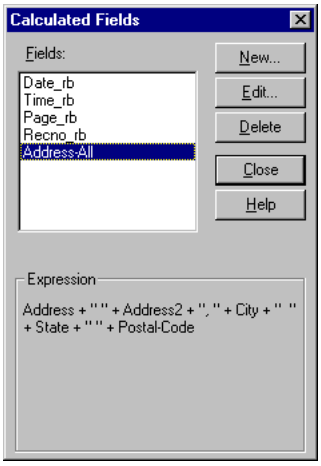
The following figure shows the New Calculation dialog box with the correct expression in the Expression field and the Operator Palette displayed:



5 ♦ Choose Verify to check the expression syntax. If there is an error in the expression (for example, if you did not leave a blank space between one of the expression elements), Report Builder displays an error message. When possible, it also positions the cursor to the place in the expression where the error occurred.

Edit the existing expression if it is not correct.

6 ♦ Choose OK to create the field and return to the Calculated Fields dialog box:



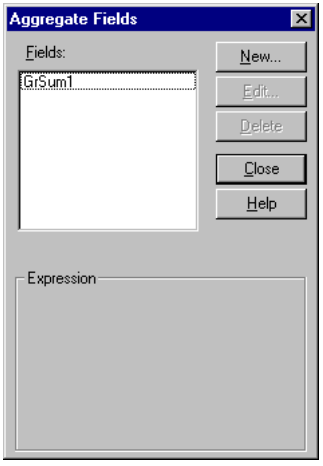

7 ♦ Choose Close to return to the report layout.

### 4.4.2 Creating a Balance Total Aggregate Field

You can create an aggregate field to display the total balance for the customers listed on each page.

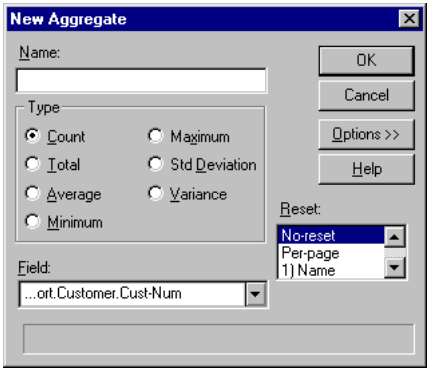
Follow these steps to create the Page–Total aggregate field:

1 ♦ Choose Calculations→ Aggregate Field. The Aggregate Fields dialog box appears:




Report Builder automatically creates the GrSum1 aggregate field when it creates the instant layout for the report.

2 ♦ Choose the New button. The New Aggregate dialog box appears:

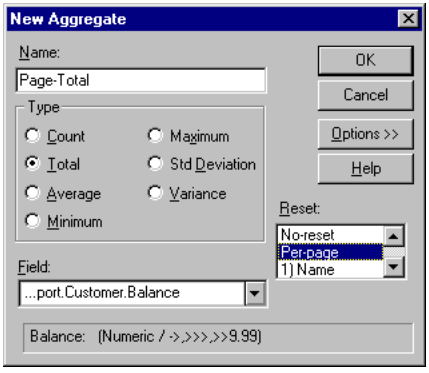



3 ♦ Type **Page–Total** in the Name fill-in field.

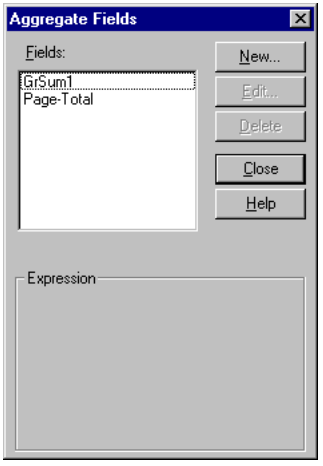
4 ♦ Choose Total as the field type.

5 ♦ Select Balance from the Field drop-down list. This instructs Report Builder to total the values of the Balance field.

6 ♦ Select Per–page as the reset level. This tells Report Builder to reset the total to zero at the beginning of each page. The following dialog box shows the proper settings:




7 ♦ Choose OK to return to the Aggregate Fields dialog box. Notice that Page–Total now appears in the list:




8 ♦ Choose Close to return to the report layout.

## 4.5 Designing the Report Layout

To format the layout so that the data appears as shown in Figure 1–2, you must perform the following tasks:

1. Insert new fields.
2. Change the Address–All field's width and alignment.
3. Change the report header information.

The following sections describe each of these tasks.

### 4.5.1 Inserting New Fields

To display the information calculated by the Address–All and Page–Total fields, insert them on the report layout. Because Report Builder places fields in the report layout at the edit cursor location, position the cursor at the correct location before inserting the field.

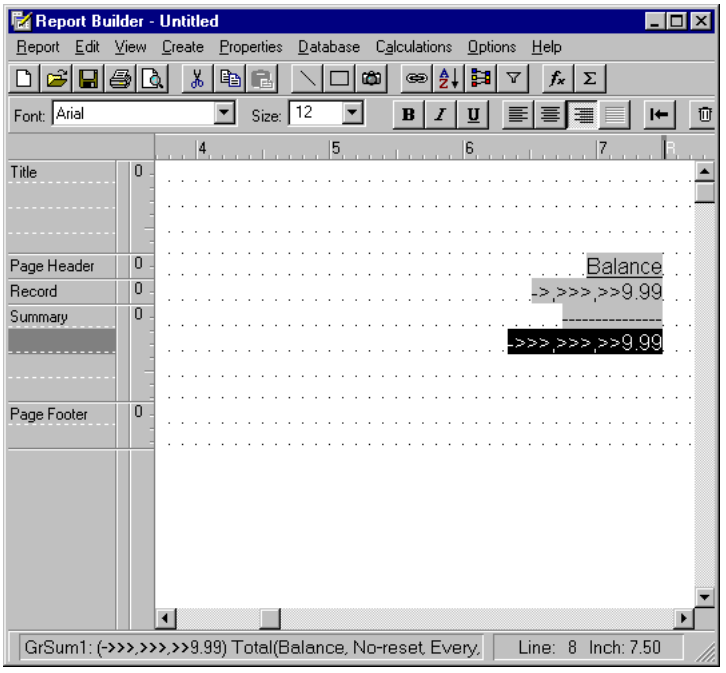
#### Address–All Field

The logical place to insert the Address–All field is between the Name and Balance fields on the record band line. However, to position the Address–All field correctly, you must first move the balance information to the right.

Follow these steps to move the customer balance information and insert the Address–All field:

1 ♦ Select the Balance text field and the three fields directly below it. These three fields are the Balance data field, the text field that contains the total line, and the GrSum1 field.

2 ♦ Drag the fields so that their right edges are at the 7.5-inch mark, placing all the balance information along the right page margin. Make sure that the fields are still on the same band lines. The layout with the fields repositioned looks like this:

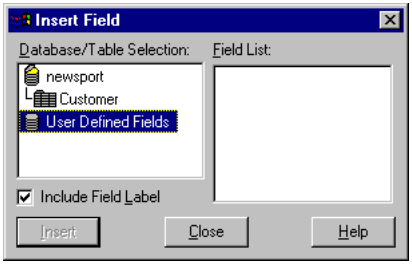



3 ♦ Deselect the fields by clicking an empty part of the layout.

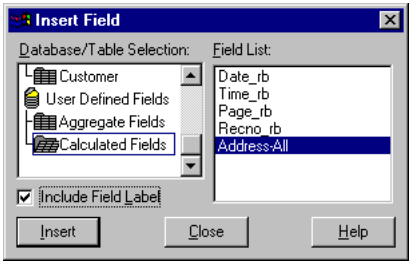
4 ♦ Choose Edit→ Insert Field, click the right mouse button, or press **INSERT**. The Insert Field dialog box appears.

5 ♦ Position the edit cursor at the 2-inch mark on the record band line. If the Insert Field dialog box covers this area of the report layout, move it to another part of the screen.

6 ♦ Activate the Include Field Label toggle box:




7 ♦ Select the Address–All field from the selection list. If the Address–All field does not appear in the Field List when the Insert Fields dialog box appears, double-click User Defined Fields, then Calculated Fields from the Database/Table Selection list. The Address–All field appears in the Field List:




8 ♦ Choose Insert. Report Builder inserts the field on the record line and the “Address–All” label on the page header band line.

When you complete these steps, the Address–All field should appear on the record band line and the text string “Address–All” should be the field label, as shown in Figure 4–2.

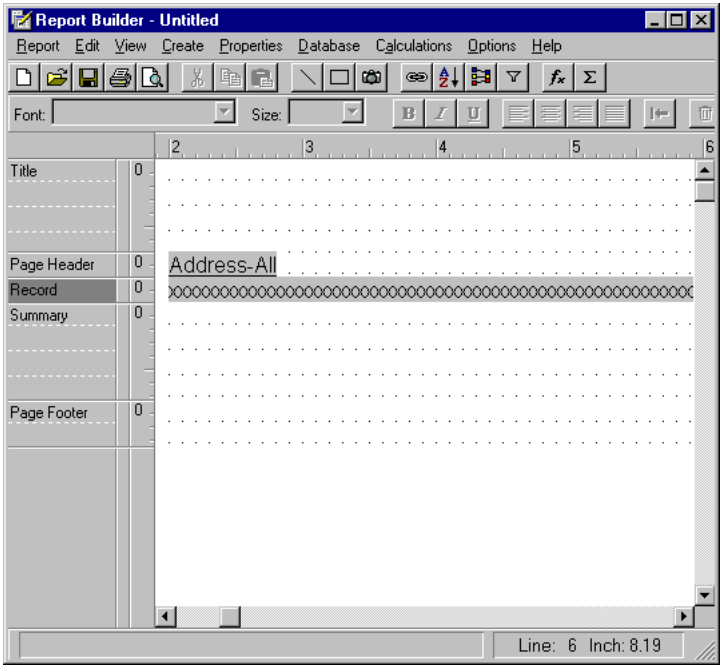



**Figure 4–2: Layout with Address–All Field**

### Page–Total Field

After you insert the Address–All field, the Insert Field dialog box remains open to allow you to insert additional fields.

Follow these steps to insert the Page–Total field:

1 ♦ Position the edit cursor directly below the GrSum1 field on the second line of the page footer band line. GrSum1 is the aggregate field Report Builder created to total the Balance field for the report.

Because you selected a calculated field in the previous task, the Insert Field dialog box still displays the calculated fields available for the report.

2 ♦ Select Aggregate Fields from the Database/Tables selection list.

3 ♦ Select the Page–Total field from the Field selection list.

4 ♦ Deactivate the Include Field Label toggle box.

5 ♦ Choose Insert, then Close.

6 ♦ Choose the Line button on the format bar. The cursor changes to a crosshair.

7 ♦ Draw a “total” line directly above the Page–Total field.

8 ♦ Deselect the line.

Figure 4–3 shows how the report layout looks now.

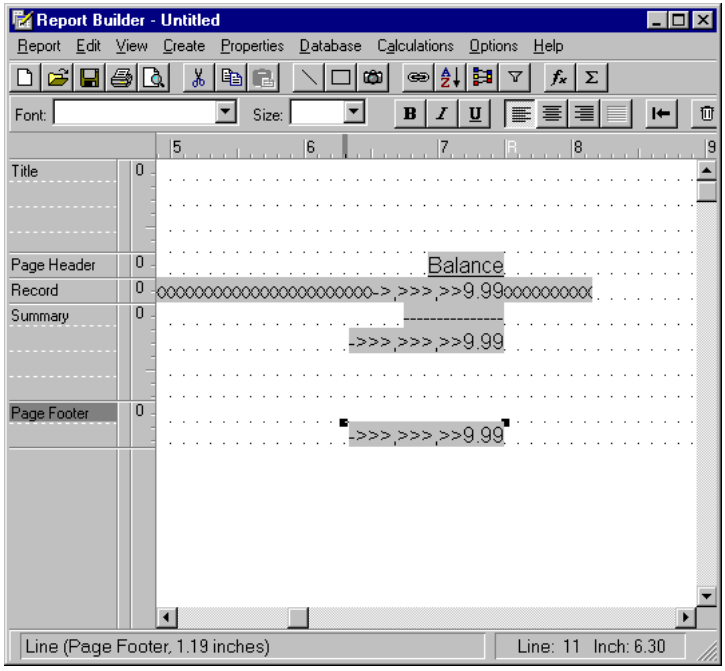



**Figure 4–3: Layout with User-defined Fields**

The Address–All field overlaps the Balance field because the default format for the Address–All field is very long in order to accommodate all the address fields. Your next task is to change the Address–All field’s width and alignment so that the customer’s address does not appear on top of the customer’s balance.

### 4.5.2 Changing the Address–All Field's Width and Alignment

Report Builder assigns a default field width so it can display all the address information on one line. As shown in this example, it is not always practical to display the entire contents of a field on one line. Therefore, change the field width and enable word-wrapping to print the field contents in the specified amount of space.

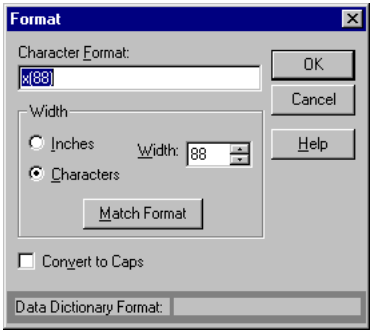
#### Address–All Field Width

Because the Address–All field's width is too wide, you must change it to fit between the Name and Balance fields.

Follow these steps to change the Address–All field width:

1 ♦ Select the Address–All field.

2 ♦ Choose Properties→ Format. The Format dialog box appears:

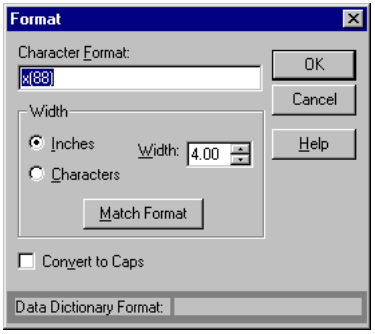



The Character Format for the Address–All field is 88 characters. If the Character Format for your Address–All field has a different number of characters, you entered a different number of characters in the field expression. If you do not edit the Address–All expression to have 88 characters, be aware that your data will appear slightly different than the data shown in this chapter. For example, if you did not enter a space between the quotation marks that appear between the Address and Address2 fields, Report Builder will not display a space. However, the examples in this chapter show a space between those fields.

By default, the field width accommodates 88 characters. However, you want to shorten the display width.

3 ♦ Activate the Inches radio button.

4 ♦ Change the width to 4 inches. While the field can contain up to 88 characters, Report Builder now only displays up to four inches of characters on each line:




Do not change the Character Format setting.

5 ♦ Choose OK to change the width and return to the report layout.

Figure 4–4 shows how the Address–All field appears on the layout. Notice that although the field width indicator extends four inches, the format is still 88 characters.

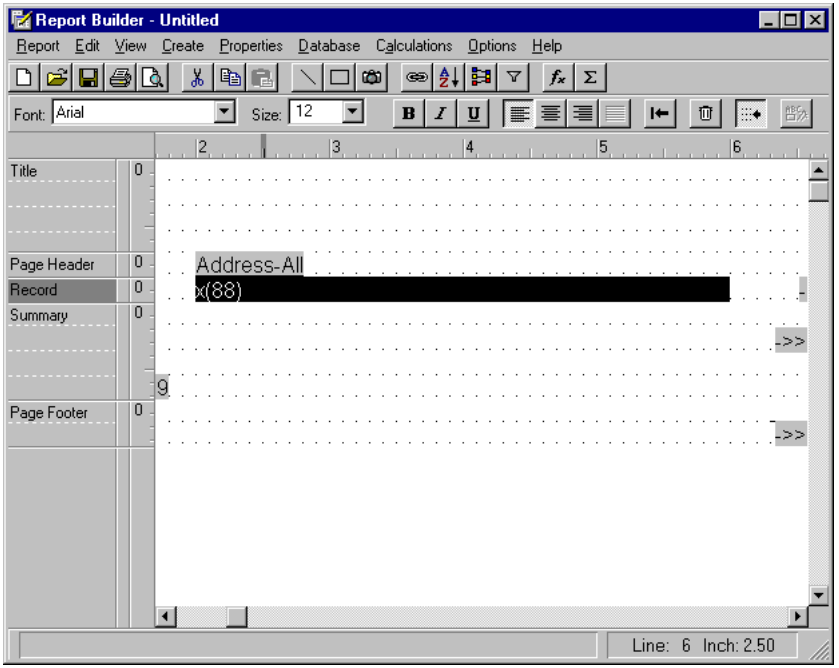



**Figure 4–4: Layout with Modified Field Width**

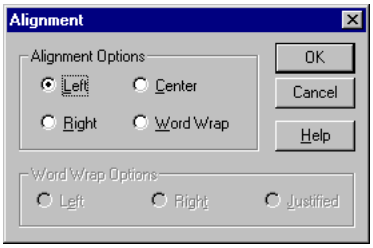
### Address–All Field Alignment

Because the Address–All field is a character field, it is left-aligned by default. When you shorten the field, Report Builder truncates the data. To display all the data within the 4-inch width, change the field alignment to word wrap.

Follow these steps to change the Address–All field alignment:

1 ♦ Select the Address–All field.

2 ♦ Choose Properties→ Alignment. The Alignment dialog box appears:




3 ♦ Select Word Wrap, then choose OK to return to the report layout.

Instead of truncating the address information that does not fit in the field's display width, Report Builder wraps the data on the next line.

Preview the report to see how the word wrapping appears on the report.

### 4.5.3 Changing the Report Header Information

By default, Report Builder displays the master table name and the date and time you print or display the report. Now you will change the following characteristics to reflect the report contents:

- Title text
- Print information

#### Title Text

Follow these steps to change the title's contents and then reformat it:

1 ♦ Select the table name on the first title band line.

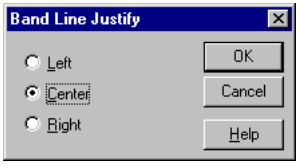
2 ♦ Choose Properties→ Edit In–Place.

3 ♦ Change the title to "Customer Address List," then press **ENTER**. The text field remains highlighted.

4 ♦ Change the point size to 14 and make the text bold using the format bar options.

5 ♦ Select the first title band line by selecting the band line indicator in the far-left column of the window.

6 ♦ Choose Properties→ Band Line Justify. The Band Line Justify dialog box appears:




7 ♦ Choose Center, then choose OK. Report Builder centers the title on the first band line.

The layout in Figure 4–5 shows the new position and font size of the report title.

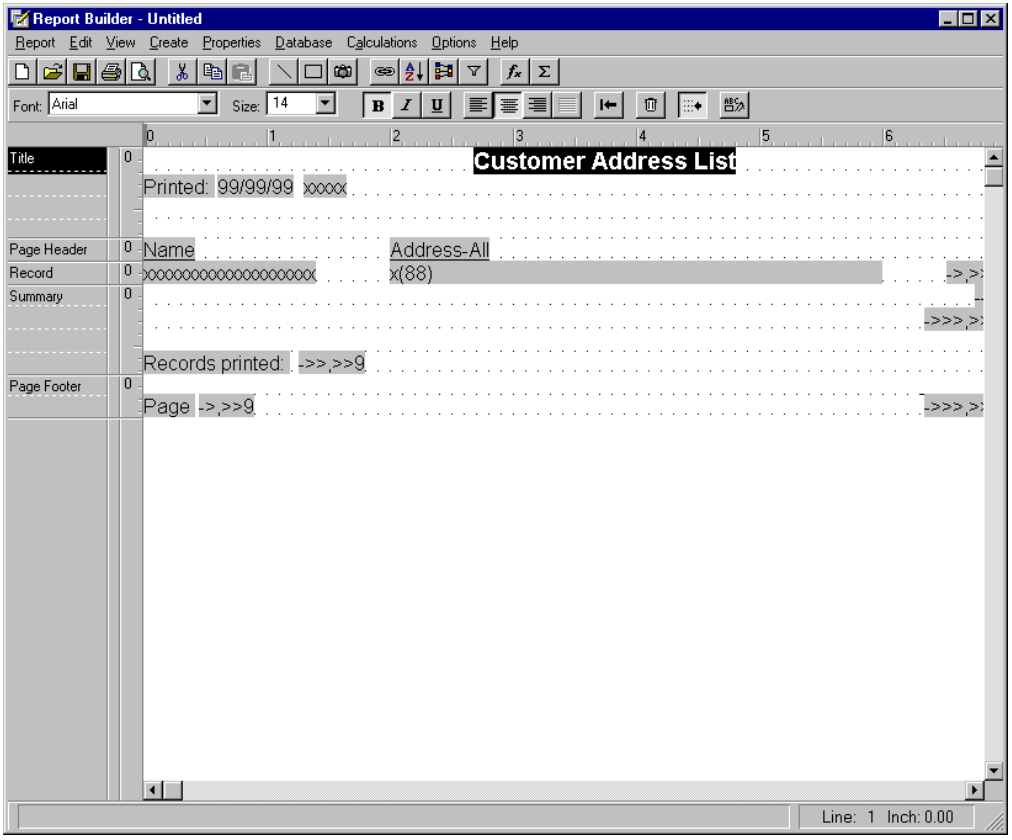



**Figure 4–5: Layout with the Title Centered**

### Print Information

It is useful to know exactly when a report was generated. To make this information a little more readable, change the Printed text field.

Follow these steps to change the print information:

1 ♦ Position the cursor between the date and time fields.

2 ♦ Type **at:** , then press **RETURN**. Be sure to enter two blank spaces before and after the word “at:”. The second title band line now reads “Printed: 99/99/99 at: xxxx”. If any fields overlap, move them so that they are all clearly visible.

3 ♦ Select the last three fields on the second title band line.

4 ♦ Choose Properties→ Merge Left. The Merge Left dialog box appears:




5 ♦ Choose Print at End of Previous Field, then choose OK to return to the report layout. If you specify to print a field at the end of the previous field, when you generate the report, Report Builder displays the print information fields with no extra spaces between them, regardless of how much space is between the fields on the report layout.

6 ♦ Choose Properties→ Band Line Justify. The Band Line Justify dialog box appears.

7 ♦ Choose Center, then choose OK. Report Builder centers the print information on the second band line.

When you look at the layout shown in Figure 4–6, notice that although the fields on the second band line are now centered, they do not appear any closer together than they did before you specified the Merge Left option. This is because Report Builder moves the fields only when it displays or prints them.

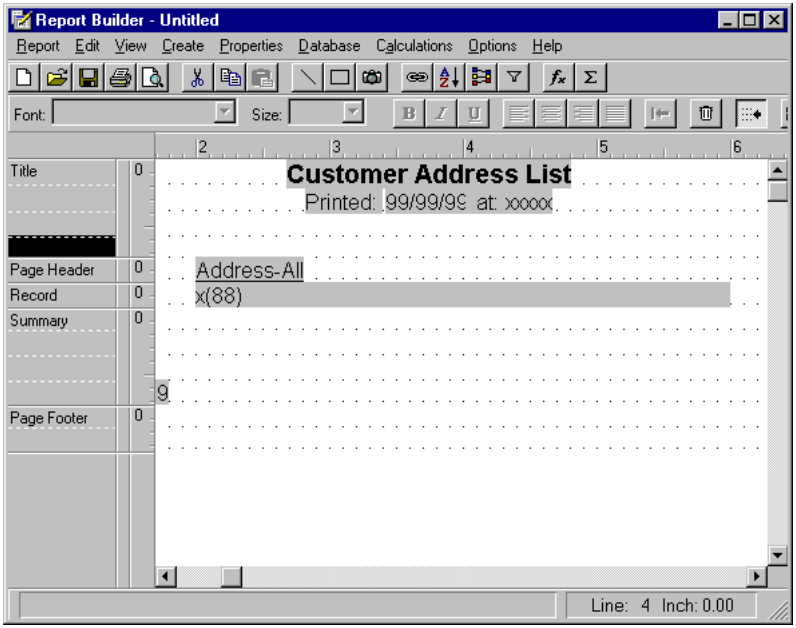



**Figure 4–6: Layout with Merged Left Fields**

## 4.6 Previewing and Saving the Report Definition

Now that the report layout design in complete, preview and save the report definition.

### 4.6.1 Previewing the Completed Report Definition

Preview the report. The bottom section of the first page should look similar to the one shown in Figure 4–6. If the end of the Customer Address report does not look similar, note the differences. If the differences are in field position, simply reposition the fields. However, if Report Builder displays different data, review the exercise to determine how to make the reports match.

### 4.6.2 Saving the Report Definition

Follow these steps to save the completed report layout in `Tutorial.prl`:

1 ♦ Choose Report→ Save. The report library name, `Tutorial.prl` appears at the top of the Save As dialog box.

2 ♦ Type **Customer Address Sample** for the report name.

3 ♦ Choose OK. Report Builder saves the report definition and returns to the report layout window.

## 4.7 Summary

After performing the steps in this chapter, you should know how to perform all the tasks in the following checklist:

- Create a calculated field.
- Create an aggregate field.
- Insert a user-defined field.
- Draw a line.
- Adjust field width and alignment.
- Specify band line justification.
- Remove spaces between fields with the Merge Left option.

To create the reports described in the following chapters, you must be able to perform these tasks. Therefore, if you are not confident that you know how to perform a particular task, return to the section that describes that task and review the steps.

# 5

# Mailing Labels

In this chapter you will create a report definition that prints addresses for 4x1-inch labels. There are 20 such labels on an 8.5x11-inch page (for example, Avery #5161 labels).

Specifically, this chapter describes how to:

- Use the default Report Builder layout
- Create multiple band lines
- Display field names instead of field formats on the layout
- Specify the label size
- Adjust the page margins

## 5.1 Report Overview and Output

As with all other types of reports, before Report Builder can generate a report, you must create the report definition. There are five basic steps to follow to create a report definition:

1. Create the initial report layout.
2. Access and order the data.
3. Define new fields.
4. Design the report layout.
5. Preview and save the report definition.

When you follow these basic steps, you will produce the mailing labels shown in Figure 5–3.

The Mail Labels Sample report definition in the `Tutorial.prl` report library creates these labels. However, you should perform the tasks in this chapter to learn how to create them for yourself.

To perform the tasks in this chapter, you must:

- Connect to the Newsport database.
- Know how to perform the tasks described in Chapter 3, "Accounts Receivable Report," and Chapter 4, "Customer Address Report." If you have difficulty performing any task for creating the mailing labels, see Chapter 3, "Accounts Receivable Report," or Chapter 4, "Customer Address Report," for a complete description of the task.

Although this exercise directs you to preview the report at specific steps, you can preview it at any point during the creation of the report definition.

## 5.2 Creating the Initial Report Layout

As with every report, the first step is to create an initial report layout. However, for the mailing labels you use the default Report Builder layout, not the Instant Layout option.

Follow these steps to create the label report definition:

1 ♦ Choose the New Report button. Report Builder prompts you to specify the master table for the report. The Customer table in the Newsport database contains all the customer address information.

2 ♦ Select Customer from the selection list, then choose OK. Report Builder prompts you to create an Instant Layout.

3 ♦ Choose No. The default report layout appears, as shown in Figure 5–1.

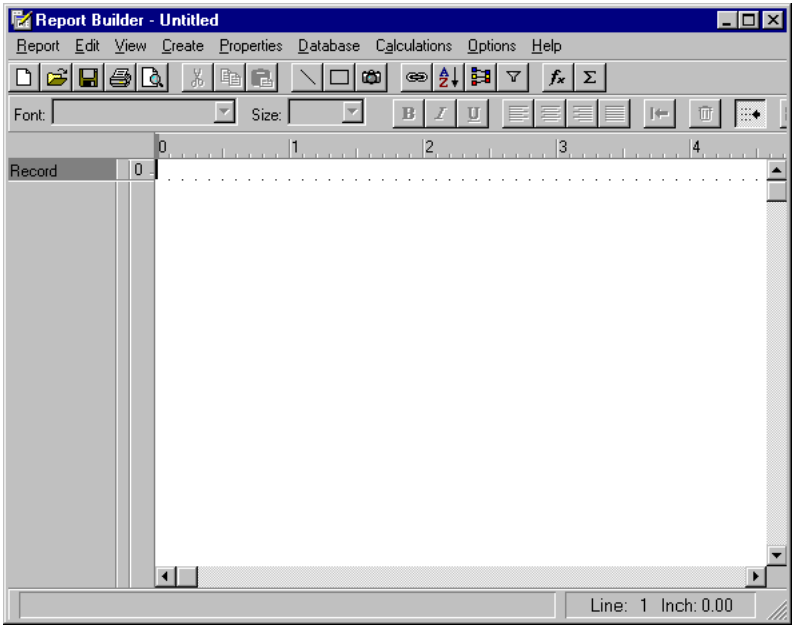



**Figure 5–1: Default Report Layout**

Notice that this layout has only one record band line.

## 5.3 Accessing and Ordering Data

Because the Customer table contains all the address information you need for the mailing labels, you do not have to access any other tables. However, you do want to specify the order in which the data appears in the report. Instead of printing the labels in the order in which Report Builder reads them from the database, you can specify to print the mailing labels in alphabetical order by the state in which the customer resides.

Follow these steps to change the sort order:

1 ♦ Choose Database→ Sort Order or the Sort button. The Sort Order dialog box appears.

2 ♦ Choose the New button to specify a new sort order. The Sort Level dialog box appears.

3 ♦ Choose the State field from the Field drop-down list. Report Builder displays State in the Sort Field selection list.

4 ♦ Choose OK. The Sort Order dialog box reappears with the newly defined sort order.

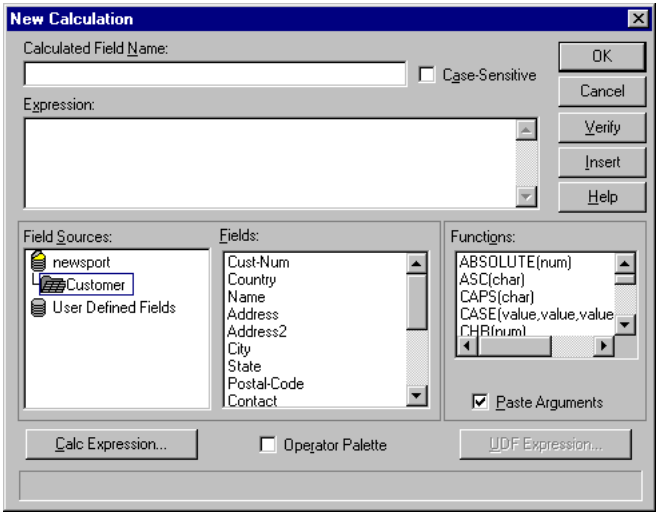
5 ♦ Choose OK to return to the report layout.

## 5.4 Defining New Fields

Because the address line that contains the city, state, and postal code requires spacing and punctuation between its components, you create a calculated field to automatically format the fields.

Follow these steps to create the City–State–PC calculated field:

1 ♦ Choose Calculations→ Calculated Field. Because this is the first calculated field for this report, the New Calculation dialog box appears:




2 ♦ Type **City–State–PC** in the Calculated Field Name fill-in field.

3 ♦ Type the following expression in the Expression fill-in field:

**City + ", " + State + "  " + Postal–Code**

The quotation marks between the City and State fields contain a comma and a space. The State and Postal–Code fields contain two blank spaces.

4 ♦ Choose Verify to check the expression syntax.

5 ♦ Choose OK to create the field. The Calculated Fields dialog box appears.

6 ♦ Choose Close to return to the report layout.

## 5.5 Designing the Report Layout

Because the default layout contains only one band line and no fields, you must:

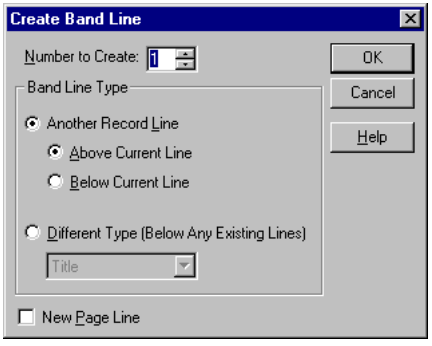
- Create additional record band lines.
- Insert fields.
- Display field names instead of field formats on the layout.
- Specify the label size.
- Change the font size.
- Adjust the page margins.

### 5.5.1 Creating Additional Record Band Lines

The default report layout provides only one record band line. Because an address requires more than one line, you must create additional record band lines.

Follow these steps to create five additional record band lines:

1 ♦ Choose Create→ Band Line. The Create Band Line dialog box appears:




When you choose this menu option, Report Builder assumes that you want to create more of the currently selected band line. Because there is only one band line on the report layout, it is selected by default. This means that Report Builder will create more record band lines and place them above the currently selected record band line unless you change the Band Line Type values. Because you want more record band lines, and it does not matter where they appear on the layout, do not change any of the Band Line Type values.

2 ♦ Type **5** in the Number To Create field, then choose OK. Report Builder creates five record band lines and places them above the original record band line.

### 5.5.2 Inserting Fields

Although the Customer table contains all the address information you need for mailing labels, because you used the default Report Builder layout, none of the fields appear on the layout. To access the customer information, insert the following Customer table fields at the left margin on the indicated band lines:

| Band Line | Field |
|---|---|
| 1 | Contact |
| 2 | Name |
| 3 | Address |
| 4 | Address2 |
| 5 | City–State–PC |
| 6 | Country |

**NOTE:** To see the City–State–PC field, you must double-click on User Defined Fields.

Figure 5–2 shows the report layout with all the address fields inserted.

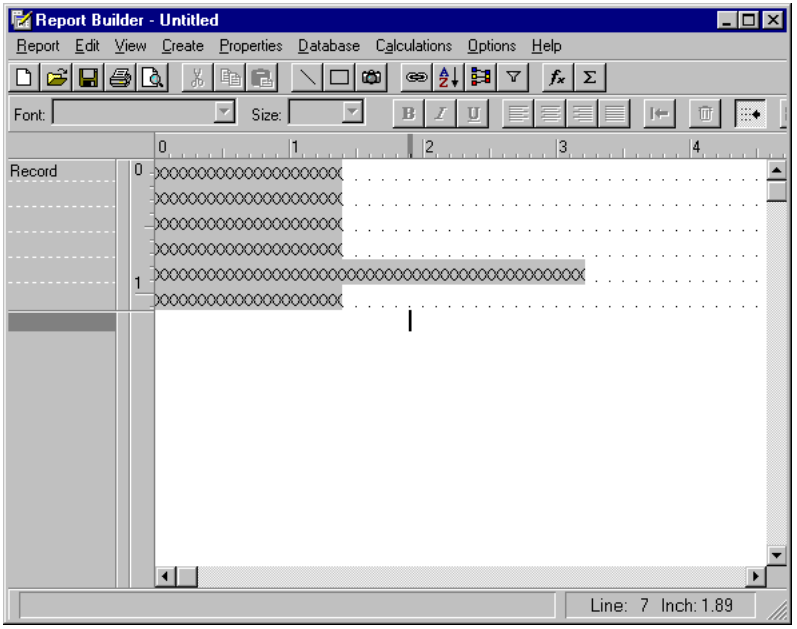



**Figure 5–2: Layout with Fields**

### 5.5.3 Displaying Field Names Instead of Field Formats on the Layout

By default, Report Builder represents fields by their format. However, when you have multiple fields on the layout that have the same format, you can change the representation to the field name. When the field name is longer than the field format, Report Builder truncates the field name on the layout.

Also, note that when the field label is the same as the field format, both the label and the field will have the same name. By default, Report Builder underlines the labels. So as long as you leave the labels underlined, you can easily tell the difference between the labels and the fields.

Choose View→ Field Names. Report Builder displays the field names instead of the field formats on the report layout. Figure 5–3 shows the layout with the field names.

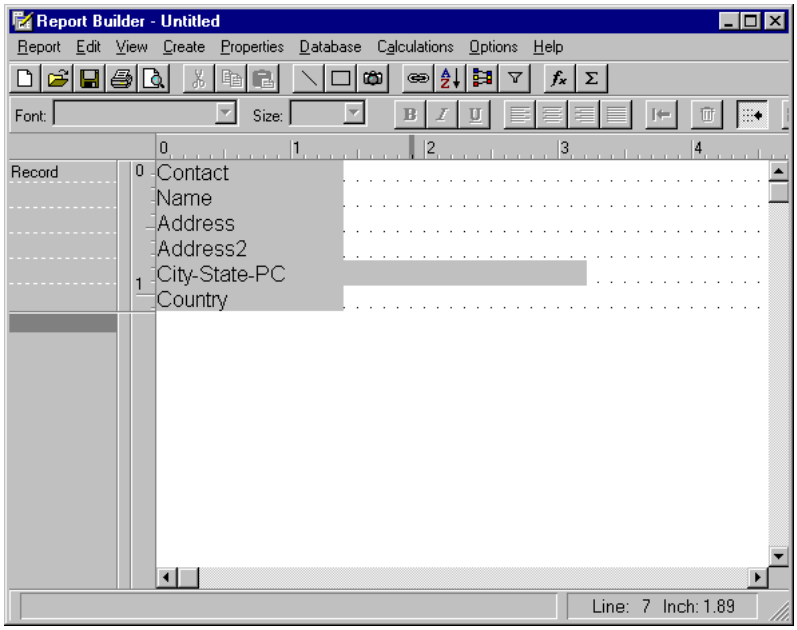



**Figure 5–3: Layout with Field Names**

When you look at the layout, do not worry about the length of the City–State–PC field. Although its default width of 44 characters seems very long on the report layout, it does not exceed 4 inches, which is the label width.

Preview the report to see how the mailing labels currently appear. Figure 5–4 shows how Report Builder displays the addresses using the layout shown in Figure 5–2.

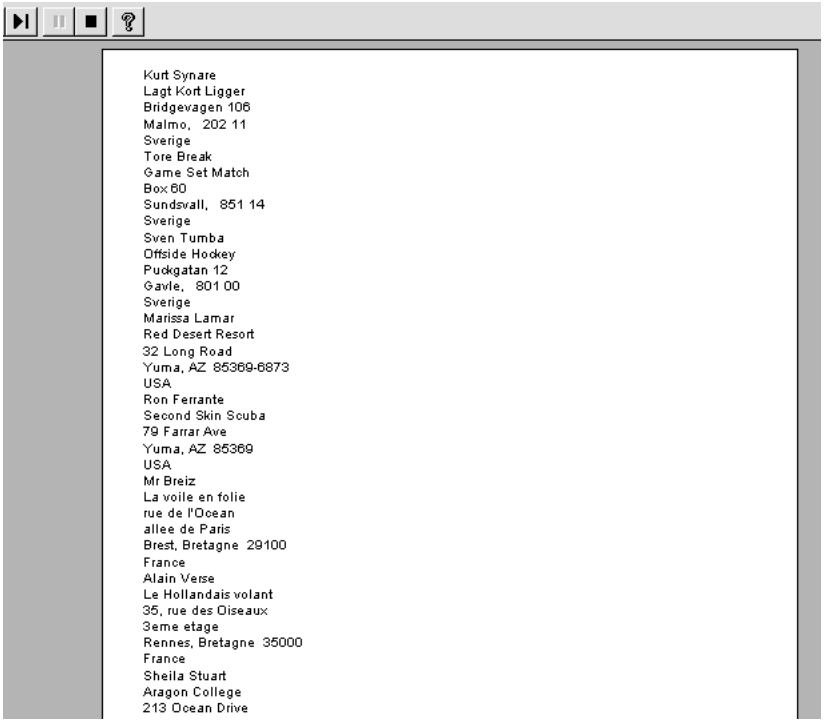



**Figure 5–4: Preview of the Partially Formatted Layout**

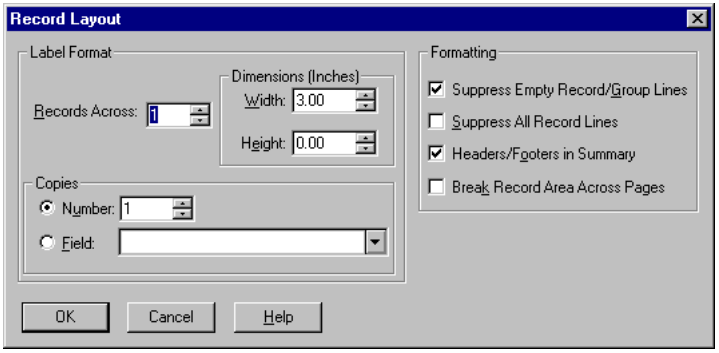
By default, Report Builder displays the data in one column. However, there are two columns of labels on the label sheet, so you must specify the label size to tell Report Builder to print the addresses in two columns.

### 5.5.4 Specifying the Label Size

When you specify the label size, you not only specify to print the labels in two columns, but also to align the addresses to print one per label. In this example the label sheet is 8.5x11 inches with two columns of 4x1-inch labels. Because the default paper size is standard American letter size, you do not have to specify the paper size. If you are generating labels for paper sizes other than 8.5x11 inches, adjust the label size.

Follow these steps to specify the label size:

1 ♦ Choose Properties→ Record Layout. The Record Layout dialog box appears:

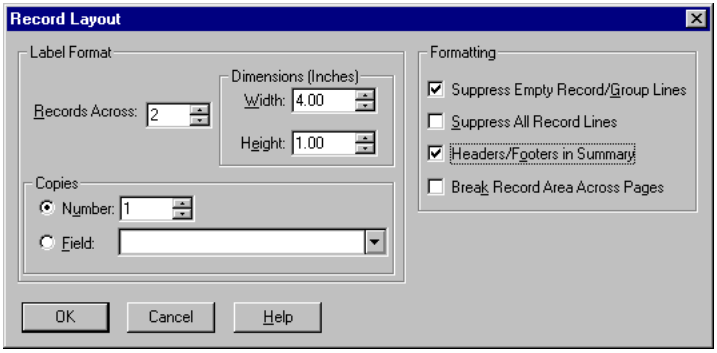



2 ♦ Change the Records Across value to 2. This specifies that there are two columns of labels.

3 ♦ Change the width dimension to 4 inches.

4 ♦ Change the height dimension to 1 inch. If an address requires more than 1 inch of space, Report Builder truncates the data for that record and starts the next record at the correct position.

The Record Layout dialog box should look like this:




5 ♦ Choose OK. Report Builder returns you to the report layout.

### 5.5.5 Changing the Font Size

Look at the layout shown in Figure 5–5. Notice that although you have instructed Report Builder to display the addresses in columns, they still will not fit in the label size because the six lines of information require more than 1 inch of space. To make the addresses fit into the 1-inch high labels, you must change the fields' font size.

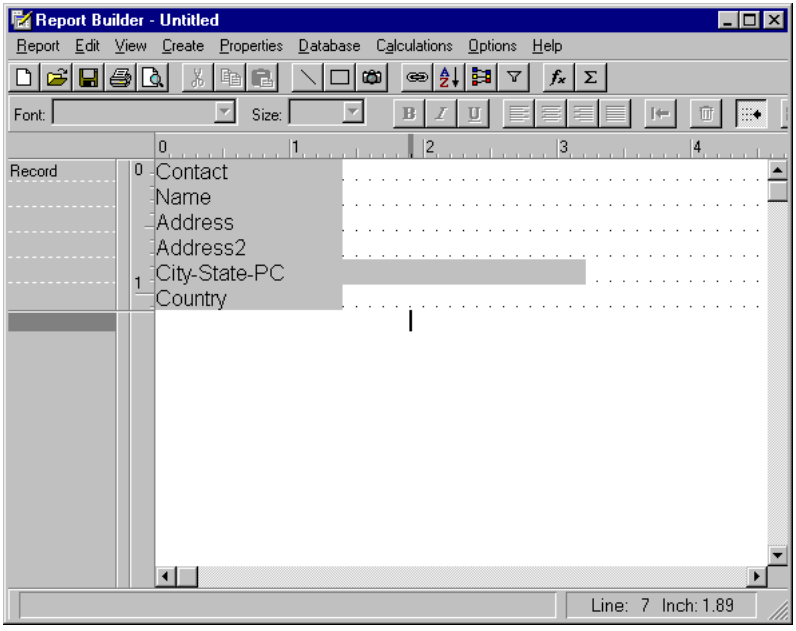



**Figure 5–5: Layout with Default Font Size**

Follow these steps to change the font size for all the fields on the layout:

1 ♦ Select all the fields on the layout.

2 ♦ Change the font for all the fields to 10-point.

Your layout should look like the one shown in Figure 5–6.

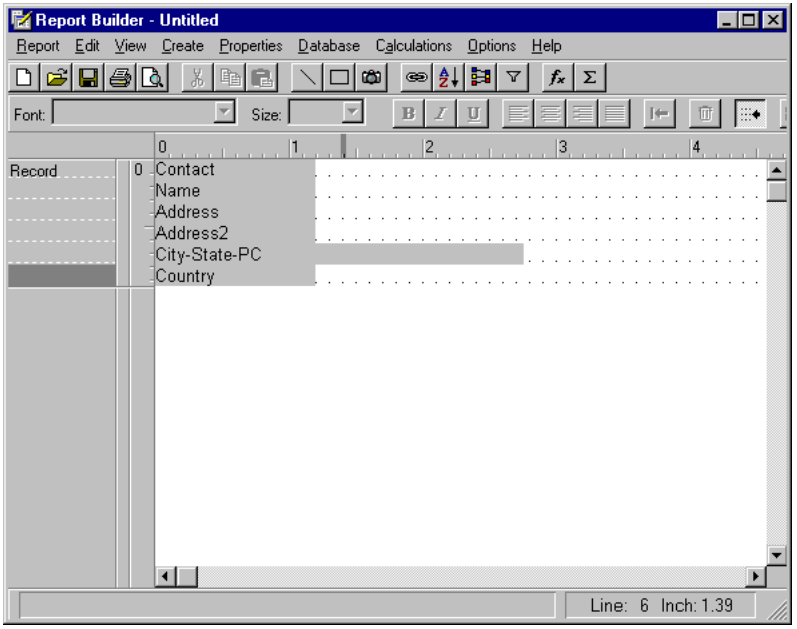



**Figure 5–6: Layout with Changed Font Size**

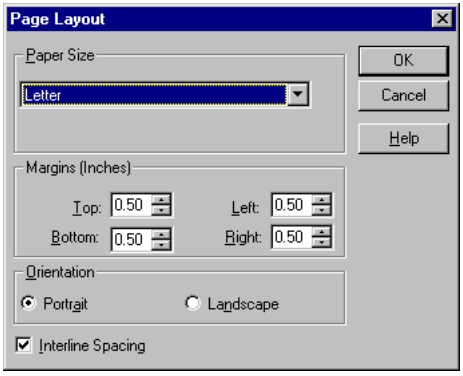
All six band lines now fit within 1 inch.

### 5.5.6 Adjusting the Page Margins

By default, the page margins for a report are .5 inches for all margins. Because the labels for this example start at the edge of the paper, the .5 inch margins are too wide.

Follow these steps to change the margins:

1 ♦ Choose Properties→ Page Layout. The Page Layout dialog box appears:




2 ♦ Change the left and right margins to .25 inches, then choose OK to return to the report layout.

## 5.6 Previewing and Saving the Report Definition

The final step in creating the report definition is to preview the report to verify that the data appears in the desired format, then save the definition so you can generate the report again at a later time.

### 5.6.1 Previewing the Completed Report Definition

Now that you have completed formatting the report layout, preview the report. The first page of your report should look similar to Figure 1–3. If it does not, note the differences. If the differences are in field position, simply reposition the fields. However, if Report Builder displays different data, review the exercise to determine how to make the reports match.

### 5.6.2 Saving the Report Definition

As your final task, save the report definition as Mailing Labels Sample in the `Tutorial.prl` report library.

## 5.7 Summary

After performing the steps in this chapter, you should know how to perform all the tasks in the following checklist:

- Use the Report Builder default layout.
- Create multiple band lines.
- Displaying field names instead of field formats on the layout.
- Specify the label size.
- Adjust the page margins.

To create the reports described in the following chapters, you must be able to perform these tasks. Therefore, if you are not confident that you know how to perform a particular task, return to the section that describes that task and review the steps.

# 6

# Form Letters

In this chapter you will create two different form letters with Report Builder. The first letter recalls defective merchandise and uses a memo file, `Formlet1.txt`. The second letter notifies customers of the balance due on their accounts and uses the `Formlet2.txt` memo file. In this chapter you will learn how to:

- Prepare a memo file. This includes learning how to:
  - Identify memos in a memo file
  - Mark the beginning and end of each memo with braces { }
  - Include field names in the memo file text
  - Identify line endings in the memo file text
  - Specify tabs and indentations
  - Apply fonts, point sizes, styles, and effects to memo file text
- Define a join
- Define a filter
- Attach a memo file to a report definition
- Print different versions of the same form letter

## 6.1 Generating a Basic Form Letter

This section describes how to generate a basic form letter.

### 6.1.1 Report Overview and Output

Report Builder generates form letters by extracting the specified text from an unformatted text file and merging the text with the other fields defined in the report layout. A *memo file* is an unformatted text file that contains the text for the letter. For the Recall form letter, you will prepare the text in the `Formlet1.txt` memo file, then merge the text into the report definition.

To create form letters, you must prepare the memo file before you create the report definition. This means that you will perform the following steps:

1. Prepare the memo file.
2. Create the initial report layout.
3. Access and order the data.
4. Define new fields.
5. Design the report layout.
6. Preview and save the report definition.

After you complete all the above tasks, you will generate the form letter shown in Figure 6–1. The Recall Form Letter report definition in the `Tutorial.prl` report library also produces this letter. However, you should create the report definition following the instructions in this chapter so that you learn how to perform each task.



08/02/95

Gloria Shepley
Lift Line Skiing
276 North Street
Boston, MA 02114

Dear Gloria Shepley,

This letter is to inform you that we are recalling our All Around Sports Swim Goggles, which is Item number: 00009, because independent testing has found that normal use of this product can possibly cause injury.

Please call your sales representative to make arrangements for returning any Swim Goggles that you have in stock. If you have sold any (item name), please attempt to retrieve them.

We apologize for any inconvenience or injury this product may have caused.

Sincerely,

Todd Winmill
Quality Assurance Manager

**Figure 6–1: Recall Form Letter**

To perform the tasks in this chapter, you must:

- Connect to the Newsport database.
- Know how to perform the tasks described in the previous chapters. If you have difficulty performing any task for creating the form letter, see the appropriate chapter for a complete description of the task.

### 6.1.2 Preparing the Memo File

The first step in generating a form letter is to prepare the memo file, which is an unformatted text file that contains the text for the letter. Unformatted means that the file does not contain format information from the text editor or word processing program in which you created or edited the file. When you save a file with some text editors or word processing programs, the programs save formatting codes at the beginning of the file even if you do not specify any formatting information, such as fonts or styles. To save a file without any formatting information, you must save the file as a text-only or unformatted ASCII file. If the memo file contains any format information, Report Builder cannot use the file.

Figure 6–2 shows the text in the unprepared memo file, `Formlet1.txt`, which contains the text for the form letter recalling defective merchandise. This file provides the main text for the Recall form letter.

```
Dear (customer name),

This letter is to inform you that we are recalling our All Around Sports
(item name), which is Item number: (item number), because independent
testing has found that normal use of this product can cause
injury.

Please call your sales representative to make arrangements for returning
any (item name) that you have in stock. If you have sold any (item name),
please attempt to retrieve them.

We apologize for any inconvenience or injury this product may have caused.
```

**Figure 6–2: Unprepared Recall Memo File (Formlet1.txt)**

This text comprises a memo field. A *memo field* is a portion of text that you include in the report layout. You can combine this text with data from fields in a database. In Figure 6–2, the phrases in parentheses indicate the information you will access from the Newsport database.

Before you can use the `Formlet1.txt` memo file in a report, you must perform the following steps to prepare the memo fields in the text file:

1. Identify each separate memo field in the file.
2. Mark the beginning and end of each memo field with braces { }.
3. Include field names in the text.

Figure 6–3 shows a properly annotated memo file named `Recall.txt`.

```
NEWMEMO Recall:
{
Dear {@Contact},

This letter is to inform you that we are recalling our All Around Sports
{@Item-Name}, which is Item number: {@Item.Item-num}, because independent
testing has found that normal use of this product can possibly cause injury.

Please call your sales representative to make arrangements for returning
any {@Item-Name} that you have in stock. If you have sold any
{@Item-Name}, please attempt to retrieve them.

We apologize for any inconvenience or injury this product may have caused.
}
```

**Figure 6–3: Prepared Recall Memo File (Recall.txt)**

Follow these steps to properly annotate the memo file:

1 ♦ Open `Formlet1.txt` in an editor or word processing program that allows you to save the file as an unformatted text file or ASCII file. This file is located in the `rbtutor` directory.

2 ♦ Enter the following line on the first line of the memo file to identify the memo field as "Recall." You must enter it on a separate line before the text, starting in the first column:

```
NEWMEMO Recall:
```

Because there is only one memo field in this memo file, you only specify one memo field name. Memo field names must be unique within the memo file. Memo field names follow the same rules as 4GL field names. Field names can be up to 32 characters long and can consist of alphabetic characters (A–Z or a–z), digits (1–9), and special characters ($, &, #, %, -, and _). In addition, field names must begin with a letter (A–Z or a–z). The memo field name must also be unique within a report that uses the memo file and cannot contain spaces.

3 ♦ Mark the beginning and end of the memo field with braces. Use the left brace, {, to mark the beginning of each memo field and a right brace, }, to mark the end. The left brace must be the first character on the line that follows the memo field name. In Figure 6–4 note the braces indicating the beginning and end of the memo field.

```
NEWMEMO Recall:
{
Dear (customer name),

This letter is to inform you that we are recalling our All Around Sports
(item name), which is Item number: (item number), because independent
testing has found that normal use of this product can possibly cause
injury.

Please call your sales representative to make arrangements for returning
any (item name) that you have in stock. If you have sold any (item name),
please attempt to retrieve them.

We apologize for any inconvenience or injury this product may have caused.
}
```

**Figure 6–4: Memo Field Identification and Beginning and Ending Braces**

4 ♦ Include database or user-defined field names in the text of the letter to merge data from the tables into your memo field text. These fields are called *embedded fields*. When you insert the memo file on the report layout and generate the report, Report Builder inserts the proper data from the embedded fields into the memo field text. The `Formlet1.txt` file has place holders, such as "(customer name)", in the text that indicate what fields to include and where to insert the field names:

a) Replace "(customer name)" in the opening salutation with {**@Contact**}. The braces and @ sign notify Report Builder that the enclosed text is a field name that it will replace with data from the Newsport database.

b) Replace "(item name)" once in the first paragraph and two times in the second paragraph with {**@Item–Name**}.

c) Replace "(item–number)" in the first paragraph with {**@Item.Item–num**}. Because the field Item-num appears in more than one table in the Newsport database, you must precede the name of the database field with the table alias.

Figure 6–5 shows how to include the customer contact name, the item name, and the item number from the Newsport database in the memo file for use in the recall form letter.

```
NEWMEMO Recall:
{
Dear {@Contact},

This letter is to inform you that we are recalling our All Around Sports
{@Item-Name}, which is Item number: {@Item.Item-num}, because independent
testing has found that normal use of this product can possibly cause
injury.

Please call your sales representative to make arrangements for returning
any {@Item-Name} that you have in stock. If you have sold any
{@Item-Name}, please attempt to retrieve them.

We apologize for any inconvenience or injury this product may have caused.
}
```

**Figure 6–5: Embedded Field Names**

When you include this memo field in your report, the customer contact name replaces {@Contact}, the item name replaces {@Item–Name}, and the item number replaces {@Item.Item–num}.

5 ♦ Save the prepared file as Recallet.txt using a “Text” or “Text Only” option for saving unformatted text files.

### 6.1.3 Creating the Initial Report Layout

After you have prepared the memo file, you are ready to use it to generate the form letters. However, before generating any type of report, you must create an initial report layout.

Follow these steps to create a default report layout:

1 ♦ Choose the New Report button. The Database Tables dialog box appears.

2 ♦ Select the Customer table, then choose OK. Report Builder prompts you to use the Instant Layout option.

3 ♦ Choose No. A report layout with only one blank record line appears.

### 6.1.4 Accessing and Ordering Data

To access and properly order the data for this form letter, you must follow these steps:

1. Define the joins.
2. Define a filter.
3. Attach the `Recallet` memo file.

For this report, you don't have to specify a new sort order.

#### Define the Joins

*Joins* are user-defined connections between tables that allow Report Builder to gather data from more than one table for a report. When you create a report definition, you specify the *master table*, which is the database table that Report Builder uses as the initial source of data for the report. In addition to drawing information from the master table, Report Builder can draw information from additional tables, called *related tables*. To access these related tables you join them to the master table or to each other.

To create a join between tables, you define a join field pair. A *join field pair* is made up of one field from the controlling table and one from the related table. The *controlling table* is the table used to initiate the join. The *related table* is the table to which you are joining the controlling table. Because you can join tables to a related table, a table can be the related table in one join and the controlling table in another join.

In this report, you need to access data in the Customer and Item tables. Because these tables do not share a common field, you must define joins through two other tables. All the records resulting from these joins comprise a *composite table*. This table is not a literal table, but a collection of all the accessed records.

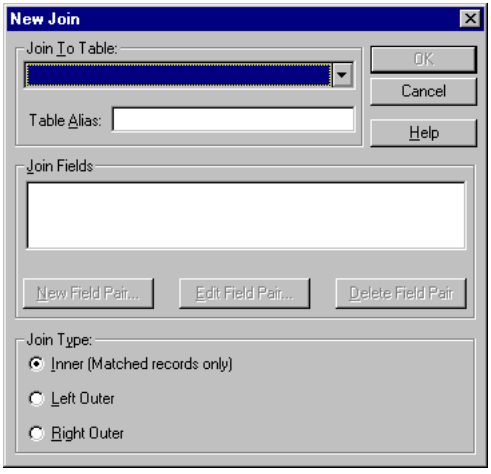
See the joins chapter in the *Progress Report Builder User's Guide* for a complete description of database joins.

Follow these steps to define the first join for this report:

1 ♦ Choose Database→ Joins. Because this is the first join for this report, the New Join dialog box appears:

2 ♦ Select the Order table from the Join To Table drop-down list. Order becomes the related table.

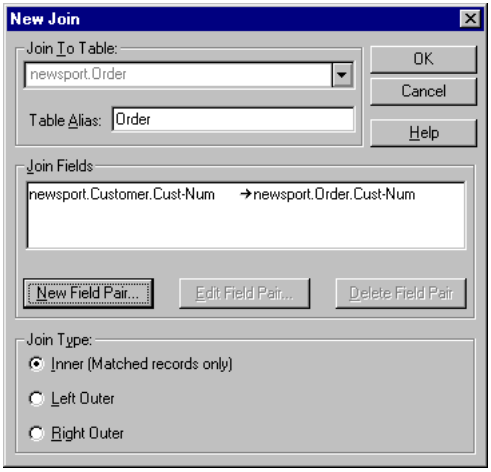
3 ♦ Choose the New Field Pair button. The New Join Field Pair dialog box appears:



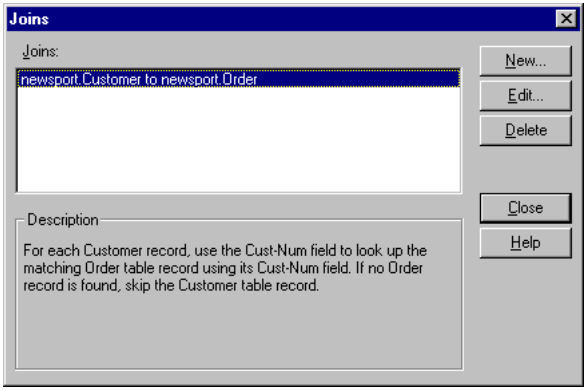

First, look at the From Table field. Because Customer is the master table and this is the first join for the report, it is the only table available as the controlling table. Now look at the From Table selection list. Notice that it displays all the fields in the Customer table, which is the controlling table for this join.

By default, Report Builder selects the first field that appears in both the controlling and related tables. Therefore, because Cust–Num appears in both the Customer and Order tables, Report Builder highlights the Cust–Num fields in both the From Field and To Field selection lists. Because you want to define the join on the selected Cust–Num fields, do not select any other fields.

4 ♦ Choose OK. Report Builder returns to the New Join dialog box. The join fields you specified appear in the Join Fields list:




5 ♦ Choose OK. The Joins dialog box appears:




The Joins dialog box lists the new join. A full description of how Report Builder interprets the join appears in the lower portion of the screen.

Follow these steps to define the remaining necessary joins:

1 ♦ Choose New. The New Join dialog box appears.

2 ♦ Select the Order–Line table from the Join To Table drop-down list. Order–Line becomes the related table for this join.

3 ♦ Choose the New Field Pair button. The New Join Field Pair dialog box appears.

Because the Order table was the related table in the previous join, Report Builder selects it by default as the controlling table for this join. Report Builder also selects the Order–num field from both the Order and Order–Line tables to create the join field pair.

4 ♦ Choose OK. Report Builder returns to the New Join dialog box. The join fields you specified appear in the Join Fields list.

5 ♦ Choose OK. The Joins dialog box appears.

6 ♦ Choose New. The New Join dialog box appears.

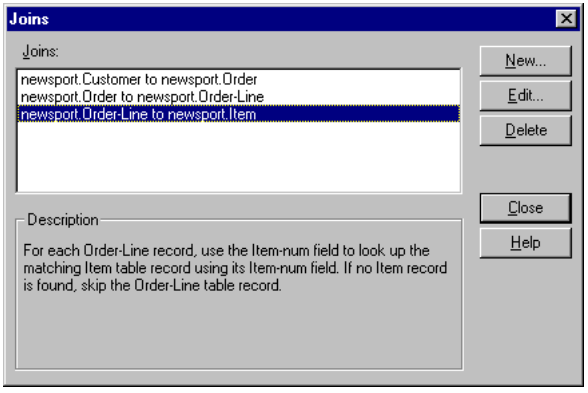
7 ♦ Select the Item table from the Join To Table drop-down list.

8 ♦ Choose the New Field Pair button. The New Join Field Pair dialog box appears.

Again, Report Builder anticipates what table and fields you want to use for the join.

9 ♦ Choose OK. Report Builder returns to the New Join dialog box. The join fields you specified appear in the Join Fields list.

10 ♦ Choose OK. The Joins dialog box appears:




11 ♦ Choose Close to return to the report layout.

### Define a Filter

A *filter* is a set of conditions that allows you to narrow the focus of a report to the specific data you want to display. Filters can consist of one or more conditions that specify what data Report Builder is to retrieve for the report.

When you create a filter, you specify one or more conditions by which Report Builder limits the data it displays. Each condition contains:

- A condition field.
- A comparison operator.
- A comparison value to which Report Builder compares the condition field value.

If you are specifying multiple conditions, also include:

- AND or OR to indicate the relationship between the conditions.
- Parentheses to indicate the beginning and end of a group of conditions. If you do not use parentheses, Report Builder evaluates AND operators before OR operators.

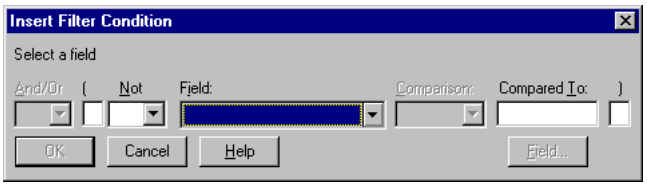
Lastly, you can also reverse the result of the comparison by using the NOT operator.

See the filter chapter in the *Progress Report Builder User's Guide* for a complete description of filter conditions.

Because you are recalling only one All Around Sports product, you must define a filter condition to generate letters for only those customers who purchased the defective product.

Follow these steps to define a filter condition:

1 ♦ Choose Database→ Filter. The Insert Filter Condition dialog box appears:

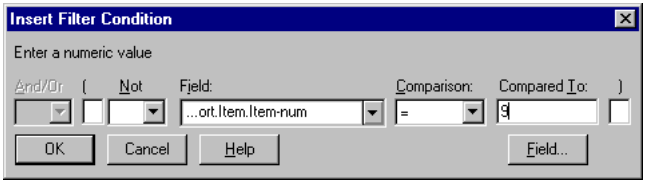



2 ♦ Select Item.Item–Num from the Field drop-down list. Report Builder tests the value in the Item–Num field.

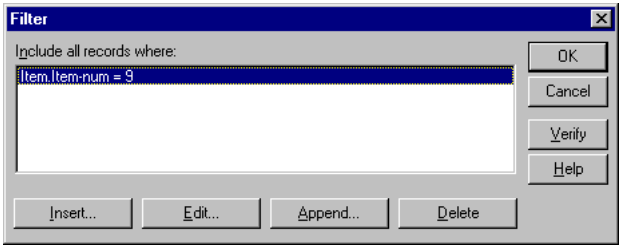
3 ♦ Type **=** in the Comparison field.

4 ♦ Type **9** in the Compared To field.

The following dialog box shows how the expression should appear:




5 ♦ Choose OK. The Filter dialog box appears:




6 ♦ Choose OK to save the filter and return to the report layout.

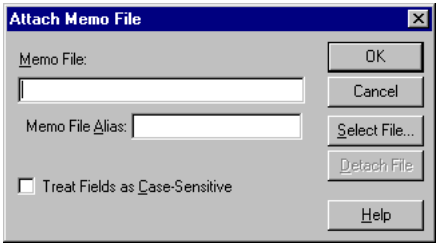
When Report Builder invokes the filter, it only displays the information for customers who have purchased item number 9, which is the All Around Sports swim goggles.

### Attaching the Memo File to the Report Definition

Report Builder generates reports by accessing data and displaying it according to the criteria in the report definition. In the first task you specified the text and fields for the form letter when you prepared the `Letter1.txt` memo file. Because this information is in a file separate from the report definition, you must attach it to the report definition so Report Builder can access the memo file's contents.

Follow these steps to attach the memo file.

1 ♦ Choose Report→ Attach Memo File. The Attach Memo File dialog box appears.




2 ♦ Type **c:\rbtutor\Recallet.txt** in the Memo File field. Report Builder assigns Recallet as the file alias.

3 ♦ Choose OK. When you insert fields, the name of each memo defined in the memo file appears in the field list under the Memo Fields heading under User Defined Fields.

When you save a report, Report Builder saves the memo file selection in the report definition.

### 6.1.5 Defining New Fields

For this form letter, you must create two calculated fields. The first field is the City–State–PC field that you created in Chapter 5, "Mailing Labels." When you use City–State–PC in conjunction with the appropriate fields from the Newsport database, you personalize the form letter for each customer. The second calculated field displays the current system date. Follow these steps:

1 ♦ Create a calculated field called City–State–PC that has the following expression:

City + ", " + State + " " + Postal–Code

This expression formats the fields with the standard spacing and punctuation used in addresses.

2 ♦ Create a calculated field called Today–Date that has the following expression:

TODAY()

TODAY() is a Report Builder function that displays the current system date in the default date format (99/99/99). See the "Report Builder Functions" appendix in the *Progress Report Builder User's Guide* for complete descriptions of the built-in Report Builder functions.

### 6.1.6 Designing the Report Layout

Now that you have access to all the necessary database fields, attached the memo file, and created both calculated fields, you are ready to design the report layout. To design the report layout, you must perform these steps:

1. Create additional band lines.
2. Insert and format the fields.
3. Adjust the page margins.

Figure 6–6 shows the report layout, including the Recall memo, you will create for this letter.

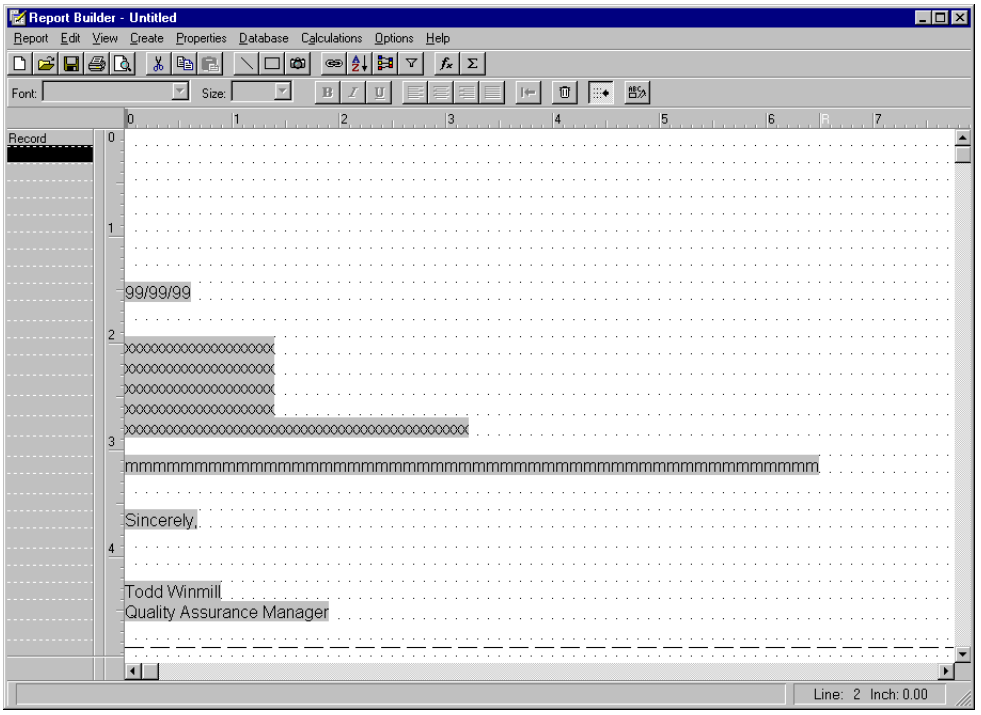



**Figure 6–6: Report Layout**

You will insert the Recall memo when you insert all the fields for the layout.

### Creating Additional Band Lines

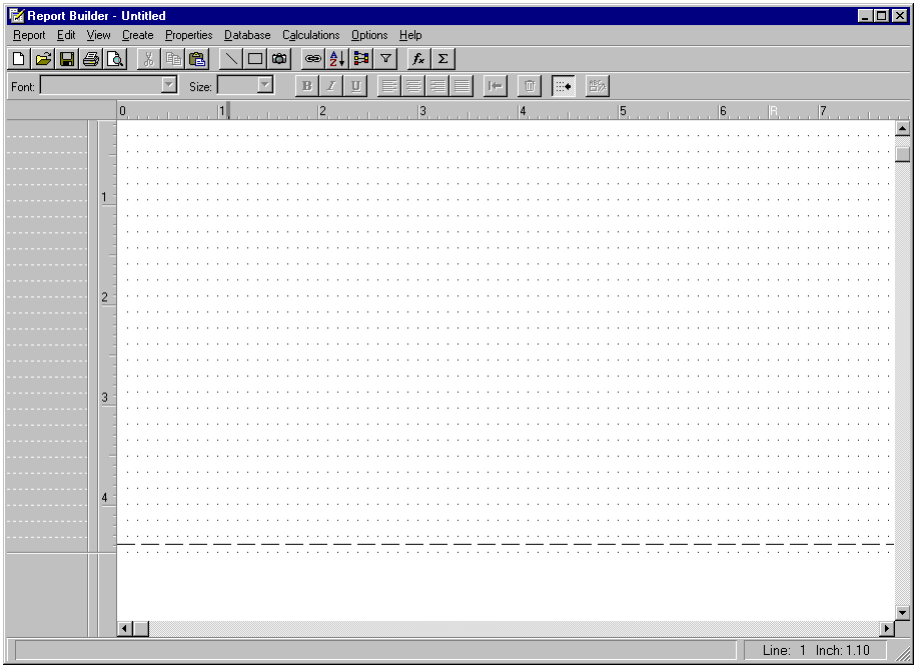
Because you used the default report layout, you must create additional band lines to hold the fields for the letter.

Follow these steps to create additional band lines:

1 ♦ Choose Create→ Band Line. The Create Band Line dialog box appears.

2 ♦ Create 27 record band lines.

3 ♦ Choose Create→ Band Line again. Activate the New Page Line toggle box, then choose OK. Report Builder inserts a new record band line at the top of the report. When Report Builder generates the report, it starts a new page every time it displays this band line.




4 ♦ Choose OK to return to the report layout.

### Inserting and Formatting the Fields

Now that there are enough band lines to display all the letter information and you have created the necessary calculated fields, you can insert the fields on the layout, including the memo field, Recall, that contains the text of the letter. When you identified the Recall memo field in `Recallet.txt`, you entered "NEWMEMO Recall:" on the first line of the memo file. Now that you have attached the `Recallet.txt` memo file to the report definition, when you access the Insert Fields dialog box, the field selection list contains the Recall memo field.

Follow these steps to insert the fields:

1 ♦ Insert the following database, calculated, and memo fields at the left margin of the layout on the band lines indicated in the following table:

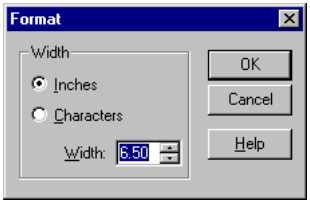
| Band Line | Fields |
|---|---|
| 10 | Today–Date |
| 13 | Contact |
| 14 | Name |
| 15 | Address |
| 16 | Address2 |
| 17 | City–State–PC |
| 19 | Recall (memo field) |

2 ♦ Enter the text fields listed in the following table at the left margin of the layout on the indicated band lines:

| Band Line | Text String |
|---|---|
| 22 | Sincerely, |
| 26 | Todd Winmill |
| 27 | Quality Assurance Manager |

Report Builder represents each database and calculated field with a series of x's or 9's and the memo with a single line of m's.

3 ♦ Select the Recall memo field and choose Properties→ Format. The Format dialog box appears:




The default format of the Recall memo field is left-justified and word-wrapped with a width of 60 characters.

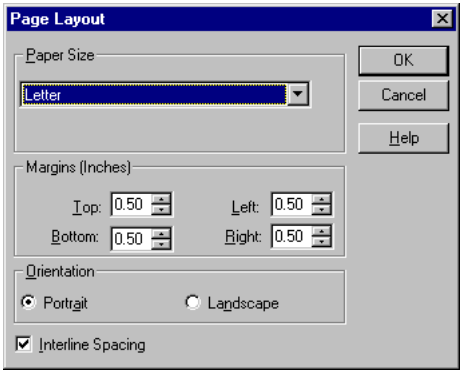
4 ♦ Change the format for the memo field to 6.5 inches so that the memo fills the space between the margins, then choose OK.

### Adjusting the Page Margins

The next step in designing the layout is to change the page margins to standard margin width.

Follow these steps to modify the page characteristics:

1 ♦ Choose Properties→ Page Layout. The Page Layout dialog box appears:




2 ♦ Change all four margins from the default (.5 inches) to 1 inch, which is the standard margin width for a letter.

3 ♦ Choose OK to return to the report layout.

Figure 6–7 shows the complete report layout that incorporates the `Recallet.txt` memo file. Notice the Recall field. It not only represents the body of the letter, but also includes the opening greeting.

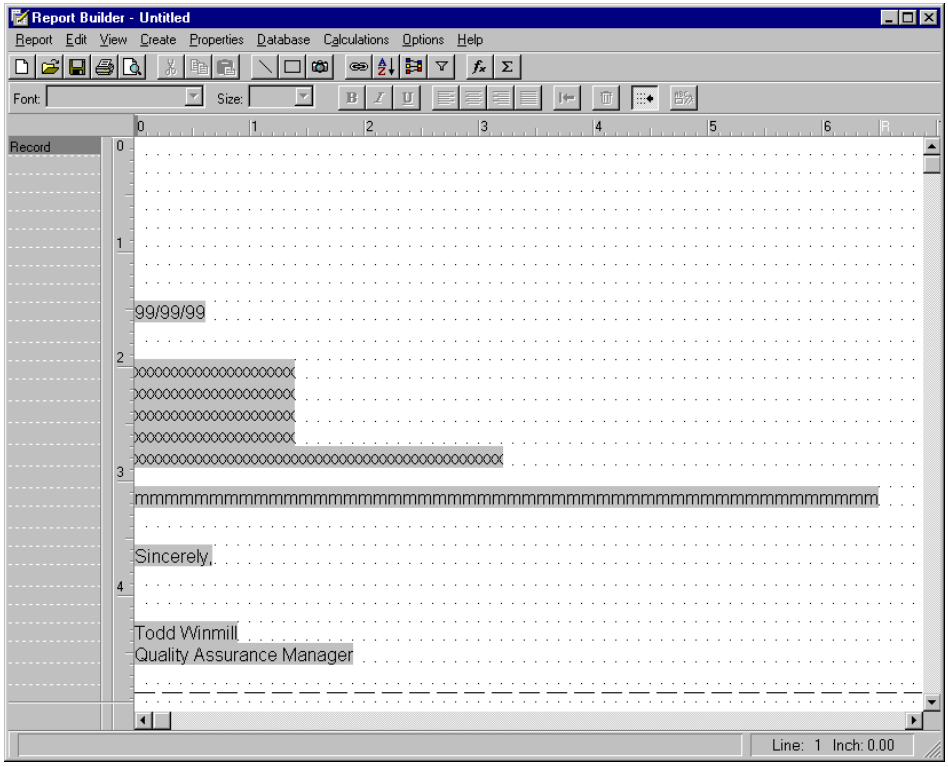



**Figure 6–7: Completed Recall Letter Report Layout**

### 6.1.7 Previewing and Saving the Report Definition

As always, the final step in creating the report definition is to preview the report, then save it.

If you page through the report, you will notice that there are multiple letters to the same customer. You can group the data using group headers and footers to avoid this problem. To learn about grouping, see Chapter 7, "Commission Report."

#### Saving the Report Definition

As your final task for creating the report definition, save the report definition as Recall Letter Sample in the `Tutorial.prl` report library.

### 6.1.8 Print the Form Letters

After you create the report definition and attach the prepared memo file, you are ready to generate the form letters.

To generate form letters that recall All Around Sports Swim Goggles, print the letters by either choosing the Print button on the tool bar or choosing Report→ Print, then clicking Print button.

Figure 6–8 shows the Recall form letter.



08/02/95

Gloria Shepley
Lift Line Skiing
276 North Street
Boston, MA 02114

Dear Gloria Shepley,

This letter is to inform you that we are recalling our All Around Sports Swim Goggles, which is Item number: 00009, because independent testing has found that normal use of this product can possibly cause injury.

Please call your sales representative to make arrangements for returning any Swim Goggles that you have in stock. If you have sold any Swim Goggles, please attempt to retrieve them.

We apologize for any inconvenience or injury this product may have caused.

Sincerely,

Todd Winmill
Quality Assurance Manager

**Figure 6–8: Recall Form Letter**

## 6.2 Generating an Advanced Form Letter

Now that you have learned the basics of creating a form letter, you will learn how to perform more advanced memo file formatting and how to generate multiple letters from the same report definition. For this example, you will create a report definition that generates two different letters based on the customer's balance.

Although generating this letter includes these more advanced tasks, you still follow most of the basic steps you performed in the first form letter example:

1. Prepare the memo file.
2. Create the basic report definition.
3. Access and order the data.
4. Define new fields.
5. Design the report layout.
6. Preview and save the report definition.

However, because a report definition, Payment Letter, is provided for this example, in Step 2 you open the report definition instead of creating a new one. This report definition is provided to save you time and avoid repetitive steps.

### 6.2.1 Preparing the Memo File

As in the prior example, the first step is to prepare the text in the memo file. For this example you use the `Formlet2.txt` memo file. Figure 6–9 shows the text in `Formlet2.txt`.

```
NEWMEMO Payment:
{
Dear {@Contact},

Thank you for your most recent order, All Around Sports order number: {@Order.
Order-num}. We processed this order on {@Order-Date} and shipped it on
{@Ship-Date}. The total amount for the order, ${@Order-Total}, is now due.
Please remit payment as soon as possible as this amount will be past due on
{@Past-Due-Date}.

Thank you for your prompt attention to this matter.



Sincerely,



Tanya Schwanda
Accounts Receivable Manager
}

NEWMEMO Late-Notice:
{
Dear {@Contact},

This letter is to notify you that the payment for order number: {@Order.
Order-num} was due on {@Past-Due-Date} and is now past due. The total amount
for the order is ${@Order-Total}.

We processed this order on {@Order-Date} and shipped it on {@Ship-Date} in good
faith. If you do not remit payment within 15 days of the date of this letter, we
will assess a late fee of 5% of the amount due.

Thank you for your prompt attention to this matter.

Sincerely,



Tanya Schwanda
Accounts Receivable Manager
}
```

**Figure 6–9: Formlet2.txt Memo File**

Notice that `Formlet2.txt` contains two memo fields, one for each version of the letter. Because you can only attach one memo file to a report definition, you must include both versions of the letter in the same memo file. The first memo, Payment, contains the text for a payment request letter. The second version of the letter is in the Late–Notice memo, which notifies the customer that their payment is past due. You indicate which memo to use in the form letter by creating a calculated field to check the past due date of the account, then you include the calculated field in the report layout.

When you look at Figure 6–9, also notice that `Formlet2.txt` contains the memo identification, memo field start and end, and embedded field name codes. Because you already learned how to insert these codes in the previous example, they are provided for you here. As you look at the embedded field names in `Formlet2.txt`, you see that there are two field names, Past–Due–Date and Order–Total, that are not fields in the Newsport database. You will create these calculated fields in a later part of this procedure.

Figure 6–10 shows Payment.txt, which is how Formlet2.txt will look after you insert the additional codes.

```
NEWMEMO Payment:
{
Dear {@Contact},

      Thank you for your most recent <FHelvetica><B>All Around Sports<N><Times
New Roman> order, order number: {@Order.Order-num}. We processed this order on
{@Order-Date} and shipped it on {@Ship-Date}. The total amount for the order,
${@Order-Total}, is now due. Please remit payment as soon as possible as this
amount will be past due on {@Past-Due-Date}.

       Thank you for your prompt attention to this matter.



Sincerely,



Tanya Schwanda~n
Accounts Receivable Manager
}

NEWMEMO Late-Notice:
{
Dear {@Contact},

      This letter is to notify you that the payment for order number: {@Order.
Order-num} was due on {@Past-Due-Date} and is now past due. The total amount
for the order is ${@Order-Total}.

      We processed this order on {@Order-Date} and shipped it on {@Ship-Date}
in good faith. <I>If you do not remit payment within 15 days of the date of this
letter, we will assess a late fee of 5% of the amount due.<N>

       Thank you for your prompt attention to this matter.



Sincerely,



Tanya Schwanda~n
Accounts Receivable Manager
}
```

**Figure 6–10: Fully Prepared Memo File** (Payment.txt)

Follow these steps to properly prepare the memo file:

1 ♦ Open `Formlet2.txt` in a text editor or word processing program that allows you to save the file as an unformatted text file.

2 ♦ Place a line ending code, ~n, after the writer's name, Tanya Schwanda, and before the return in both memos to print the writer's name on a separate line. The line ending code tells Report Builder to start the following text on a new line. You must use this code to start new lines of text in the memo fields because Report Builder ignores single returns in the text. However, Report Builder recognizes multiple returns and creates blank lines for each return after the first one.

Figure 6–11 shows returns in the first memo field. In most places there are multiple returns that provide blank lines. However, in the closing salutation, you do not want a blank line between the author's name, Tanya Schwanda, and her title. Therefore, you must place a line ending code before the return on the line containing the author's name.

```
NEWMEMO Payment:
{
Dear {@Contact},

  Thank you for your most recent <FHelvetica><B>All Around Sports<N><Times
New Roman> order, order number: {@Order.Order-num}. We processed this
order on {@Order-Date} and shipped it on {@Ship-Date}. The total amount
for the order, ${@Order-Total}, is now due. Please remit payment as soon
as possible as this amount will be past due on {@Past-Due-Date}.

  Thank you for your prompt attention to this matter.



Sincerely,



Tanya Schwanda~n
Accounts Receivable Manager
}
```

**Figure 6–11: Line Ending Codes**

3 ♦ Specify the paragraph indentations (horizontal spacing) in the text. The type of word processor or editor you use dictates whether you use the **SPACEBAR** or the **TAB** key to specify spacing:

| If the word processor or text editor represents tabs as... | Then use... |
|---|---|
| The tab character (usually indicated by an arrow) | Use the **SPACEBAR**. Report Builder treats a tab character as a single space, so that space represented in your memo text as one or more tab characters will not be preserved when you generate the report. |
| A number of spaces | Use **TAB**. Report Builder preserves spaces inserted in your memo text when these spaces are at the beginning of a paragraph (as in a paragraph indentation). Spaces that are inserted elsewhere in your text are preserved, unless Report Builder's word-wrap places them against the left margin of your report. In this case, the spaces are eliminated. |

**NOTE:** Report Builder ignores control characters (such as form feeds) included in your text. It converts both the tab character (character code 9) and a single return into a space.

4 ♦ Specify the font and style codes. In this form letter you want to print the majority of the letter in Times New Roman. (Times New Roman is a TrueType font and should be available if you configure MS–Windows to show TrueType fonts.) You can specify the default font for the text in the memo by applying that font to the memo on the report layout.

**NOTE:** Do not specify fonts or styles in the word processor or text editor because they will be discarded when you save the file in text-only format.

a) Specify Helvetica for the All Around Sports logo by positioning the cursor directly before "All Around Sports" and typing **<FHelvetica>**. Report Builder automatically makes the font the point size applied to the memo in the report layout unless you specify otherwise. In this example, the applied point size is 12-point.

b) To return to Times New Roman for the rest of the letter, position the cursor directly after "All Around Sports" and type **<FTimes New Roman>**. You must type the font name as it appears on the Report Builder font list box, including all the necessary spaces and capitalization.

c) To make the All Around Sports logo bold, position the cursor between the Helvetica font code (<FHelvetica>) and "All Around Sports" and type **<B>** for bold. This code instructs Report Builder to make all text following the code bold.

d) To limit the bold style to the All Around Sports logo, position the cursor between "All Around Sports" and <FTimes New Roman> and type **<N>** for normal. This code instructs Report Builder not to apply a style to the text following the code.

e) To make the sentence regarding the penalty fee in the Late–Notice memo more noticeable, italicize the sentence by entering an **<I>** before the sentence begins.

f) To limit the italic style to that sentence, type **<N>** at the end of the sentence to return to normal text style.

5 ♦ Save the prepared text file as `Paylet.txt`.

Figure 6–12 shows how your memo file should look.

```
NEWMEMO Payment:
{
Dear {@Contact},

  Thank you for your most recent <FHelvetica><B>All Around Sports<N><Times
New Roman> order, order number: {@Order.Order-num}. We processed this
order on {@Order-Date} and shipped it on {@Ship-Date}. The total amount
for the order, ${@Order-Total}, is now due. Please remit payment as soon
as possible as this amount will be past due on {@Past-Due-Date}.

  Thank you for your prompt attention to this matter.



Sincerely,



Tanya Schwanda~n
Quality Assurance Manager
}

NEWMEMO Late-Notice:
{
Dear {@Contact},

  This letter is to notify you that the payment for order number: {@Order.
Order-num} was due on {@Past-Due-Date} and is now past due. The total
amount for the order is ${@Order-Total}.

  We processed this order on {@Order-Date} and shipped it on {@Ship-Date}
in good faith. <I>If you do not remit payment within 15 days of the date
of this letter, we will assess a late fee of 5% of the amount due.<N>

  Thank you for your prompt attention to this matter.



Sincerely,



Tanya Schwanda~n
Accounts Receivable Manager
}
```

**Figure 6–12: Embedded Font, Point Size, and Style Codes**

When you attach `Paylet.txt` to a report, Report Builder prints the text in the specified fonts (Times New Roman and Helvetica) if these fonts are available on the current printer. These fonts override any font applied to the memo field on the report layout. However, if you apply a style to the memo field in the report layout or if you specify only a style in the memo text, Report Builder tries to combine the style with the font applied to the memo on the report layout.

### 6.2.2 Open the Report Definition

For all the previous reports in this tutorial, you had to create the report definition. However, because the report definition for this report contains information that you have already created, it is provided for you. After you have prepared the memo file, `Paylet.txt`, you are ready to use it to generate the form letters.

Follow these steps to open the report definition:

1 ♦ Choose the Open Report button. The Open Report dialog box appears.

2 ♦ Access the `rbtutor` directory.

3 ♦ Select the `Tutorial.prl` report library, then choose OK.

4 ♦ Select the Payment Letter Sample report definition, then choose OK. Report Builder opens the Payment Letter report definition.

Figure 6–13 shows the report layout defined in the Payment Letter Sample report definition.

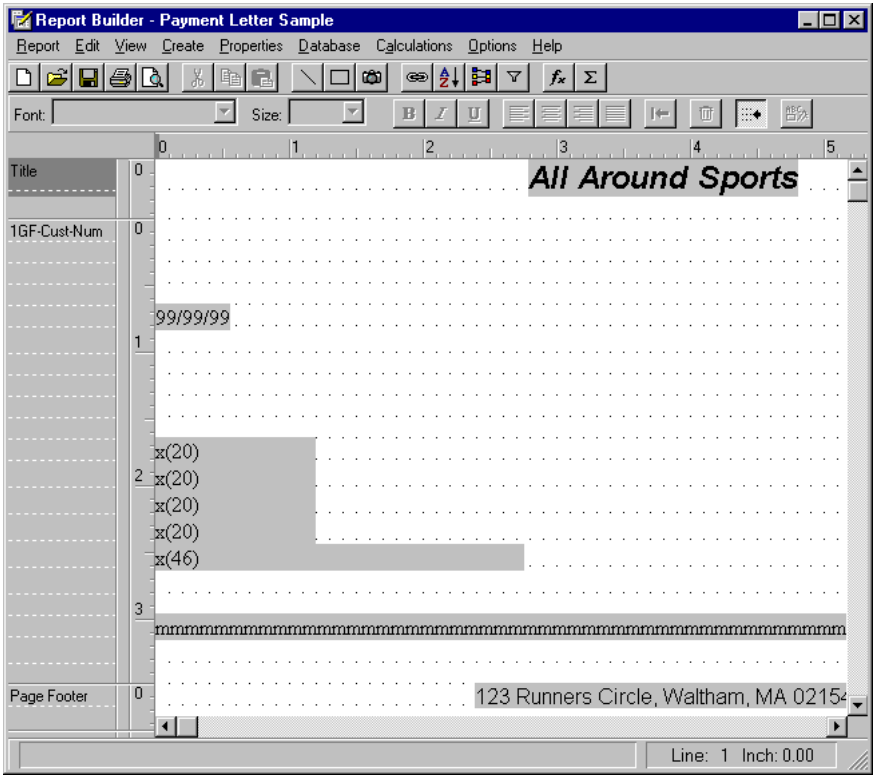



**Figure 6–13: Payment Letter Report Layout**

The Payment Letter report definition provides a basic layout and structure for this form letter by defining many report characteristics and report layout features:

- It includes the All Around Sports logo in the title band line.
- It includes a date field that displays the current system date.
- It provides the customer name and address information fields, including the City–State–PC field you created in the Recall form letter.
- It formats all the database fields in Times New Roman. Because the field representation on the layout is not long enough to accommodate all the characters in the specified font, the fields are represented by x and the number of characters in the field format in parentheses (for example, x(20)).

- It presents all the fields in group footer lines so that Report Builder can calculate the total amount of each customer's order.
- It prints the All Around Sports address in the page footer band line.
- It sorts and groups the report records by customer number, then by order number.
- It specifies 1-inch page margins.
- It specifies the joins to the tables that contain the fields used in the layout and the fields referenced in the memo file.

### 6.2.3 Accessing and Ordering the Data

Because the Payment Letter report definition already contains the joins to the tables that contain the database fields, you must only attach the `Paylet.txt` memo file to the report definition.

Follow these steps to attach the memo file:

1 ♦ Choose Report→ Attach Memo File. The Attach Memo File dialog box appears.

2 ♦ Type **c:\rbtutor\Paylet.txt** in the Memo File field. Report Builder assigns Paylet as the file alias.

3 ♦ Choose OK. When you access the Insert Fields dialog box, the name of each memo defined in the memo file appears in the field list under the Memo Fields heading. Because you defined two memo fields in the `Paylet.txt` memo file, Payment and Late–Notice will appear in the list.

### 6.2.4 Defining New Fields

Although the report definition contains all the address information and several text fields, you have to create three more fields.

Follow these steps to create the fields:

1 ♦ Create the Past–Due–Date calculated field to calculate when payment is past due using the following expression:

IIF(RUNTIME(), DATE(RUNTIME–PARAMETER("duedate")), 7/30/95)

This expression allows you to input a due date (duedate) when you run the report with the Report Engine. The RUNTIME() function checks whether you are passing a date using the RUNTIME–PARAMETER() function. If you are not using the Report Engine, RUNTIME() returns a false value, and the IIF function sets the value of Past–Due–Date to 7/30/95. See the *Progress Report Builder Deployment Guide* for a complete description of the Report Engine.

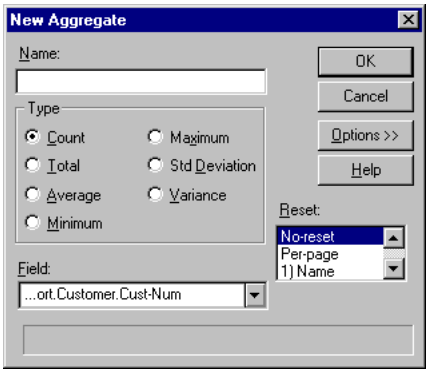
2 ♦ Create the Memo–Choice calculated field to choose which memo to print based on the date specified by the Past–Due–Date field. Use this expression:

IIF(Past–Due–Date > TODAY(), Payment, Late–Notice)

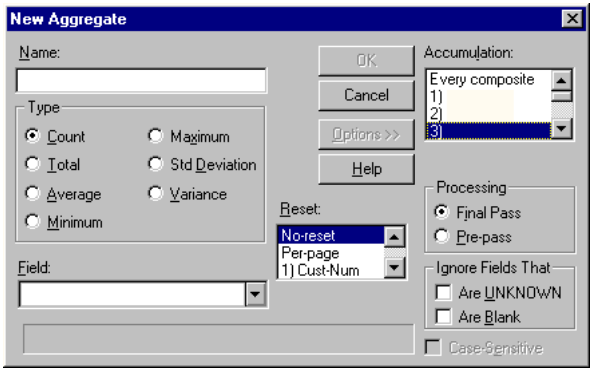
This expression instructs Report Builder to compare the Past–Due–Date to the current system date. If the Past–Due–Date is after the current date, Report Builder uses the Payment memo. However, if the Past–Due–Date is before the current date, Report Builder uses the Late–Notice memo.

The Memo–Choice field allows you to print two different versions of the letter. In the first example form letter you insert a specific memo field in the report layout. To have the flexibility of printing different memos, you insert the Memo–Choice field instead of a specific memo field in the report definition.

3 ♦ Create an aggregate field, Order–Total, that totals the Extended–Price field from the Order–Line table. When you choose New from the Calculated Fields dialog box, the New Aggregate dialog box appears. Notice that there is an Options button:




a) Choose the Options button to specify the optional aggregate field settings. The New Aggregate dialog box expands to include three more settings:



b) Specify the settings listed in the following table:

| Option | Setting |
|---|---|
| Type | Total |
| Field | Order–Line.Extended–Price |
| Reset | 1GF–Order–num |
| Accumulation | Every Composite |
| Processing | Final Pass |

Specify Order–Num as the reset value so that Report Builder will add the prices of the items ordered for each order.

c) Choose OK to return to the Aggregate Fields dialog box.

d) Choose OK to return to the report layout.

### 6.2.5 Designing the Report Layout

Although the Payment Letter report definition contains a partially designed layout, you must insert and format the newly created Memo–Choice field. Although you also created the Past–Due–Date and Order–Total fields, you do not insert them in the layout because they appear in the text of the memo fields.

Because the default width of the Memo–Choice field is 60 characters, the text of the memo fields only prints up to 60 characters per line. The page margins for the report are 1 inch, which means that there are 6.5 inches between the margins on an 8.5-inch wide page. If you do not adjust the Memo–Choice field's width, the text in the memo fields does not fill the space between the margins.

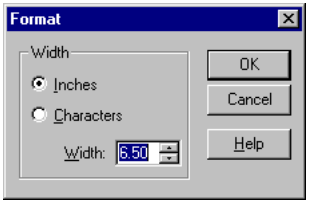
Follow these steps to insert the Memo–Choice field and change it's width:

1 ♦ Insert the Memo–Choice field on the third to the last group footer line. Report Builder represents the field with a series of m's.

2 ♦ Select Memo–Choice on the report layout.

3 ♦ Choose Properties→ Format. The Format dialog box appears.

4 ♦ Change the width from 60 characters to 6.5 inches, as shown below:




5 ♦ Then choose OK. This allows the memo to fill the space between the margins.

6 ♦ While the memo is still selected, apply the Times New Roman font to the memo. If you do not apply this font, the part of the memo preceding the Times New Roman font code in the memo file will not have the same font.

### 6.2.6 Previewing and Saving the Report Definition

As always, the final step in creating the report definition is to preview the report, then save it.

Preview the report. Because the current system date is later than the date specified in the Past–Due–Date calculated field (7/30/95), Report Builder displays the letter shown in Figure 6–14.

***All Around Sports***

08/02/95

Gloria Shepley
Lift Line Skiing
276 North Street
Boston, MA  02114

Dear Gloria Shepley,

This letter is to notify you that the payment for order number: 187 was due on 7/30/95 and is now past due. The total amount for the order is $42,569.57.

We processed this order on 04/05/95 and shipped it on 05/15/95 in good faith. If you do not remit payment within 15 days of the date of this letter, we will assess a late fee of 5% of the amount due.

Thank you for your prompt attention to this matter.

Sincerely,

Tanya Schwanda
Accounts Receivable Manager

123 Runners Circle, Waltham, MA 02154

/

**Figure 6–14: Late Payment Notification Letter**

## 6.3 Summary

After performing the steps in this chapter, you should know how to perform all the tasks in the following checklist:

- Prepare a memo file, including how to:
  - Identify memos in a memo file.
  - Mark the beginning and end of each memo with braces { }.
  - Include field names in the memo file text.
  - Identify line endings in the memo file text.
  - Specify tabs and indentations.
  - Apply fonts, point sizes, styles, and effects to memo file text.
- Define a join.
- Define a filter.
- Attach a memo file to the report definition.
- Print different versions of the same form letter.

To create the reports described in the following chapters, you must be able to perform these tasks. Therefore, if you are not confident that you know how to perform a particular task, return to the section that describes that task and review the steps.

# 7

# Commission Report

In this chapter you will create a report that calculates the commission for sales representatives based on their sales. Specifically, you will learn how to:

- Specify a group order
- Create a group header and a group footer
- Create a user-defined function (UDF)
- Conditionally print band lines

## 7.1 Report Overview and Output

Create the report definition using the following basic steps:

1. Create the initial report layout.
2. Access and order the data.
3. Define new fields.
4. Design the report layout.
5. Preview and save the report definition.

When you follow these basic steps, you will produce the Commission Report shown in Figure 1–6.

To perform the tasks in this chapter, you must:

- Connect to the Newsport database.
- Know how to perform the tasks described in the previous chapters. If you have difficulty performing any task for creating the commission report, see the appropriate chapter for a complete description of the task.

## 7.2 Creating the Report Definition

The first step in creating the report definition is to create an initial report layout. Follow these steps to create the initial layout:

1 ♦ Choose the New Report button. Report Builder prompts you to specify the master table for the report.

2 ♦ Select the Order table as the master table, then choose OK. Report Builder prompts you to use the Instant Layout option.

3 ♦ Choose Yes. The Instant Layout Fields dialog box appears.

4 ♦ Select the Order–num and Sales–Rep fields, then choose OK. Report Builder creates the instant layout for the report shown in Figure 7–1.

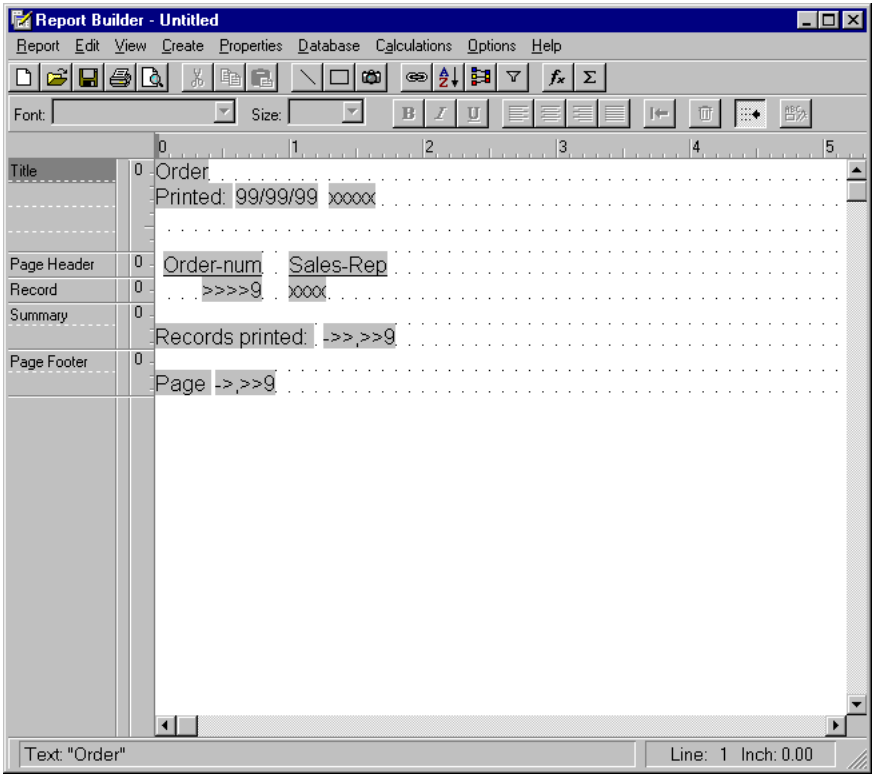



**Figure 7–1: Commission Report Instant Layout**

## 7.3 Accessing and Ordering Data

To access and properly order data for this report, you must perform these steps:

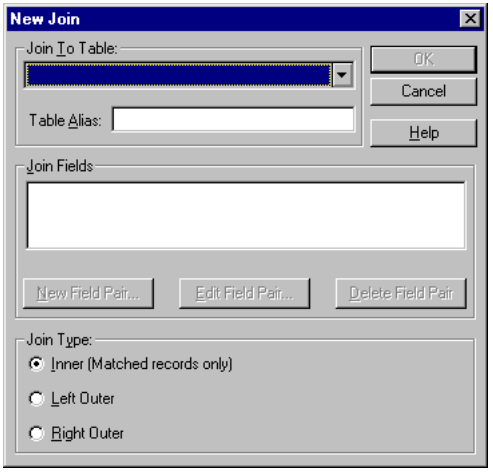
1. Define the joins.
2. Specify the sort order.
3. Specify the group order.
4. Define a filter.

### 7.3.1 Defining the Joins

For this report, you need to access data in the Order and Order–Line tables. Because Order is the master table, you only have to join to the Order–Line table.

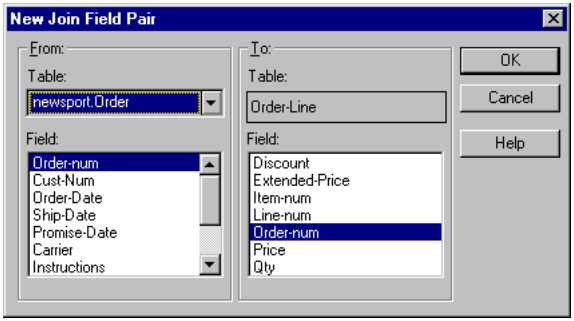
Follow these steps to define the join:

1 ♦ Choose Database→ Joins. Because this is the first join for this report, the New Join dialog box appears:




2 ♦ Select the Order–Line table from the Join To Table drop-down list by double-clicking on it. Order–Line becomes the related table.

3 ♦ Choose the New Field Pair button. The New Join Field Pair dialog box appears:




4 ♦ Select Order–num as the join field from both tables, then choose OK. Report Builder returns you to the New Join dialog box. The join fields you specified appear in the Join Fields list.

5 ♦ Choose OK. The Joins dialog box appears.

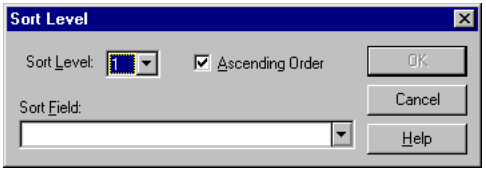
6 ♦ Choose Close to return to the report layout.

### 7.3.2 Specifying the Sort Order

Follow these steps to change the sort order:

1 ♦ Choose Database→ Sort Order or the Sort button. The Sort Order dialog box appears.

2 ♦ Choose the New button to specify a new sort order. The Sort Level dialog box appears:

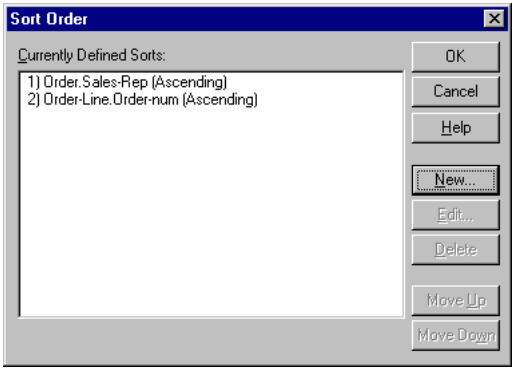



3 ♦ Choose the Sales–Rep field from the Order table in the Sort Field drop-down list. Report Builder displays Sales–Rep in the Sort Field list.

4 ♦ Choose OK. The Sort Order dialog box reappears with the newly defined sort order.

5 ♦ Choose New again.

6 ♦ Choose Order–num from the Order table in the Field drop-down list, then choose OK. The Sort Order dialog box reappears with the newly defined sort order:



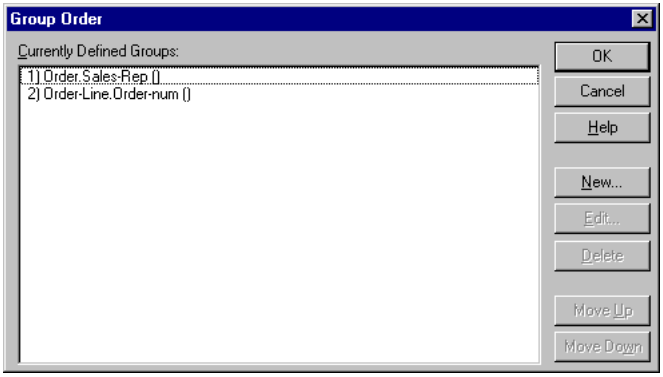

7 ♦ Choose OK to return to the report layout.

### 7.3.3 Verifying the Group Order

By default, the first time you specify a sort order for a report, Report Builder automatically uses the sort order as the initial group order. Therefore, because you specified to sort first by Sales–Rep, then by Order–num, Report Builder groups the data first by Sales–Rep, then within Sales–Rep by Order–num.

Follow these steps to verify the group order:

1 ♦ Choose Database→ Group Order or the Group button. The Group Order dialog box appears:




Because you want to group the data in the currently specified levels, you do not have to make any changes to the default group order. However, if you do want to to specify a new group level, you choose the New button, then specify the field and group level. In most cases, the group fields should be the same as the sort fields.

2 ♦ Choose OK to return to the report layout.

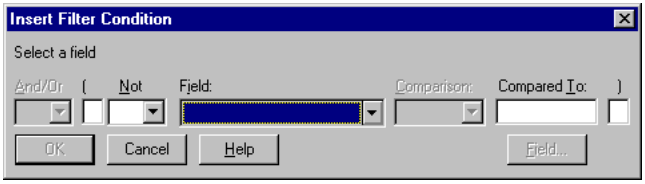
To display the report data utilizing the specified group levels, you will create group header and footer band lines in the "Designing the Report Layout" section.

### 7.3.4 Defining the Filter

This report displays the sales and commission information for 1/1/95 to 6/30/95. To limit the data to those six months, you must define a filter with one filter condition.

Follow these steps to define a filter condition:

1 ♦ Choose Database→ Filter. The Insert Filter Condition dialog box appears:




2 ♦ Select Order–Date from the Field drop-down list.

3 ♦ Select IN–RANGE from the Comparison drop-down list.

4 ♦ Type **1/1/95, 6/30/95** in the Compared To field.

5 ♦ Choose OK to create the condition. The Filter dialog box appears.

6 ♦ Choose OK to save the filter and return to the report layout.

The complete condition is Order–Date INRANGE 1/1/95, 6/30/95. When Report Builder processes the filter, it will only display orders and commission information for the specified six-month period.

## 7.4 Defining New Fields

For this report you must define one user-defined function (UDF), two calculated fields, and four aggregate fields. The following sections describe each of the fields.

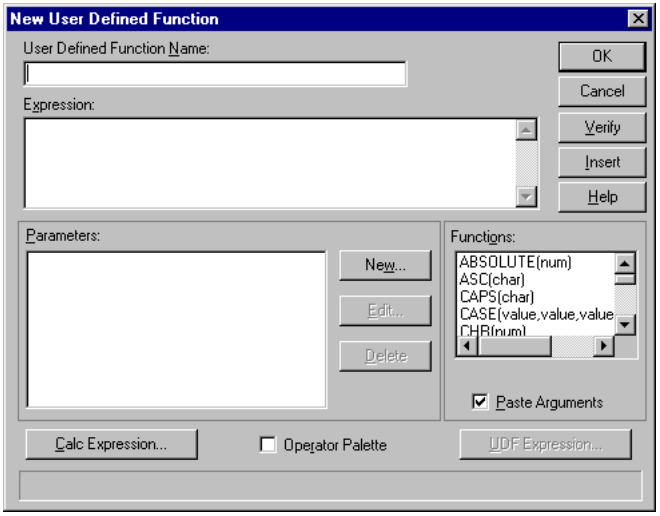
### 7.4.1 Defining a User-defined Function

A *user-defined function* (UDF) is a function you create to process field values according to an expression that you define. The primary benefits of UDFs are that you can create them to perform complex operations that are not available with the built-in Report Builder functions and that you can use them in multiple reports. See the “Report Builder Functions” appendix in the *Progress Report Builder User’s Guide* for complete descriptions of the built-in Report Builder functions.

For this report, you will create a UDF that calculates the commission rate for each order. Although you can create a calculated field to perform the same calculations, if you did, you could not use it in other reports. By defining a UDF, you can use the calculation in other reports.

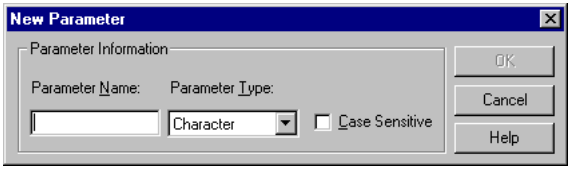
Follow these steps to create a user-defined function:

1 ♦ Choose Calculations→ User Defined Function. The New User Defined Function dialog box appears:




2 ♦ Type **Comm–Rate** in the User Defined Function Name fill-in field.

3 ♦ Choose the New button to create the parameters you need for the expression. The New Parameter dialog box appears:



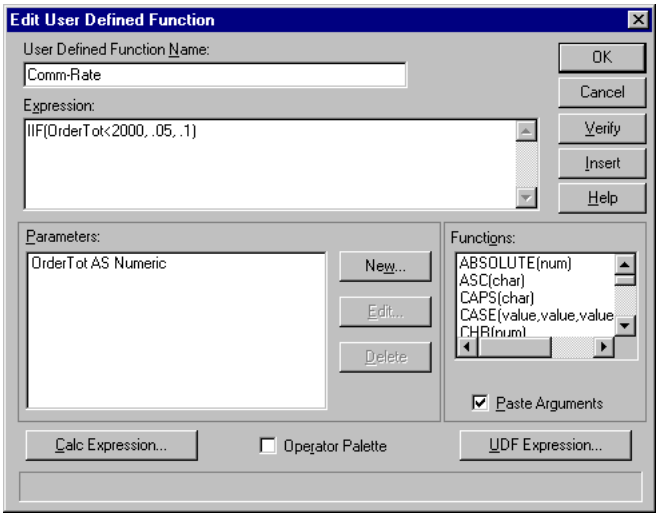

User-defined functions, like the built-in functions, are not associated with a specific report definition. Therefore, you must use parameters instead of direct table and field references in the UDF expression. *Parameters* pass actual values from the database or user-defined fields into the UDF expression. This indirection allows you to use the UDF with multiple reports. For this expression, you want to pass in a value that is a total for an order.

4 ♦ Type **OrderTot** in the Parameter Name fill-in field.

5 ♦ Select numeric from the Parameter Type drop-down list, then choose OK. The New User Defined Function dialog box appears.

6 ♦ Type **IIF(OrderTot < 2000, .05, .1)** in the Expression fill-in field.

This expression tests the value passed in through the OrderTot parameter to see if it is above or below $2,000. If it is below $2,000, then the commission rate is 5%. If the value is above $2,000, then the commission rate is 10%:

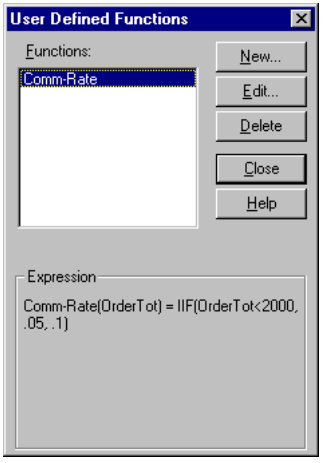



7 ♦ Choose Verify to check the expression syntax. If there is an error in the expression (for example, if you did not leave a blank space between one of the expression elements), Report Builder displays an error message. When possible, it also positions the cursor to the place in the expression where the error occurred.

Edit the existing expression if it is not correct.

8 ♦ When the expression is complete and correct, choose OK.

9 ♦ Choose OK to create the function and return to the User Defined Functions dialog box:




10 ♦ Choose Close to return to the report layout.

For a complete description of UDFs, see the user-defined functions chapter in the *Progress Report Builder User's Guide*.

### 7.4.2 Defining Aggregate and Calculated Fields

For this report, you must create both aggregate and calculated fields. Because the aggregate and calculated fields build upon one another, you must create them in the order specified in the following steps.

When you create aggregate fields that total values you already computed in other aggregate fields, it might seem logical to nest the fields or build them on one another. For example, if you create a total to compute the amount for each order, then compute the amount for all orders. However, to take advantage of the automatic accumulation frequency settings, you should avoid totalling other total fields or calculated fields that reference other total fields if possible. Also, if you do create aggregate fields that total other fields and you change the original total fields, the changes will affect all the aggregate or calculated fields that reference them.

In this report, there is more than one field that computes a total based on data in the Extended–Price field. The first field you define, Order–Total, totals the prices of the items in each order. In a later step, you create a field, Sales–Rep–Total, that computes the amount of sales for each sales representative. Although you already compute subtotals for each order with the Order–Total field, do not total the Order–Total field. Instead, calculate the Sales–Rep–Total directly from the Extended–Price field.

However, sometimes you cannot avoid totalling on a total. This happens when you compute the commission totals for the sales representatives. Because you can only determine the commission amount based on the order totals, the commission total aggregate must depend on the Order–Total field.

Follow these steps to define the aggregate and calculated fields:

1 ♦ Create an aggregate, Order–Total, to compute the total amount for each order. Specify the settings listed in the following table:

| Option | Setting |
|---|---|
| Type | Total |
| Field | Extended–Price |
| Reset | 2) Order–num |
| Accumulation | Every Composite |
| Processing | Final Pass |

When you defined Comm–Rate–UDF, you created an Ordertot parameter. The Order–Total aggregate field computes the actual value that will be used for this parameter.

2 ♦ Create a calculated field named Comm–Amt to calculate the commission amount for each order. Use the following expression:

Order–Total * Comm–Rate(Order–Total)

This expression uses the value from the Order–Total aggregate field and multiplies it by the value computed by the Comm–Rate calculated field using the Comm–Rate–UDF user-defined function.

3 ♦ Create an aggregate, Comm–Total, to compute the total amount of commissions for each sales representative. Specify the settings listed in the following table:

| Option | Setting |
|---|---|
| Type | Total |
| Field | Comm–Amt |
| Reset | 1) Sales–Rep |
| Accumulation | 2) Order–num |
| Processing | Final pass |

You set the Reset value to Sales–Rep so that Report Builder starts the aggregate at zero for each sales representative. Set the accumulation to the second group level so that you add the commission amount to the total once for each order. Note that for most aggregates Report Builder automatically determines the proper accumulation setting.

4 ♦ Create an aggregate, Sales–Rep–Total, to compute the total amount of sales for each sales representative. Specify the settings listed in the following table:

| Option | Setting |
|---|---|
| Type | Total |
| Field | Extended–Price |
| Reset | 1) Sales–Rep |
| Accumulation | Every Composite |
| Processing | Final Pass |

Again, you set the Reset value to Sales–Rep so that Report Builder starts the aggregate at zero for each sales representative. Set the accumulation to “Every Composite” so that Report Builder adds the Extended–Price for each Order–Line record to the total.

5 ♦ Create a calculated field, Comm–Bonus, to calculate whether a sales representative has earned a bonus based on the amount of his or her total sales. Use the following expression:

IIF(Sales–Rep–Total > 30000, 4000, 0)

This expression tests the value of the Sales–Rep–Total aggregate field to see whether it is greater than $30,000. If the value is greater than $30,000, then the sales representative earns a bonus of $4,000. If the value is less than $30,000, then the sales representative does not get a bonus.

6 ♦ Create an aggregate, Grand–Total–Sales, to compute the total amount of sales for all the sales representatives. Specify the settings listed in the following table:

| Option | Setting |
|---|---|
| Type | Total |
| Field | Extended–Price |
| Reset | No–reset |
| Accumulation | Every Composite |
| Processing | Pre–pass |

You set the Reset value to No–reset because this field computes the grand total for the report. You must make Grand-Total-Sales a prepass aggregate because Report Builder will use it in a percent-of-total field that will be printed for each sales representative, before all the records for the other sales representatives have been printed. Again, set the accumulation to "Every Composite" so that Report Builder adds the Extended–Price for each Order–Line record to the total.

7 ♦ Create a calculated field named Percent–of–Total to calculate the percentage of the total sales each sales representative contributed. Use the following expression:

Sales–Rep–Total / Grand–Total–Sales * 100

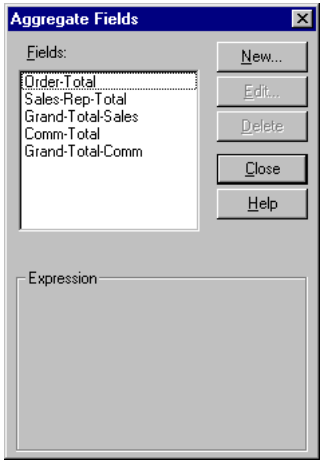
This expression divides the total for each sales representative by the total amount of all sales, then multiplies the product by 100 to make it a percentage.

8 ♦ Create an aggregate, Grand–Total–Comm, to compute the total amount of commissions for all the sales representatives. Specify the settings listed in the following table:

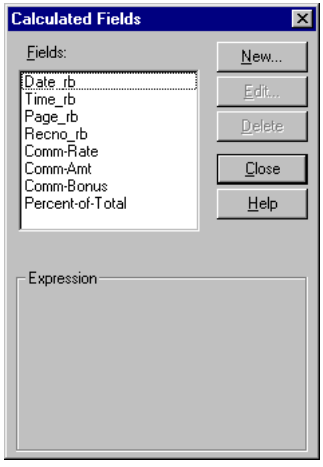
| Option | Setting |
|---|---|
| Type | Total |
| Field | Comm–Total |
| Reset | No–reset |
| Accumulation | 1) Sales–Rep |
| Processing | Final Pass |

You set the Reset value to No–reset because this field computes the grand total for the report. The Accumulation frequency is Sales–Rep so that Report Builder adds the commission total for each sales representative to the grand total. Lastly, the Grand–Total–Sales field is a final pass aggregate because it computes the grand total for the report, which Report Builder displays at the end of the report.

When you finish creating the Grand–Total–Comm field, check the Aggregate Fields dialog box to make sure that you created all the necessary aggregate fields. The Aggregate Fields dialog box should look like this:




Then, check the Calculated Fields dialog box to make sure that you have created all the necessary calculated fields. The Calculated Fields dialog box should appear as follows:



## 7.5 Designing the Report Layout

Now that you have created all the user-defined fields and functions for the report, you can start designing the layout. For this report, you must perform these steps:

1. Create additional band lines.
2. Manipulate fields on the layout.
3. Remove unnecessary band lines.
4. Specify conditional printing for a band line.
5. Draw lines.

### 7.5.1 Creating Additional Band Lines

The first task in designing the report layout is to create the additional band lines you need for displaying the data. You must:

- Create group header and group footer band lines
- Create additional title and summary band lines

#### Creating Group Header and Group Footer Band Lines

*Group header band lines* are band lines that display header information for each group. *Group footer band lines* are band lines that display summary information for each group. When you specify the group order in the Group Order dialog box, you specify how you want to group the data for the report. The group header and footer band lines allow you to present the data in the specified groupings. Because you can specify multiple group levels, you can create group header and group footer band lines for more than one group in a single report.

For example, in this report you are grouping the data first by sales representative, then by order number. To display each sales representative's orders and commissions, you must create group header and footer band lines.

Report Builder indicates band line type in the band line status area on the report layout and in the Create Band Line dialog box. Because you can create group header and group footer band lines for multiple group levels, Report Builder uses the format shown in Figure 7–2 to identify group header lines.

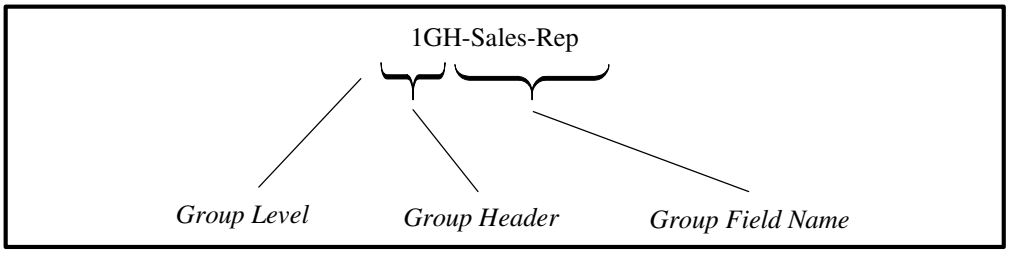



**Figure 7–2: Group Header Label Description**

Report Builder identifies group footer band lines the same way, except it replaces "GH" with "GF" (for group footer).

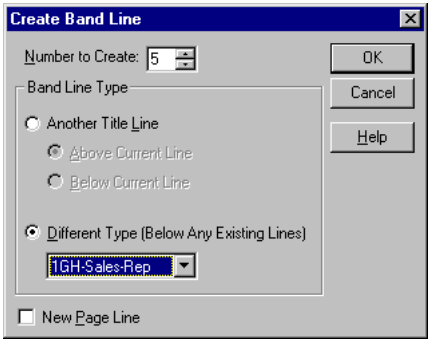
Follow these steps to create group header and group footer band lines:

1 ♦ Choose Create→ Band Line. The Create Band Line dialog box appears.

2 ♦ Type **5** in the Number To Create field.

3 ♦ Activate the Different Type radio button.

4 ♦ Select 1GH–Sales–Rep from the drop-down list.




5 ♦ Choose OK. Report Builder creates five group header band lines for the first group level.

6 ♦ Create seven 1GF–Sales–Rep group footer band lines in the same manner.

7 ♦ Create one 2GF–Order–num group footer band line in the same manner.

### Create Additional Title and Summary Band Lines

In addition to the group header and footer band lines, you must create additional title and summary band lines.

Follow these steps to create title and summary band lines:

1 ♦ Choose Create→ Band Line. The Create Band Line dialog box appears.

2 ♦ Accept 1 for the Number To Create field.

3 ♦ Activate the Different Type radio button.

4 ♦ Select Title from the drop-down list.

5 ♦ Choose OK. Report Builder creates one more title band line.

6 ♦ Create three more summary band lines in the same manner.

After you create all the band lines, the report layout should look like the one shown in Figure 7–3.

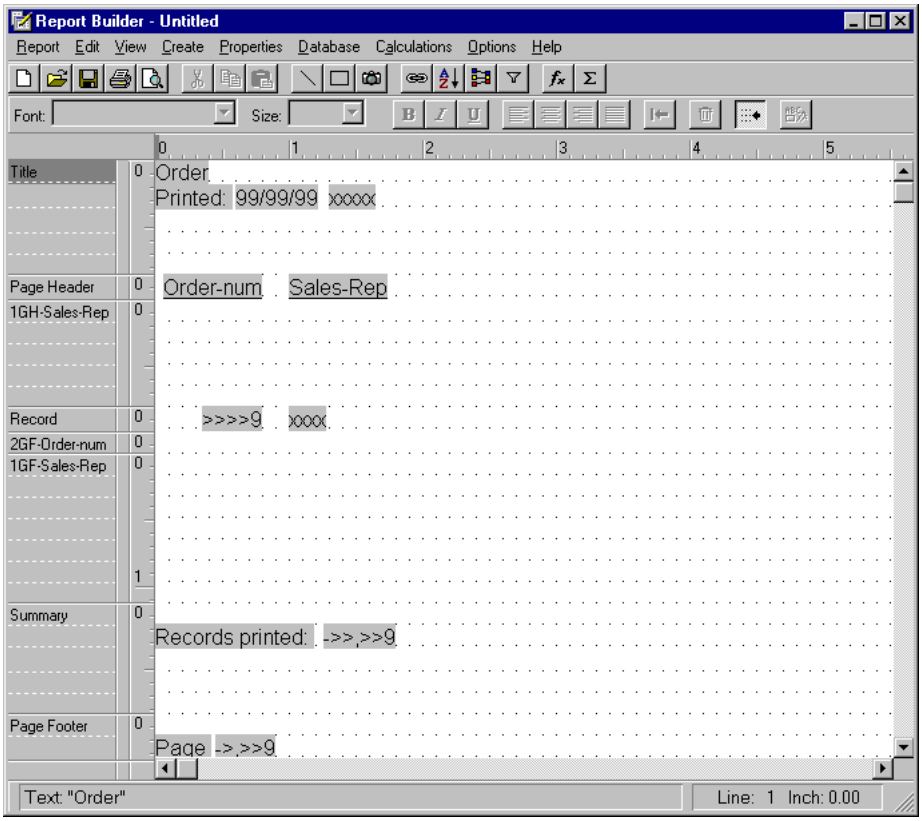



**Figure 7–3: Commission Report Layout with All Band Lines**

## 7.5.2 Manipulating Fields on the Layout

Now that you have created all the band lines, you are ready to start moving and inserting fields on the layout. You will perform the following steps:

1. Change how Report Builder represents fields on the layout.
2. Delete the unnecessary fields on the layout.
3. Move the fields currently on the layout
4. Insert the user-defined fields on the layout.
5. Insert text fields on the layout.
6. Format the fields.

### Displaying Field Names Instead of Field Formats on the Layout

By default, Report Builder represents fields by their format. However, because you have multiple fields on the layout that have the same format, change the representation to the field name.

Choose View→ Field Names. Report Builder displays the field names instead of the field formats on the report layout.

### Deleting the Unnecessary Fields on the Layout

When Report Builder creates the report layout with the Instant Layout option, it creates two fields that you do not need for this report.

Follow these steps to delete the unnecessary fields:

1 ♦ Delete the Order text field from the first title band line.

2 ♦ Delete the Printed: text field and Date_rb and Time_rb fields from the second title band line.

3 ♦ Delete the Records printed: text field and Recno_rb field from the second summary band line.

### Moving the Fields Currently on the Layout

The next task is to relocate the fields that are currently on the layout to better positions on the layout.

Follow these steps to move the fields:

1 ♦ Move the Sales–Rep text field from the page header band line to the left margin of the third 1GH–Sales–Rep group header band line.

2 ♦ Move the Sales–Rep field to the 1-inch mark on the third Sales–Rep group header band line. Because the Sales–Rep field name is longer than the field width, only the first three letters show.

3 ♦ Move the Order–num text field to the left margin of the fifth 1GH–Sales–Rep band line.

4 ♦ Move the Order–num field to the left margin of the 2GF–Order–num band line.

When you finish moving the fields currently on the layout to their new positions, the layout should look like the one shown in Figure 7–4.

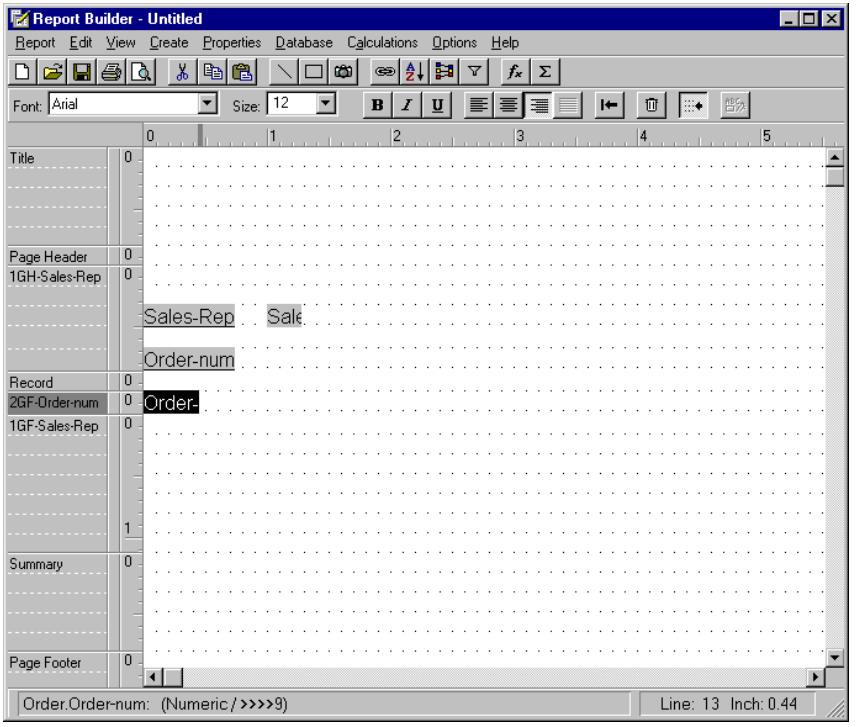



**Figure 7–4: Commission Report Layout with Fields in New Positions**

### Inserting the User-defined Fields on the Layout

1 ♦ Press the right mouse button to access the Insert Fields dialog box.

2 ♦ Activate the Include Field Label toggle box. When Report Builder inserts each field, it automatically places the corresponding field label on the band line directly above the band line containing the field.

3 ♦ Insert the fields at the positions indicated in the following table. Position the **right edge** of the field at the specified ruler mark:

| Field | Band Line | Ruler Mark |
|---|---|---|
| Order–Total | First 2GH–Order–num | 2.5-inches |
| Comm–Amt | First 2GH–Order–num | 5-inches |
| Sales–Rep–Total | Third 1GF–Sales–Rep | 2.5-inches |
| Comm–Total | Third 1GF–Sales–Rep | 5-inches |
| Percent–of–Total | Fifth 1GF–Sales–Rep | 2.5-inches |
| Comm–Bonus | Sixth 1GH–Sales–Rep | 2.5-inches |
| Grand–Total–Sales | Second summary | 2.5-inches |
| Grand–Total–Comm | Second summary | 5-inches |

4 ♦ Close the Insert Field dialog box.

5 ♦ Move the field labels to the positions indicated in the following table. Position the **left edge** of the field at the specified ruler mark:

| Label | Band Line | Ruler Mark |
|---|---|---|
| Sales–Rep–Total | Third 1GF–Sales–Rep | Left margin |
| Comm–Total | Third 1GF–Sales–Rep | 3-inches |
| Percent–of–Total | Fifth 1GF–Sales–Rep | Left margin |
| Comm–Bonus | Sixth 1GH–Sales–Rep | Left margin |
| Grand–Total–Sales | Second summary | Left margin |
| Grand–Total–Comm | Second summary | 3-inches |

After you insert all eight fields, the report layout should look like the one shown in Figure 7–5.

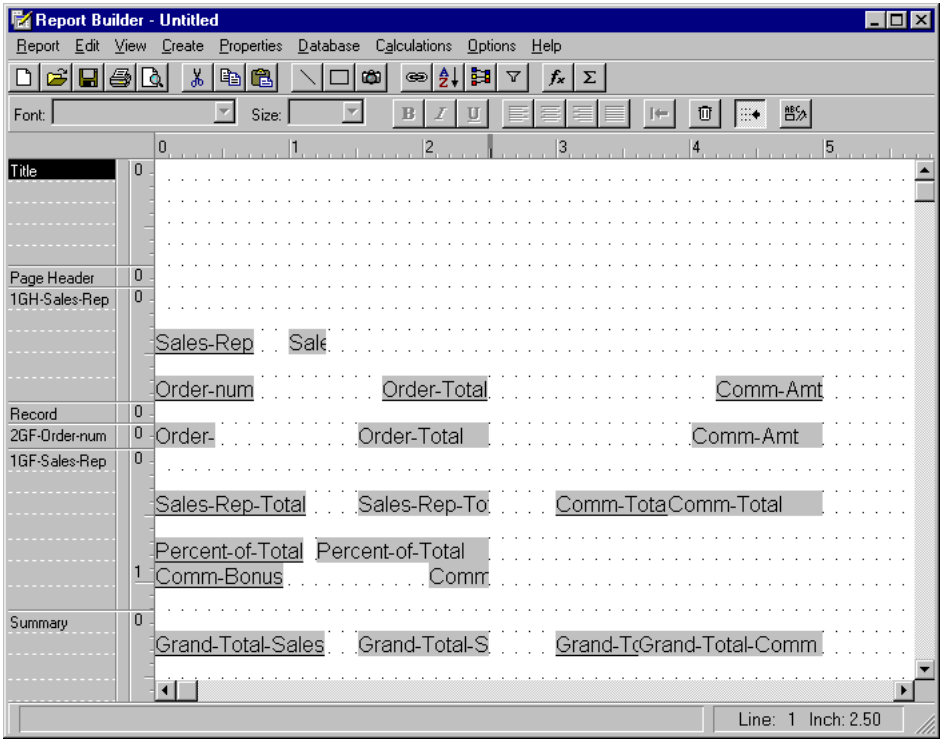



**Figure 7–5: Commission Report Layout with User-defined Fields**

Preview the report. If your layout looks like the one shown in Figure 7–5 and you correctly defined all the user-defined fields, the report looks like the one shown in Figure 7–6.

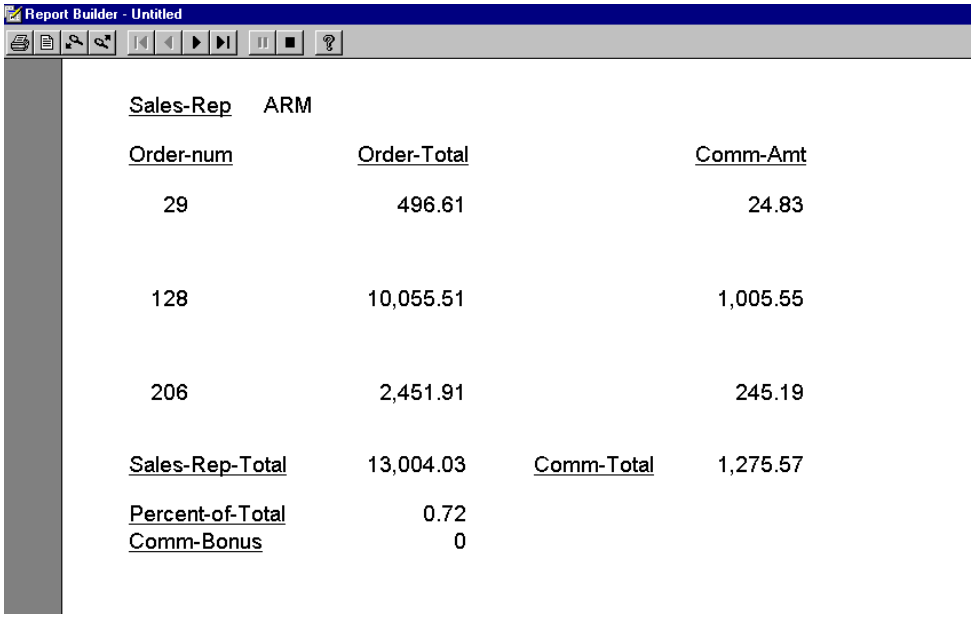



**Figure 7–6: Preview of Commission Report with User-defined Fields**

### Inserting Text Fields on the Layout

You must create text fields for the title and summary information. After you create the fields, you will center the title information on the band lines.

Follow theses steps to create the text fields:

1 ♦ Type **COMMISSION REPORT** on the second title band line.

2 ♦ Type **Commission and Sales for 1/1/95 to 6/30/95** on the fourth title band line.

3 ♦ Type **For orders less than $2,000, commission rate is 5%; for orders greater than $2,000, commission is 10%** on the fifth summary band line.

4 ♦ Select the second, third, and fourth title band lines.

5 ♦ Choose Properties→ Band Line Justify. The Band Line Justify dialog box appears.

6 ♦ Choose Center, then choose OK.

The report layout should look like the layout shown in Figure 7–7.

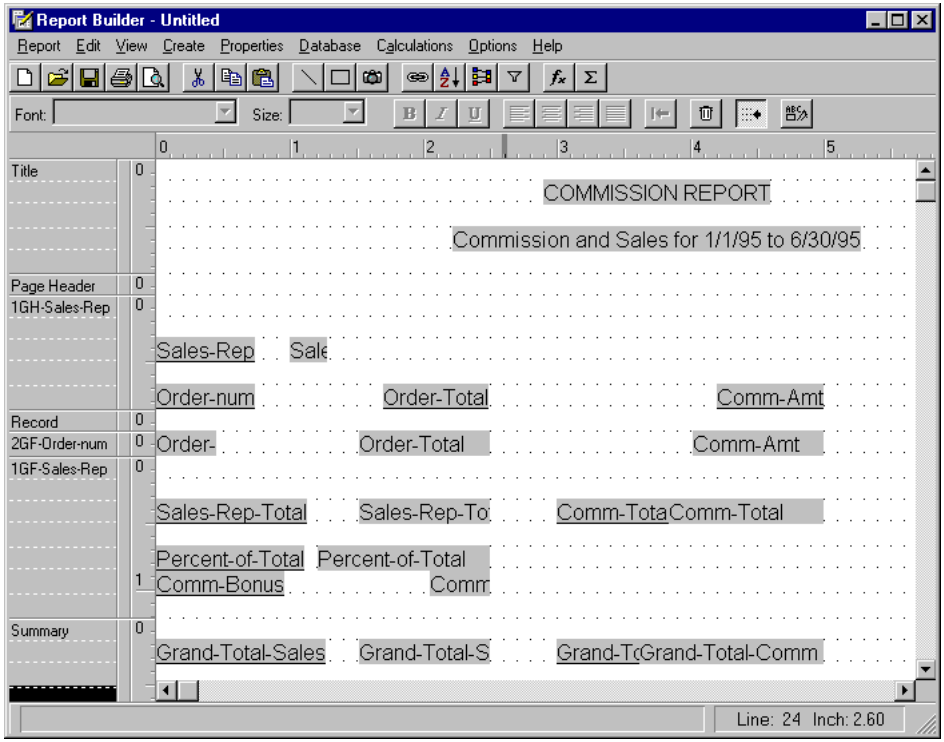



**Figure 7–7: Commission Report Layout with Title and Summary Information**

### 7.5.3 Removing Unnecessary Band Lines

Because you used the Instant Layout option, the layout contains five types of band lines. However, for this report, you do not need the record or page header band lines, so delete them.

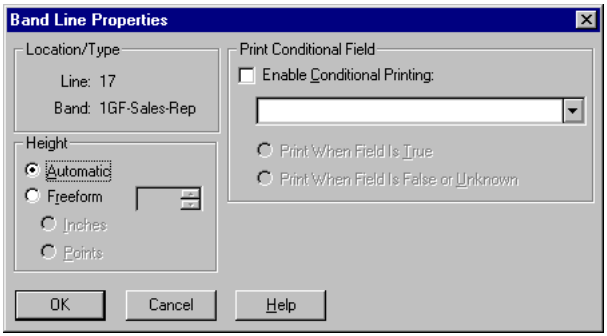
### 7.5.4 Specifying Conditional Printing for a Band Line

You can specify to print a band line only when certain criteria are met. For this report, you will specify to print the fifth 1GF–Sales–Rep band line only if the sales representative receives a bonus.

Follow these steps to conditionally print a band line:

1 ♦ Select the sixth 1GF–Sales–Rep band line.

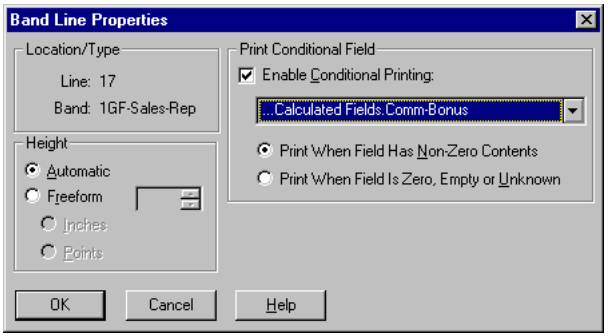
2 ♦ Choose Properties→ Band Line Properties. The Band Line Properties dialog box appears:




3 ♦ Activate the Enable Conditional Printing toggle box.

4 ♦ Select the Comm–Bonus field from the drop-down list. Notice that the labels for the radio buttons changed when you selected the field.

5 ♦ Activate the Print When Field Has a Non-Zero Contents toggle box. This means that Report Builder prints the band line only when the value in the Comm–Bonus field is not zero or UNKNOWN. The Band Line Properties dialog box should look like this:




6 ♦ Choose OK to return to the report layout.

### 7.5.5 Drawing Lines

You can draw lines on the layout to more clearly define the beginning and end of each sales representative's information and to indicate the total information for the footer and summary information. Remember that when you draw a line on the layout, by default Report Builder moves the line to the closest dotted grid line, and that the grid lines apply to the band line directly above them.

Follow these steps to draw lines in the proper locations on the layout:

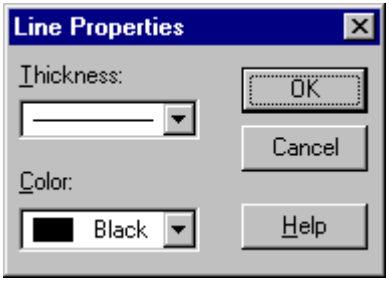
1 ♦ Choose Create→ Line and draw a line from the left margin to the right margin on the first 1GH–Sales–Rep band line.

2 ♦ Draw another line from the 1.5-inch mark to the 2.5-inch mark on the first 1GF–Sales–Rep band line.

3 ♦ Draw another line from the 4-inch mark to the 5-inch mark on the first 1GF–Sales–Rep band line.

4 ♦ Select the line you created Step 1.

5 ♦ Choose Properties→ Line Properties. The Line Properties dialog box appears:




6 ♦ Increase the line thickness by one level, then choose OK.

7 ♦ Select both lines on the first 1GF–Sales–Rep band line, then increase the line thickness by one level in the same manner.

8 ♦ Select the lines again, then copy them to the same horizontal position on the first summary line.

After you have drawn the lines and increased their thickness, the layout should look like the one shown in Figure 7–8. Make sure that you placed the lines in the correct location. If they are on the wrong band line, they will appear incorrectly on the report.

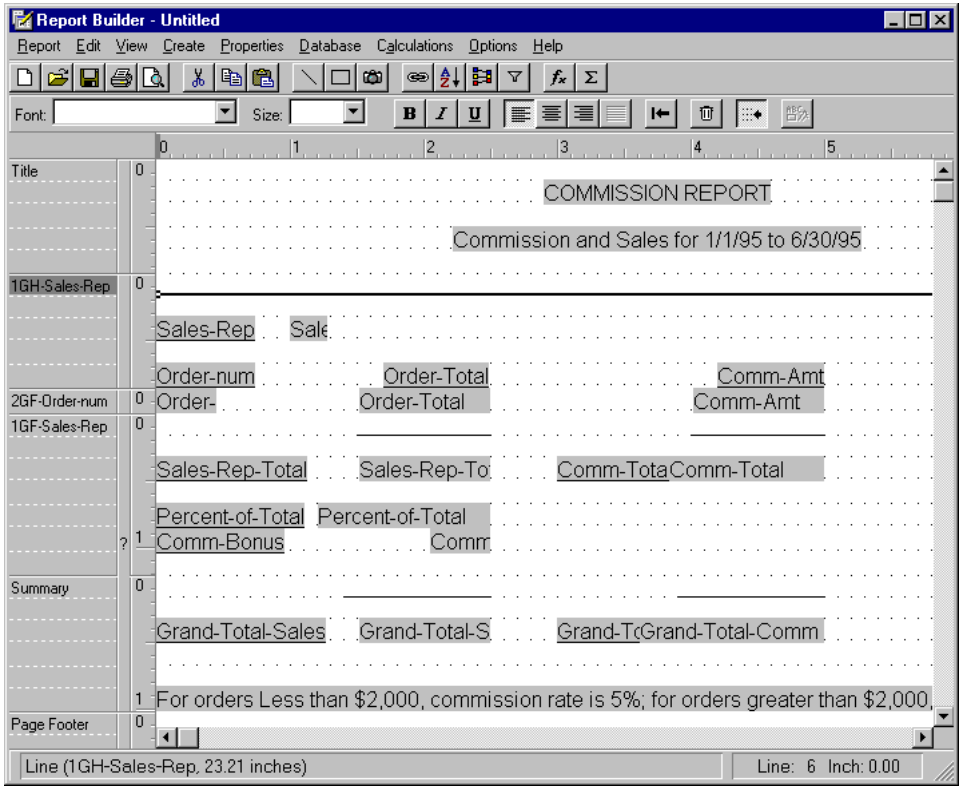



**Figure 7–8: Completed Report Layout**

## 7.6 Previewing and Saving the Report Definition

The final step in creating the report definition is to preview the report to verify that the data appears in the desired format, then save the definition so you can generate the report again at a later time.

### 7.6.1 Previewing the Completed Report Definition

Now that you have completed designing the report layout, preview the report. Figure 1–6 shows the first page of the commission report. The first page of your report should look similar. If it does not, note the differences. If the differences are in field position, simply reposition the fields. However, if Report Builder displays different data, review the exercise to determine how to make the reports match.

View the last page of the commission report. Notice the totals in the summary section. The figure for `Grand-Total-Sales` should be `$1,803,545.56`. The figure for `Grand-Total-Comm` should be `$178,161.01`. If your totals do not match, check your aggregate and calculated fields definitions.

### 7.6.2 Saving the Report Definition

As your final task, save the report definition as Commission Report Sample in the `Tutorial.prl` report library.

## 7.7 Summary

After performing the steps in this chapter, you should know how to perform all the tasks in the following checklist:

- Specify a group order.
- Create a group header and a group footer.
- Create a user-defined function (UDF).
- Conditionally print band lines.

To create the reports described in the following chapters, you must be able to perform these tasks. Therefore, if you are not confident that you know how to perform a particular task, return to the section that describes that task and review the steps.

# 8

# Cross-tab Report

A *cross-tab report* is a report that provides totals for both rows and columns of data. In this chapter you will create a cross-tab report that presents products (items) in the Newsport database as row labels and sales data in columns organized by sales representative. In addition to utilizing the tasks you learned in the previous chapters, you will learn how to:

- Change the paper size
- Change the page orientation
- Change the number of digits in a numeric field

## 8.1 Report Overview and Output

As with all other types of reports, before Report Builder generates a report, you must create the report definition. There are five basic steps to follow to create a report definition:

1. Create the initial report layout.
2. Access and order the data.
3. Define new fields.
4. Design the report layout.
5. Preview and save the report definition.

When you follow these basic steps, you will produce the report shown in Figure 1–9.

To perform the tasks in this chapter, you must:

- Connect to the Newsport database.
- Know how to perform the tasks described in the previous chapters, specifically how to create calculated and aggregate fields. If you have difficulty performing any task for creating this report, see the appropriate chapter for a complete description of the task.

## 8.2 Creating the Initial Report Layout

As you learned in previous chapters, the simplest way to create a report definition is to use the Instant Layout option. When you use this option, Report Builder prompts you to select a master table and fields from that table for the report layout. Report Builder then not only formats the fields and field names, but also provides some default band lines and fields.

For the Item/Sales–Rep report, you will not need any of the database fields from the master table on the report layout. Because you cannot create an instant layout without selecting a field, it does not matter which field you choose from the master table.

Follow these steps to create the initial report layout:

1 ♦ Choose the New Report button. Report Builder prompts you to specify the master table for the report.

2 ♦ Select the Salesrep table, then choose OK. Report Builder prompts you to specify whether to use the Instant Layout option.

3 ♦ Choose Yes. Report Builder prompts you to specify the fields you want to place on the record band line.

4 ♦ Select any field, then choose OK.

Figure 8–1 shows the layout created by the Instant Layout option. This example shows the Sales–Rep field on the record band line.

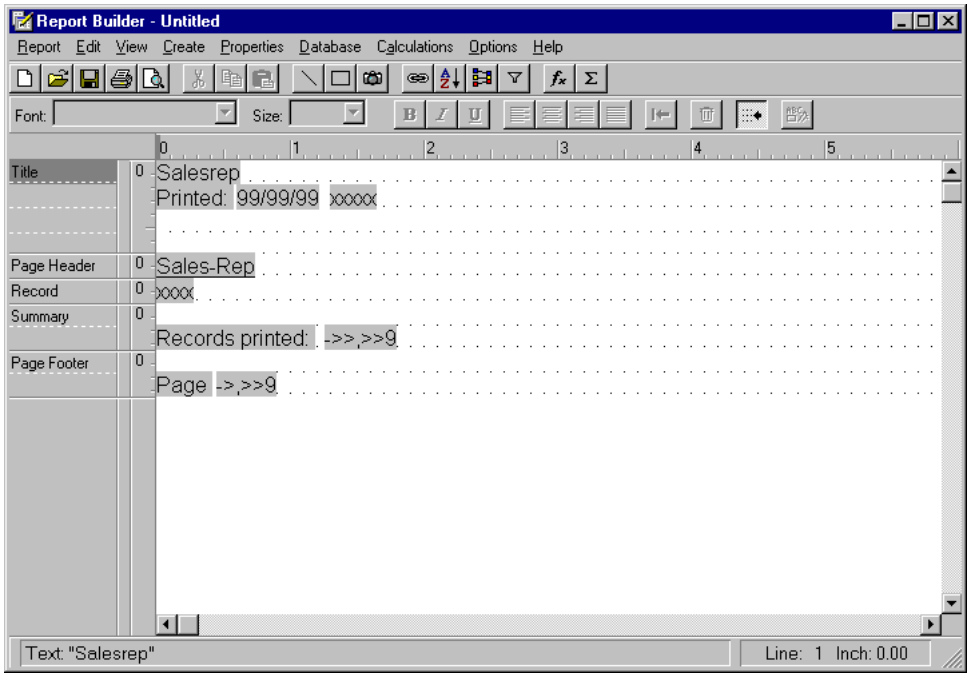



**Figure 8–1: Cross-tab Report Instant Layout**

## 8.3 Accessing and Ordering Data

To access and properly order the data for this report, you must perform the following steps:

1. Define joins.
2. Specify the sort order.
3. Verify the group order.

### 8.3.1 Defining Joins

To access all of the fields needed to calculate the report values, you must define joins to the Order, Order–Line, and Item tables.

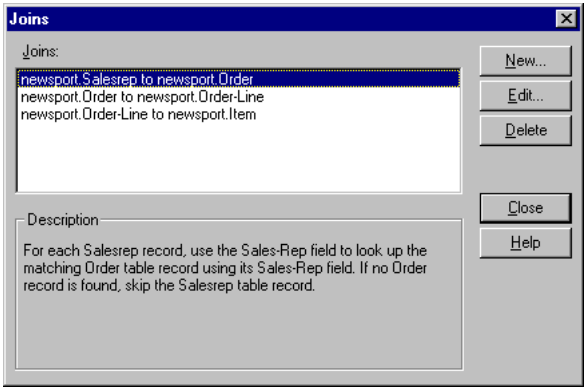
Follow these steps to define the joins:

1 ♦ Define a join from Salesrep to Order on the Sales–Rep field. You must define this join to access the Order–num field, which is the connecting field for the next join.

2 ♦ Define a join from Order to Order–Line on the Order–num field. The Order–Line table contains the Extended–Price field, which you will use to calculate report values. This table also contains the Item–num field, which you must use for the next join.

3 ♦ Define a join from Order–Line to Item on the Item–num field. The Item table contains the Item–Name field, which you use on the report layout.

When you finish defining all three joins the Joins dialog box should look like this:



### 8.3.2 Specifying the Sort Order

Now that you have access to all the fields in the joined tables, you can specify the sort order. For this report you want to display each item in the Newsport database in ascending order by the item name (from the Item table).

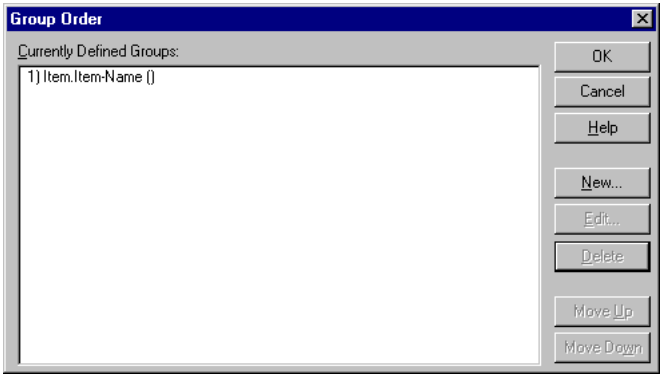
To do this, you must sort the data by the Item.Item–Name field. When you first specify the sort order, Report Builder automatically assigns the group order the same fields.

### 8.3.3 Verifying the Group Order

As described in Chapter 7, "Commission Report," the group order is how Report Builder groups data for a report. By default, Report Builder automatically assigns the group order the same fields you specified for the sort order. Therefore, the group order currently specified for this report is to group the data only by the item name.

Follow these steps to verify the group order:

1 ♦ Choose Database→ Group Order. The Group Order dialog box appears:




2 ♦ Verify that the group order is correct, then choose OK to return to the report layout.

## 8.4 Defining New Fields

Because this report does not directly display values stored in the Newsport database, you must create fields to calculate the report values.

You will display four types of values:

- Total sales of each item per sales representative.
- Total of all sales per sales representative.
- Total sales of each item for all representatives.
- Grand total of all sales for all representatives.

The following sections explain how to calculate and display these values.

### 8.4.1 Creating Fields to Total the Sales for Each Item

To create the fields to total each item per sales representative, you must first create a calculated field for each representative, then an aggregate field for each representative.

#### Calculated Fields

The first part of the computation is handled by calculated fields that test the value of the Sales–Rep field and return the value in the Extended–Price field for each item sold by that sales representative. As Report Builder reads each record in the database, it checks the sales representative associated with the order. If the value in the Sales–Rep field matches the one specified in the calculated field expression, it returns the value in the Extended–Price field.

The value in the Extended–Price field is the price paid for the quantity of the item ordered. You do not use the Price field, because it is the price for only one of the items, not the total price for the quantity ordered.

You must create a calculated field for each sales representative so you can use the fields in the aggregate fields that complete the computation of the item total for each sales representative.

Follow these steps to create a calculated field for each sales representative:

1 ♦ Create a calculated field, ARM–Sales, with this expression:

IIF(Salesrep.Sales–Rep = ”ARM”, Extended–Price, 0)

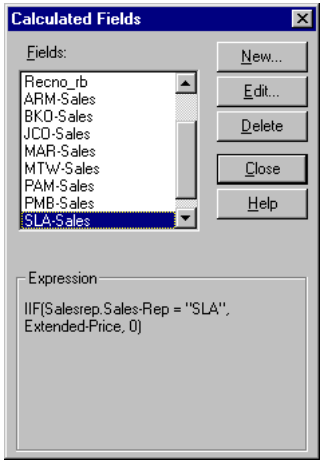
This expression instructs Report Builder to return the value in the Extended–Price field only if the Sales–Rep field contains “ARM”; otherwise it returns zero.

2 ♦ Create a second calculated field named BKO–Sales. However, instead of entering the expression, copy it from the ARM–Sales field and select OK. To do this, choose the Calc Expression button, then select the ARM–Sales field. The expression for the ARM–Sales field appears in the Expression box for the field you are creating.

3 ♦ Change the sales representative’s initials in the expression to BKO, then choose OK. Report Builder creates the new BKO–Sales field and returns to the Calculated Fields dialog box.

4 ♦ Create calculated fields for each of the remaining sales representatives in the same manner, then return to the report layout. The remaining initials are JCO, MAR, MTW, PAM, PMB, SLA, and SMT.

The following Calculated Fields dialog box shows the Recno_rb field and the complete list of sales representative fields:




Make sure that you created all nine calculated fields.

### Aggregate Total Fields

Now that you have fields that identify the items sold by each sales representative, create the aggregate fields that calculate the total amount of each item each representative has sold.

Follow these steps to create an aggregate field for each sales representative:

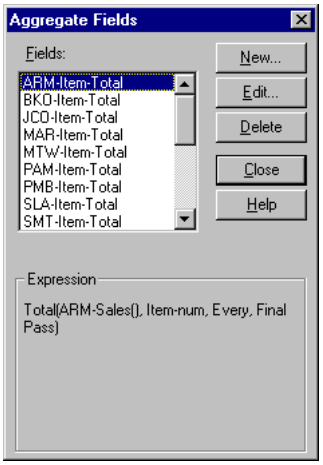
1 ♦ Create an aggregate field, ARM–Item–Total, using the settings listed in the following table:

| Option | Setting |
|---|---|
| Type | Total |
| Field | ARM–Sales |
| Reset | 1) Item–Name |
| Accumulation | Every Composite |
| Processing | Final Pass |

By calculating a total based on the ARM–Sales field that resets after every item number, this field performs the task of going through each order and calculating how much of each item ARM sold.

2 ♦ Create aggregate fields for each of the remaining sales representatives using the appropriate calculated field, then return to the report layout. The remaining initials are BKO, JCO, MAR, MTW, PAM, PMB, SLA, and SMT.

The following Aggregate Fields dialog box shows the complete list of sales representative item total fields:




Make sure that you created a field for each sales representative.

### 8.4.2 Creating Fields to Total the Sales of All Items for Each Representative

Now you are ready to create the fields that calculate the total of all sales for each sales representative or, in other words, the total for each column.

Follow these steps to create an aggregate field for each sales representative:

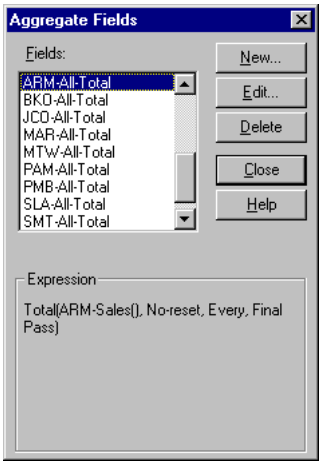
1 ♦ Create an aggregate field, ARM–All–Total, using the settings listed in the following table:

| Option | Setting |
|---|---|
| Type | Total |
| Field | ARM–Sales |
| Reset | No–reset |
| Accumulation | Every Composite |
| Processing | Final Pass |

These settings instruct Report Builder to add all the values of ARM–Sales to calculate the total of all the items ARM sold.

2 ♦ Create aggregate fields for each of the remaining sales representatives with the appropriate field, then return to the report layout. The remaining initials are BKO, JCO, MAR, MTW, PAM, PMB, SLA, and SMT.

The following Aggregate Fields dialog box shows the complete list of sales representative all total fields.




Make sure that you created all nine aggregate fields.

### 8.4.3 Creating Fields to Total the Sales for Each Item and All Sales Representatives

This section describes how to create the last two types of fields necessary for this report. Now that you have created fields to total each item by sales representative and all the sales for each representative, you must create a field, Item–Total, to calculate the total of each item. This field provides an overall item total that is not specific to any sales representative.

Follow these steps to create the Item–Total and Grand–Total–Sales fields:

1 ♦ Create an aggregate field, Item–Total, using the settings listed in the following table:

| Option | Setting |
|---|---|
| Type | Total |
| Field | Order–Line.Extended–Price |
| Reset | 1) Item–Name |
| Accumulation | Every Composite |
| Processing | Final Pass |

By calculating a total based on the Extended–Price field that resets after every item, this field performs the task of going through every order and calculating how much of each item has been sold.

2 ♦ Create an aggregate field, Grand–Total–Sales, using the settings listed in the following table:

| Option | Setting |
|---|---|
| Type | Total |
| Field | Order–Line.Extended–Price |
| Reset | No–reset |
| Accumulation | Every Composite |
| Processing | Final Pass |

These settings instruct Report Builder to add all the values of Extended–Price to calculate the grand total of all the items sold by all the sales representatives.

Notice that the only difference between these two fields is how often Report Builder resets the field value to zero.

## 8.5 Designing the Report Layout

The current report layout for the Item/Sales–Rep report is the layout created by the Instant Layout option. Therefore, you must modify it to display the information for this report.

To properly format the report layout, you must perform the following tasks:

1. Specify the paper size and page orientation.
2. Delete the unnecessary information from the layout.
3. Create and format the text fields.
4. Create a group footer band line.
5. Insert the Item–Name field.
6. Insert the aggregate fields.

### 8.5.1 Specifying the Paper Size and Page Orientation

By default, Report Builder specifies an 8.5x11-inch page with portrait orientation. Because all eleven columns of this report do not fit in this format, you must change the paper size and the page orientation.

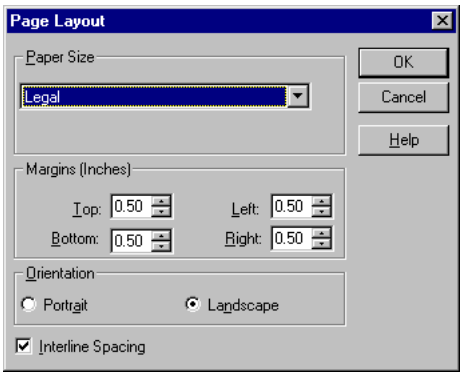
Follow these steps to change the paper size and page orientation:

1 ♦ Choose Properties→ Page Layout. The Page Layout dialog box appears.

2 ♦ Select Legal 8 1/2 x 14 in from the Paper Size drop-down list (or the nearest size available on your printer).

3 ♦ Activate the Landscape radio button for the page orientation.

The following figure shows the new Page Layout settings:




4 ♦ Choose OK. Report Builder returns you to the report layout.

## 8.5.2 Deleting the Unnecessary Information

The Instant Layout option formatted the report layout with band lines, calculated fields, and text fields. Because you will not use all the automatically generated band lines and fields, delete those you do not need from the layout.

Follow these steps to remove the unnecessary information from the report layout:

1 ♦ Delete the master table text field from the first title band line. Because this report does not display any fields from the master table, this information is not useful.

2 ♦ Delete the field name text field from the page header band line.

3 ♦ Delete the record band line. This report, like most cross-tab reports, uses only group footer and summary band lines to display the report totals.

4 ♦ Delete the Records printed: text field and the Recno_rb calculated field from the second summary band line. For this report, it is not necessary to display the number of records printed.

### 8.5.3 Creating and Formatting Text Fields

Now that you have removed the unnecessary band lines and fields from the layout, you are ready to create and format the text fields, such as the report title and column labels.

Follow these steps to create and format the text fields:

1 ♦ Move the Printed: text field, Date_rb field, and Time_rb field from the second title band line to the first.

2 ♦ Type **Amount of Each Item Sold Listed by Sales Representative** on the third title band line.

3 ♦ Make the title 14-point Arial, bold.

4 ♦ Center the text field on the band line by changing the band line justification to center.

5 ♦ Create the following column headings on the page header band line: Item Name, ARM, BKO, JCO, MAR, MTW, PAM, PMB, SLA, SMT, Total Each Item.

6 ♦ Select all the column headings, then make them 12-point Arial, bold, and underlined.

7 ♦ Deselect the fields.

8 ♦ Select all the column headings except Item Name, then change the fields' alignment to right by choosing Properties→ Alignment.

9 ♦ Move the column headings to the locations in the following table. Position the **right edge** of the field at the specified ruler mark:

| Field | Ruler Mark |
|---|---|
| ARM | 2.5-inches |
| BKO | 3.5-inches |
| JCO | 4.5-inches |
| MAR | 5.5-inches |
| MTW | 6.5-inches |
| PAM | 7.5-inches |
| PMB | 8.5-inches |
| SLA | 9.5-inches |
| SMT | 10.5-inches |
| Total Each Item | 12-inches |

10 ♦ Move the Item Name column heading to the left margin of the page header band line.

To gauge whether your layout is properly formatted, check it against the layout shown in Figure 8–2. Because the report is wide, Report Builder displays only a portion of the report layout. Figure 8–2 shows the last six column headings.

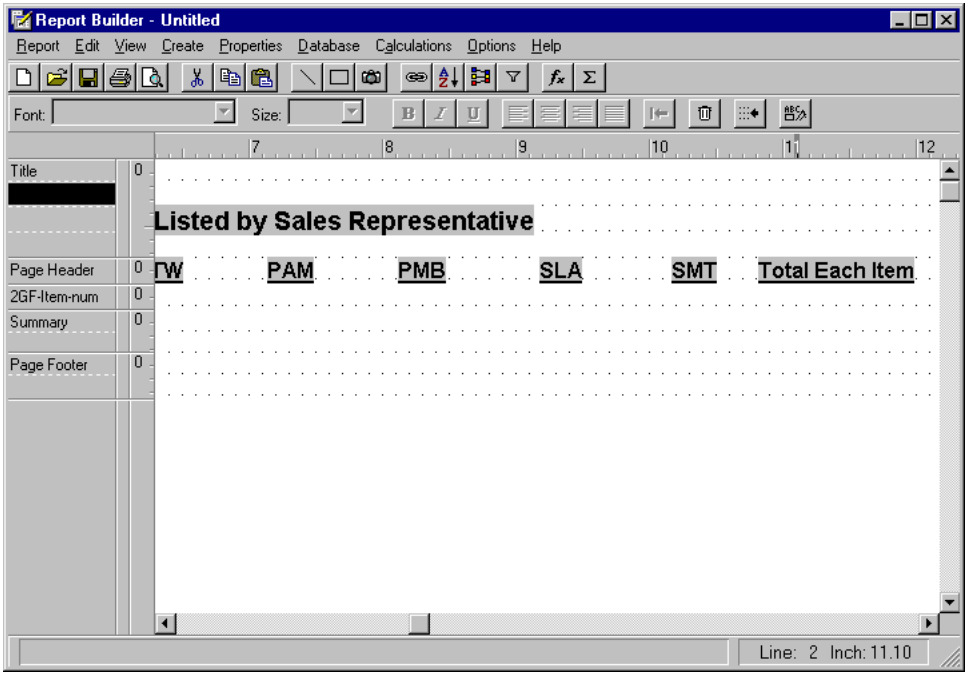



**Figure 8–2: Layout with Column Headings**

## 8.5.4 Creating the Group Footer Band Line

To display the information for each item as a group, you must create a group footer band line.

Follow these steps to create the group footer band line:

1 ♦ Choose Create→ Band Line. The Create Band Line dialog box appears.

2 ♦ Choose Different Type.

3 ♦ Select 1GF–Item–Name from the drop-down selection list.

4 ♦ Choose OK to return to the report layout.

### 8.5.5 Displaying Field Names Instead of Field Formats

As described in Chapter 7, "Commission Report," by default, Report Builder represents a field by displaying the field's format in a shaded rectangle. However, because you will be inserting multiple fields with the same format on the layout, specify to display the field name instead of the field format.

To display the field name, choose View→ Field Names. If a name is longer than the field width, Report Builder truncates the field name on the layout.

### 8.5.6 Inserting the Item–Name Field

Now that the report layout contains the band line for displaying the row label, the name of each item, and the item totals, you can insert the Item–Name field.

Follow these steps to insert the Item–name field:

1 ♦ Position the cursor at the left margin of the group footer line.

2 ♦ Insert the Item–Name field.

Figure 8–3 shows the report layout with the Item–Name field and column headings.

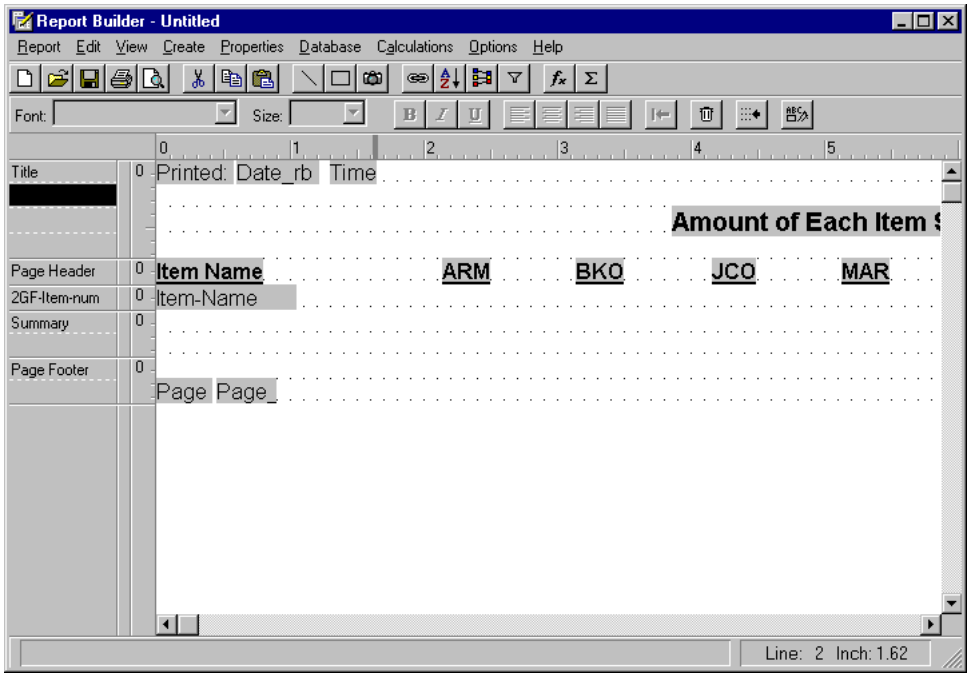



**Figure 8–3: Layout with Item–Name Field**

### 8.5.7 Inserting the Aggregate Fields on the Report Layout

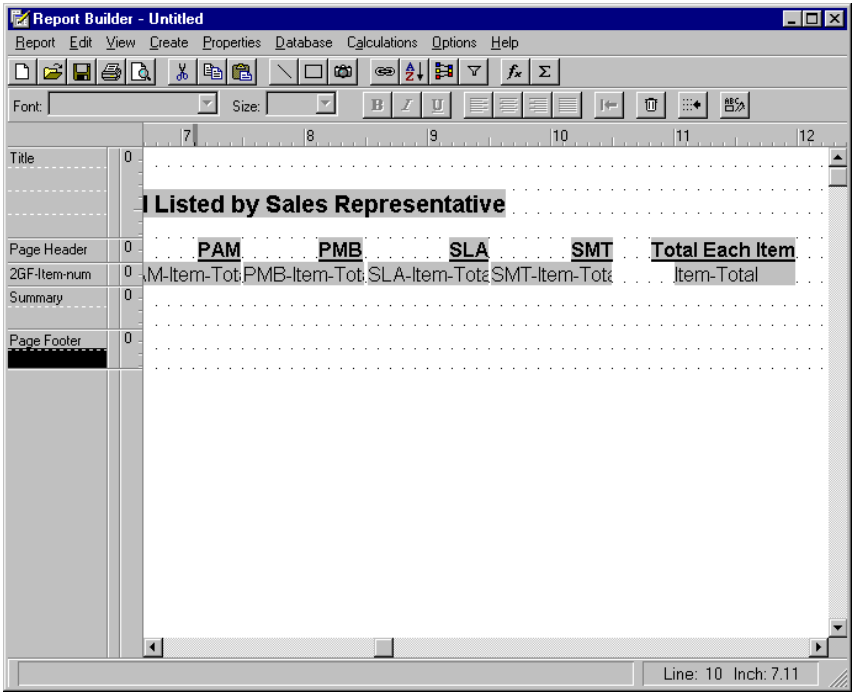
Now that you have created the column headings, you are ready to insert the aggregate fields that compute the values for each column on the report layout. Because the default format for the aggregate fields you created is nine digits, which is too wide to fit on this layout, you must also change the format for all nine aggregate total fields to eight digits.

Follow these steps to insert the aggregate fields on the report layout:

1 ♦ Insert the following fields on the group footer band line under the corresponding column headings:

- ARM–Item–Total,
- BKO–Item–Total,
- JCO–Item–Total,
- MAR–Item–Total,
- MTW–Item–Total,
- PAM–Item–Total,
- PMB–Item–Total,
- SLA–Item–Total,
- SMT–Item–Total, and
- Item–Total.

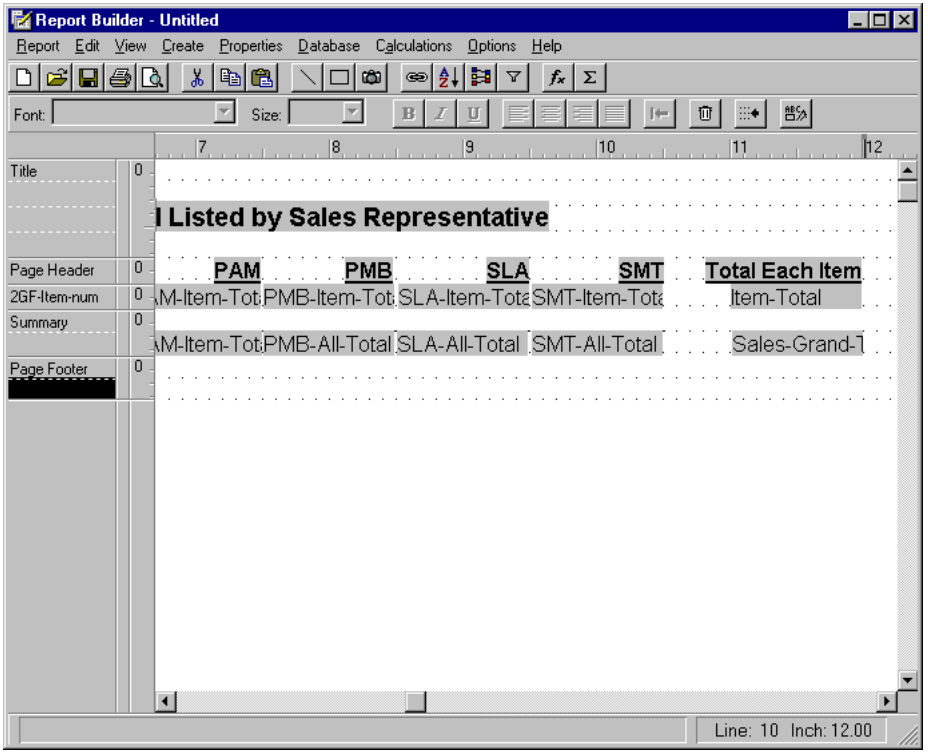
The following figure shows the right side of the report layout with the item total fields:



2 ♦ Insert the following fields on the second summary band line under the corresponding column headings:

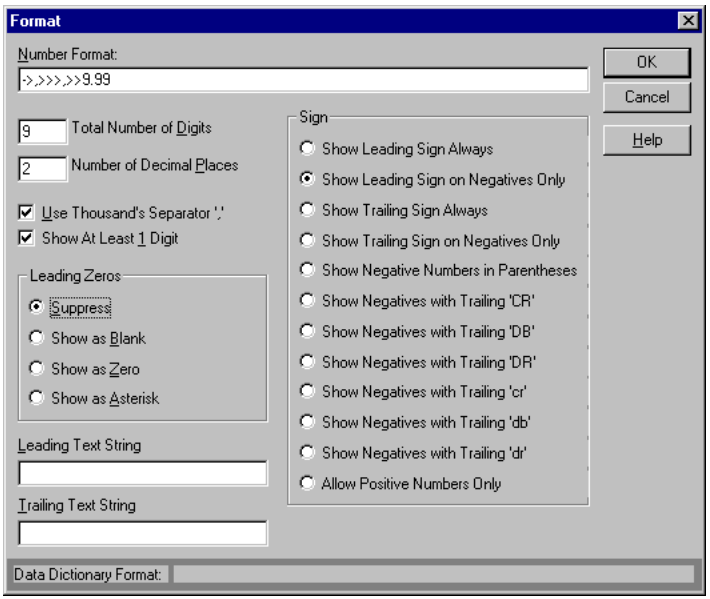
- ARM–All–Total,
- BKO–All–Total,
- JCO–All–Total,
- MAR–All–Total,
- MTW–All–Total,
- PAM–All–Total,
- PMB–All–Total,
- SLA–All–Total,
- SMT–All–Total, and
- Sales–Grand–Total.

The following figure shows the right side of the report layout with the all the aggregate fields in their default format:



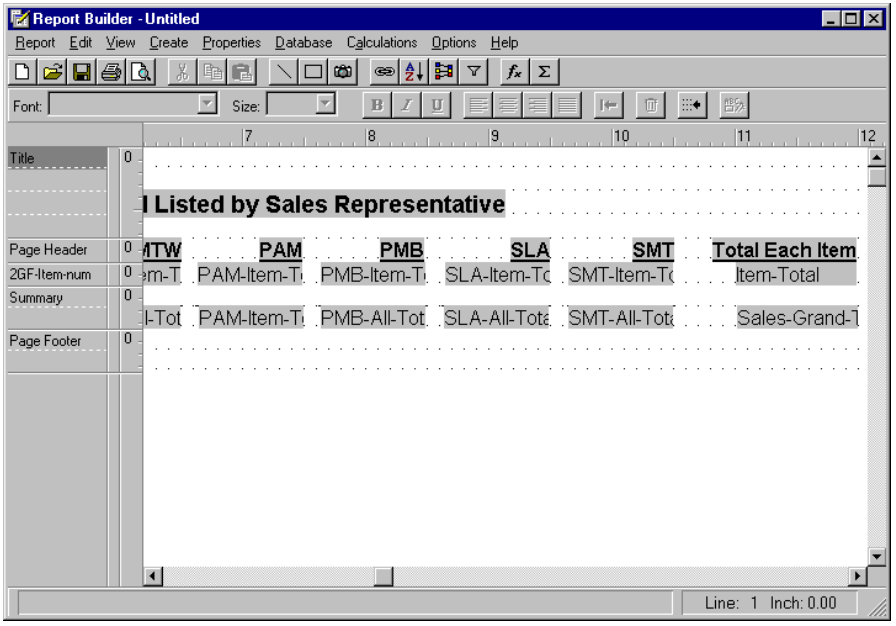
3 ♦ Select all the fields you inserted in Steps 1 and 2, except Grand–Total–Sales.

4 ♦ Choose Properties→ Format. The Format dialog box appears:



5 ♦ Change the Total Number of Digits to 8, then choose OK. Report Builder changes the display format for all the selected fields and returns you to the report layout.

The following figure shows the right side of the report layout with the smaller format for all the aggregate fields:




Notice that there is more space between all the fields.

6 ♦ Move the aggregate fields so that their right edges align with the right edges of the column headings.

7 ♦ Draw a line above the ARM–All–Total.

8 ♦ Copy the line and paste it above each field on the second summary band line.

## 8.6 Previewing and Saving the Report Definition

The final step in creating the report definition is to preview the report to verify that the data appears in the desired format, then save the definition so you can generate the report again at a later time.

### 8.6.1 Previewing the Completed Report Definition

Now that you have completed designing the report layout, preview the report. Figure 1–8 shows the first page of the report. If your report does not look similar to that shown in the figure, note the differences. If the differences are in field position, simply reposition the fields. However, if Report Builder displays different data, review the exercise to determine how to make the reports match.

### 8.6.2 Saving the Report Definition

As your final task, save the report definition as Item/Sales Cross–tab Sample in the `Tutorial.prl` report library.

## 8.7 Summary

After performing the steps in this chapter, you should know how to perform all the tasks in the following checklist:

- Change the paper size.
- Change the page orientation.
- Change number of digits in a numeric field.

If you are not confident that you know how to perform a particular task, return to the section that describes that task and review the steps.

# 9

# Invoice

Most companies produce invoices or bills for their customers. This chapter describes how to create an invoice that utilizes swapped headers and swapped footers to print different information on the first and last pages of the invoice. In this chapter you will not only use the knowledge you have gained in the previous tutorial chapters, but also learn how to create and use swapped headers and swapped footers.

## 9.1 Report Overview and Output

As with all other types of reports, before Report Builder generates a report, you must create the report definition. There are five basic steps to follow to create a report definition:

1. Create the initial report layout.
2. Access and order the data.
3. Define new fields.
4. Design the report layout.
5. Preview and save the report definition.

When you follow the steps in this chapter, you will create an invoice that displays different information in the header and footer for the first and last pages.

Figure 1–9 shows the first page of the invoice.

Figure 1–10 shows the second page of the invoice. Notice the difference in the header and footer information.

## 9.2 Creating the Initial Report Layout

The first task in creating the invoice is to create the initial report layout using the Instant Layout option. Although you will not use all the information Report Builder automatically generates, you will use some of the band lines and fields. You will also display fields from the master table.

Follow these steps to create the report definition:

1 ♦ Choose the New Report button. The Database Tables dialog box appears.

2 ♦ Select Order as the master table for the report, then choose OK. Report Builder prompts you to use the Instant Layout option.

3 ♦ Choose Yes. The Instant Layout Fields dialog box appears.

4 ♦ Select the Order–num field, choose Add, then choose OK. Report Builder creates the instant layout.

## 9.3 Accessing and Ordering the Data

To create the invoice shown at the beginning of this chapter, follow these steps:

1. Define the joins.
2. Specify the sort order.
3. Specify the group order.
4. Define the filter.

### 9.3.1 Defining the Joins

Because you need to access information in tables other than the Order table, you must define joins.

Follow these steps to define the necessary joins:

1 ♦ Define a join to the Customer table from the Order table on the Cust–num field.

2 ♦ Define a join to the Order–Line from the Order table on the Order–num field. When you specify this join, you must change the "From Table" from Customer to Order.

### 9.3.2 Specifying the Sort Order

To display the information you need for an invoice, consider what information an invoice contains. Invoices generally include all the items for a single order for a specific customer. This means that Report Builder must first find all the orders for a particular customer, then all the items for a specific order.

Follow these steps to specify the sort order:

1 ♦ Specify Customer.Customer–Num as the first level sort.

2 ♦ Specify Order.Order–num as the second sort level.

3 ♦ Specify Order–Line.Line–num as the third sort level.

### 9.3.3 Specifying the Group Order

As seen in the prior sample reports, when you specify the sort order, Report Builder automatically assigns the same level settings for the group order. Before simply accepting the default group order, consider how the group order will affect the invoice.

The first consideration is that to create this invoice, you must display different information on different pages in a report. Normally Report Builder prints the page header on the top of every page, and the group header at the beginning of every group, so a page might contain both page and group headers. However, Report Builder allows you to choose to display the group header band instead of the page header band on the first page of each group. You can also display a group footer band in place of a page footer band on the last page of each new group. When you specify to display the group header instead of the page header, the group header becomes a *swapped header*. Similarly, a group footer that replaces a page footer is a *swapped footer*. Figure 9–1 illustrates how swapped headers and swapped footers work.

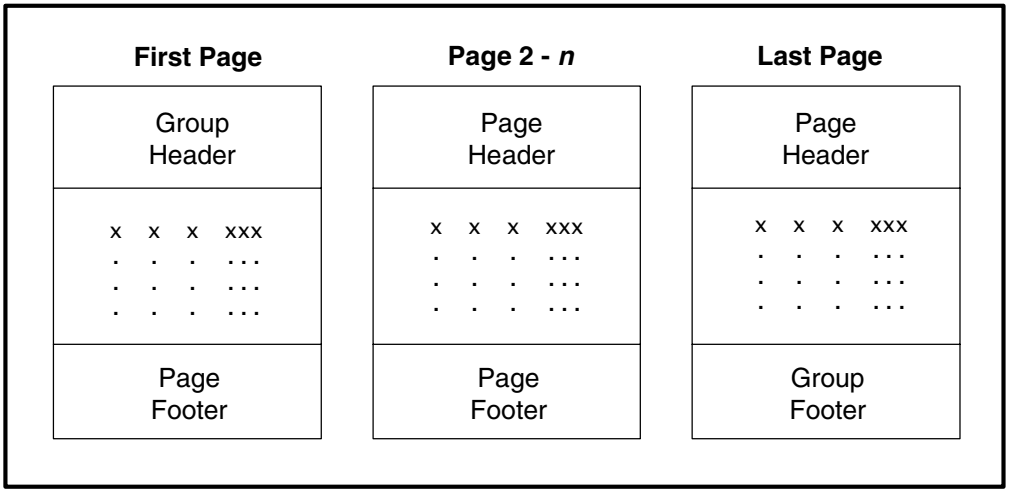



**Figure 9–1: Swapped Headers and Swapped Footers**

To replace the information in the page header band lines, the group header band must contain the same number of lines as the page header. The band lines must also have the same line heights. Both of these rules also apply to swapped footers.

For this invoice, you will use both a swapped header and a swapped footer. To display the customer address as well as the order information on the first page of the invoice, but list only the order information on all subsequent pages of the same invoice along with the page number, use a group header as a swapped header. To display a page total at the bottom of all the invoice pages except the last page, which displays the invoice total, use a swapped footer.

The second consideration is that because an invoice is for a single customer order, each new order should start a new invoice. This means that you must specify the reset page option for the Order–num group.

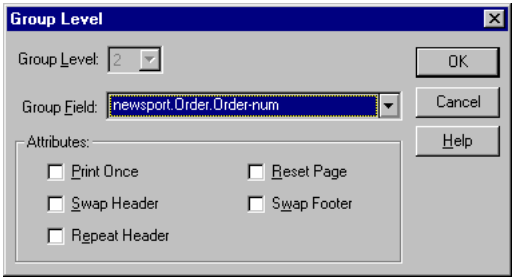
When Report Builder automatically sets the group order values with the same values as the sort order, it does not provide for any of these considerations. You have to modify the group order to specify that information.

Follow these steps to modify the group order:

1 ♦ Choose Database→ Group Order. The Group Order dialog box appears.

2 ♦ Select Order.Order–num from the selection list.

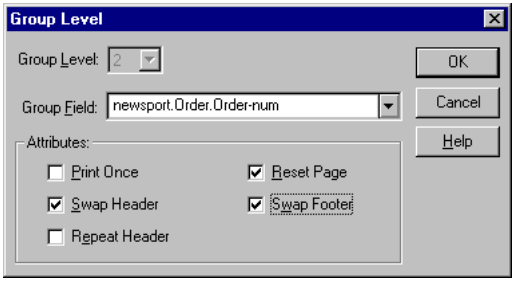
3 ♦ Choose Edit. The Group Level dialog box appears:




4 ♦ Activate the Swap Header toggle box.

5 ♦ Activate the Reset Page toggle box.

6 ♦ Activate the Swap Footer toggle box. The Group Level dialog box should look like this:




7 ♦ Choose OK to return to the Group Order dialog box.

8 ♦ Choose OK to return to the report layout.

### 9.3.4 Defining the Filter

To see how Report Builder displays the swapped header and swapped footer, you must display a report with more than one page. You can do this by creating a filter that will be used when you preview the report as you are creating it. When you are ready to actually print the invoices, you can delete the filter. For this report, you want to display an invoice that you know has more than one page.

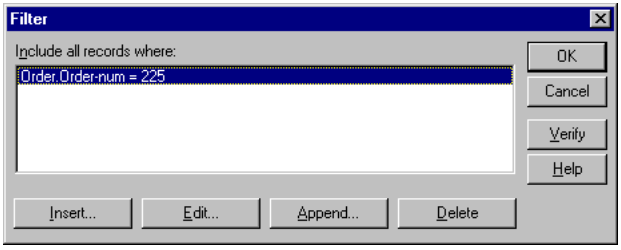
Follow these steps to define a filter condition:

1 ♦ Choose Database→ Filter. The Insert Filter Condition dialog box appears.

2 ♦ Select Order.Order–num from the Field drop-down list.

3 ♦ Type **225** in the Compared To field. Because you did not change the default comparison operator (=), the condition is Order.Order–num = 225.

4 ♦ Choose OK. The Filter dialog box appears:




5 ♦ Choose OK to return to the report layout.

## 9.4 Defining New Fields

To create the invoice, you must create three user-defined fields. Follow these steps to create these fields:

1 ♦ Create a calculated field, City–State–PC, to format the customer's city, state, and postal code. Use the following expression:

City + ", " + State + " " + Postal–Code

2 ♦ Create an aggregate field, Order–Total, to compute the total amount of each order. Specify the settings listed in the following table:

| Option | Setting |
|---|---|
| Type | Total |
| Field | Order–Line.Extended–Price |
| Reset | 2) Order–num |
| Accumulation | Every Composite |
| Processing | Final Pass |

3 ♦ Create an aggregate field, Page–Total, to compute the total amount for each page. Specify the settings listed in the following table:

| Option | Setting |
|---|---|
| Type | Total |
| Field | Order–Line.Extended–Price |
| Reset | Per–page |
| Accumulation | Every Composite |
| Processing | Final Pass |

## 9.5 Designing the Report Layout

To format the report layout to create this invoice, you must perform these tasks:

1. Delete unnecessary information.
2. Change the page margins.
3. Create new band lines.
4. Display field names instead of field formats.
5. Design the group header (or swapped header).
6. Design the page header.
7. Design the record band lines
8. Design the group footer (or swapped footer).
9. Design the page footer.

The following sections describe these tasks.

### 9.5.1 Deleting Unnecessary Information

When you create the report definition with the Instant Layout option, Report Builder creates five types of band lines and several fields. Delete all four title band lines and both summary band lines.

### 9.5.2 Changing the Page Margins

The next task to perform is to change the page margins. Change the top and bottom page margins from .5-inches to 1-inch by choosing Properties→ Page Layout.

### 9.5.3 Creating the New Band Lines

Now that you have removed all the unnecessary band lines, you are ready to add the new group header and group footer band lines. These band lines will contain the swapped header and swapped footer information, respectively. Remember, to use the swapped header feature, the page header and group header must have the same number of band lines. This rule also applies to the page footer and group footer. Therefore, you must plan the number of band lines accordingly.

Follow these steps to create the correct number of band lines:

1 ♦ Create eleven page header band lines. Because the Instant Layout option automatically creates one page header band line, there are now a total of twelve page header band lines.

2 ♦ Create twelve 2GH–Order–num group header band lines so that you have the same number of group header band lines as you do page header band lines.

3 ♦ Create one additional record line.

4 ♦ Create five 2GF–Order–num group footer band lines.

5 ♦ Create three page footer band lines. This brings the total number of page footer band lines to five to match the number of group footer band lines.

Figure 9–2 shows the top portion of the report layout with the new band lines.

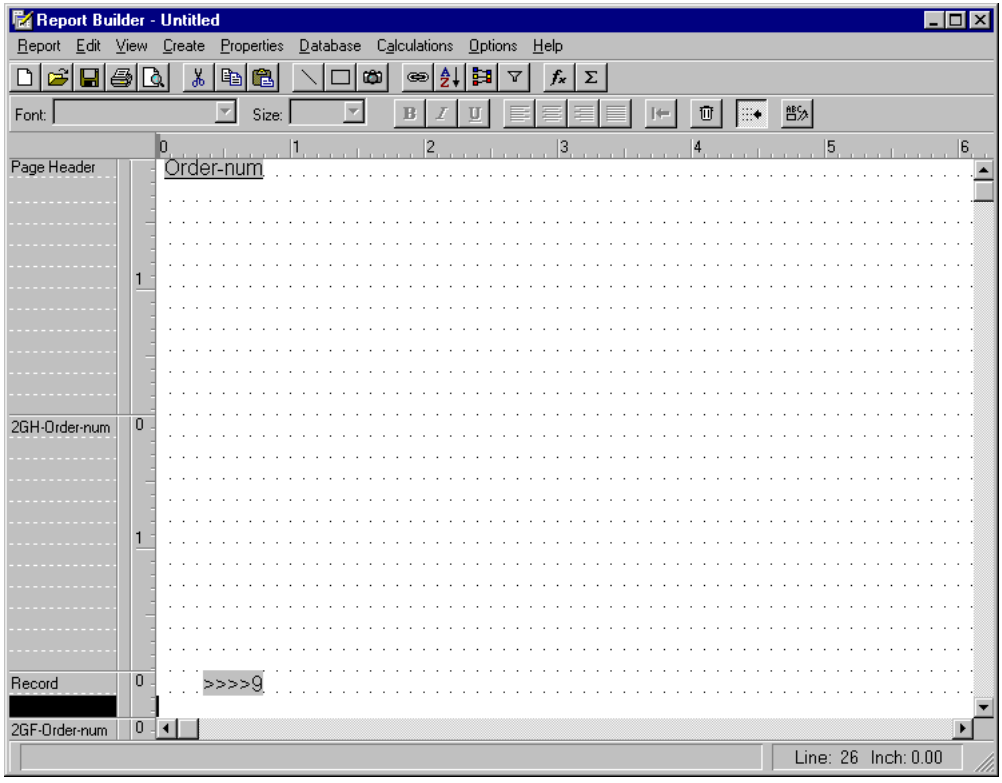



**Figure 9–2: Layout with Band Lines**

### 9.5.4 Displaying Field Names Instead of Fields Formats

When you are dealing with multiple fields with similar formats, it is easier to identify the fields by their names than by their formats. To display the field names instead of the field formats if you have not already done so, choose View→ Field Names. Report Builder displays the field names instead of the field formats on the layout.

### 9.5.5 Designing the Group Header

The first section of the report layout you are going to design is the group header or swapped header. Because you defined the Order–num group to start a new page, the group header, 2GH–Order–num, contains the information that appears on the first page of every invoice.

To produce the information shown on the first page of the invoice in Figure 9–8, you must perform these tasks:

1. Insert the fields.
2. Draw and modify a rectangle.
3. Format the fields.
4. Specify conditional printing for a band line.

### Inserting the Fields

The first task in designing the group header is to insert the database, calculated, and text fields on the layout.

Follow these steps to properly insert the fields:

1 ♦ Type **All Around Sports** on the third 2GH–Order–num band line, then make it 18-point Arial, bold, italic and center it on the band line.

2 ♦ Insert the database fields **with** their labels at the position indicated in the following table. Position the **left edge** of the field at the specified ruler mark:

| Field | Band Line | Ruler Mark |
|---|---|---|
| Customer–Num | Seventh 2GH–Order–num | Left margin |
| Order–Date | Tenth 2GH–Order–num | Left margin |
| Ship–Date | Tenth 2GH–Order–num | 1.5-inches |
| Promise–Date | Eleventh 2GH–Order–num | 5-inches |

Make sure that the Insert Field Label option is selected. When you insert the fields, Report Builder places their labels on the band line directly above the fields. You will reposition the fields onto the same band line with their labels in a later section.

3 ♦ Insert the calculated and database fields **without** their labels at the positions indicated in the following table. Position the **left edge** of the field at the specified ruler mark:

| Field | Band Line | Ruler Mark |
|---|---|---|
| Name | Fifth 2GH–Order–num | 5-inches |
| Address | Sixth 2GH–Order–num | 5-inches |
| Address2 | Seventh 2GH–Order–num | 5-inches |
| City–State–PC | Eighth 2GH–Order–num | 5-inches |

4 ♦ Move the Order–num field to the 1-inch mark on the fifth 2GH–Order–num band line.

5 ♦ Move the Order–num text field to the left margin of the fifth 2GH–Order–num band line.

6 ♦ Create the following text fields on the twelfth 2GH–Order–num band line: Line No., Item No., Qty., Backordered?, Unit Price, Discount, and Extended Price.

7 ♦ Change the alignment of the text fields you created in Step 6 from left to right.

After you complete these steps, the layout should look like the one in Figure 9–3.

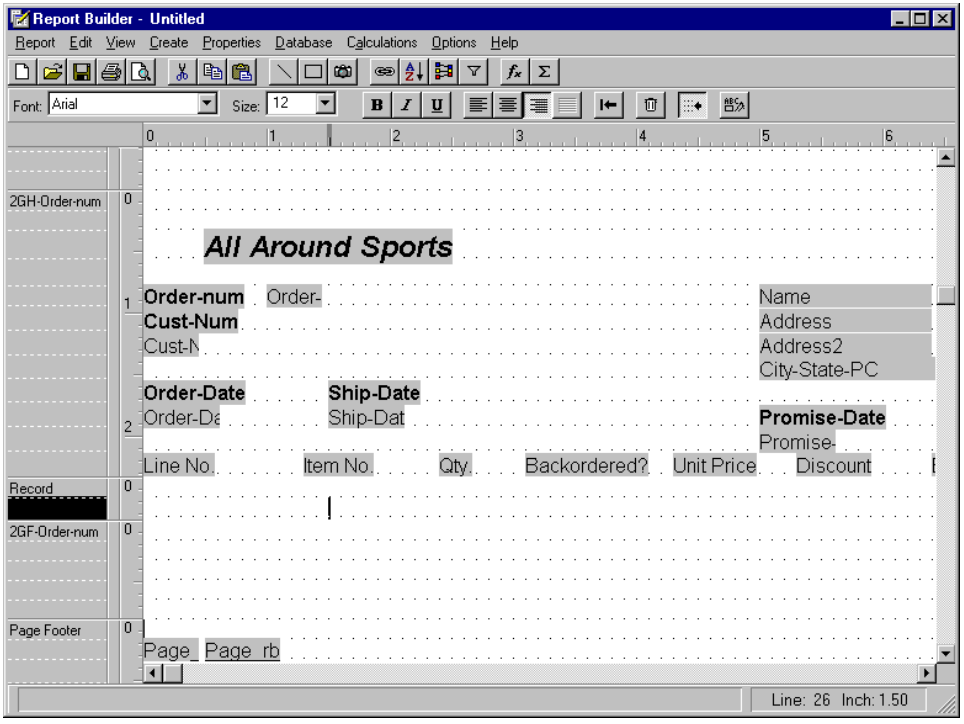



**Figure 9–3: Layout with Group Header Fields**

### Drawing and Modifying a Rectangle

When you inserted the database fields in the previous section, you inserted the field labels for the order information on the twelfth 2GH–Order–num band line. To highlight these labels, surround them with a rectangle.

Follow these steps to create and properly format the rectangle:

1 ♦ Create a rectangle starting at the left margin and ending at the 7.5-inch mark (right margin) on the twelfth 2GH–Order–num band line. The finished rectangle should encase the text fields on the band line.

2 ♦ Specify Silver as the rectangle background color.

3 ♦ Create a vertical line that is the height of the rectangle at the 1-inch mark.

4 ♦ Copy the line five times, then place one line at each of the inch marks, starting with the 1-inch mark and ending at the 6-inch mark within the rectangle.

For example, move the one vertical line to the 1-inch mark, then another line at the 3-inch mark, etc. These lines are dividers that create column header areas within the rectangle.

Make sure that all the vertical lines connect with the rectangle borders.

Figure 9–4 shows the layout with the formatted rectangle.

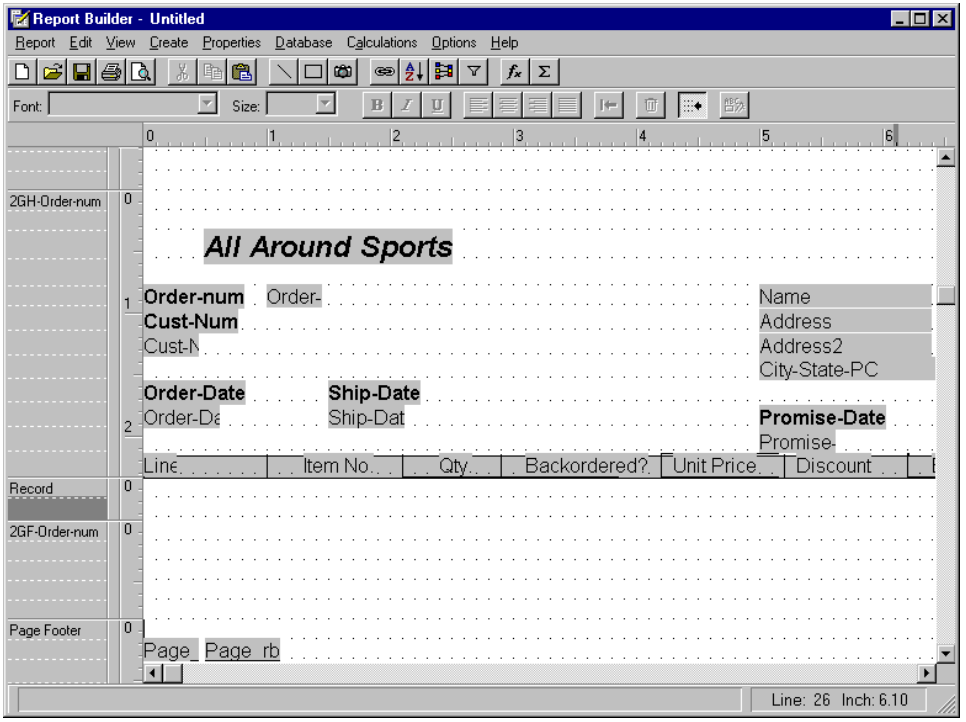



**Figure 9–4: Layout with Shaded Rectangle**

### Formatting the Fields

When you formatted the rectangle, you placed the divider lines so that they created 1-inch areas within the rectangle. In this section you will center the column labels within these sections. You will also make all the other field labels in the group header bold instead of underlined.

Follow these steps to format the text fields:

1 ♦ Change the point size of all the column labels on the twelfth 2GH–Order–Num band line from 12-point Arial to 10-point Arial.

2 ♦ Center each column label within its area of the shaded rectangle by moving it to the appropriate location.

3 ♦ Move the following fields to the location specified in this table. Position the **left edge** of the field at the specified ruler mark:

| Field | Band Line | Ruler Mark |
|---|---|---|
| Customer–Num | Sixth 2GH–Order–num | 1-inch |
| Order–Date | Ninth 2GH–Order–num | 1-inch |
| Ship–Date (text field) | Tenth 2GH–Order–num | Left margin |
| Ship–Date | Tenth 2GH–Order–num | 1-inch |
| Promise–Date | Tenth 2GH–Order–num | 6.5-inch |

4 ♦ Change the style for all of the field labels in the group header from underlined to bold.

After you format the fields, the layout should look like the one in Figure 9–5.

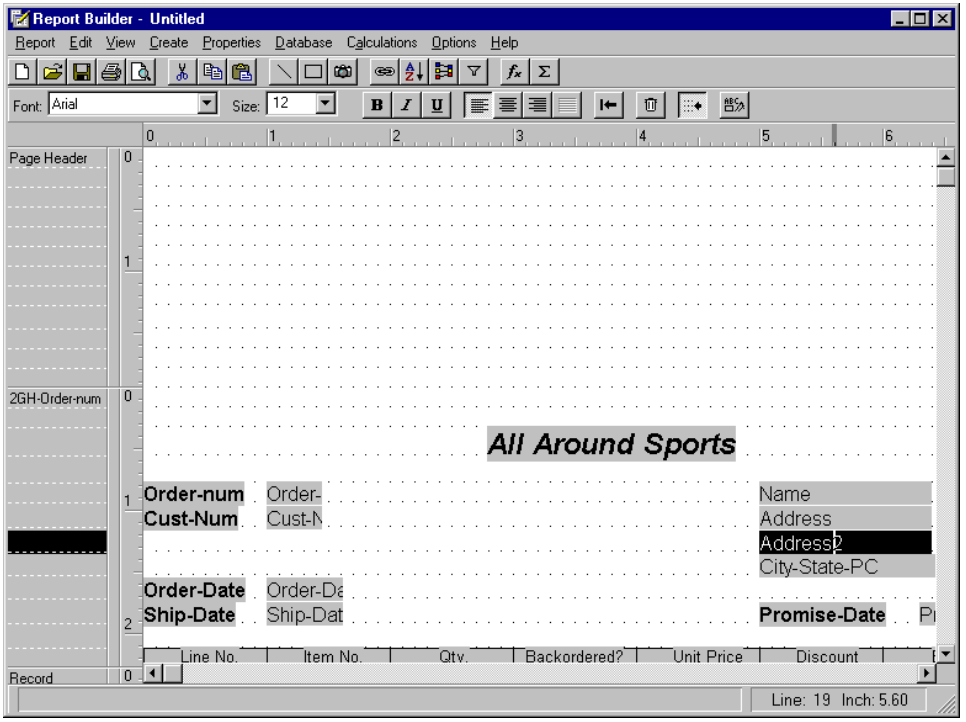



**Figure 9–5: Layout with Formatted Group Header Fields**

### Specifying Conditional Printing for a Band Line

In Chapter 7, "Commission Report," you learned how to conditionally print a band line based on the value in a field. For this report, you are going to perform the same task for the seventh 2GH–Order–num band line.

Follow these steps to conditionally print the band line:

1 ♦ Select the seventh 2GH–Order–num band line.

2 ♦ Choose Properties→ Band Line Properties. The Band Line Properties dialog box appears.

3 ♦ Activate the Enable Conditional Printing toggle box.

4 ♦ Select the Customer.Address2 field from the drop-down list. By default, the Print When Field Has Contents radio button is activated.

5 ♦ Choose OK to return to the report layout.

You are now finished designing the group header. Figure 9–6 shows the report layout with the properly designed group header.

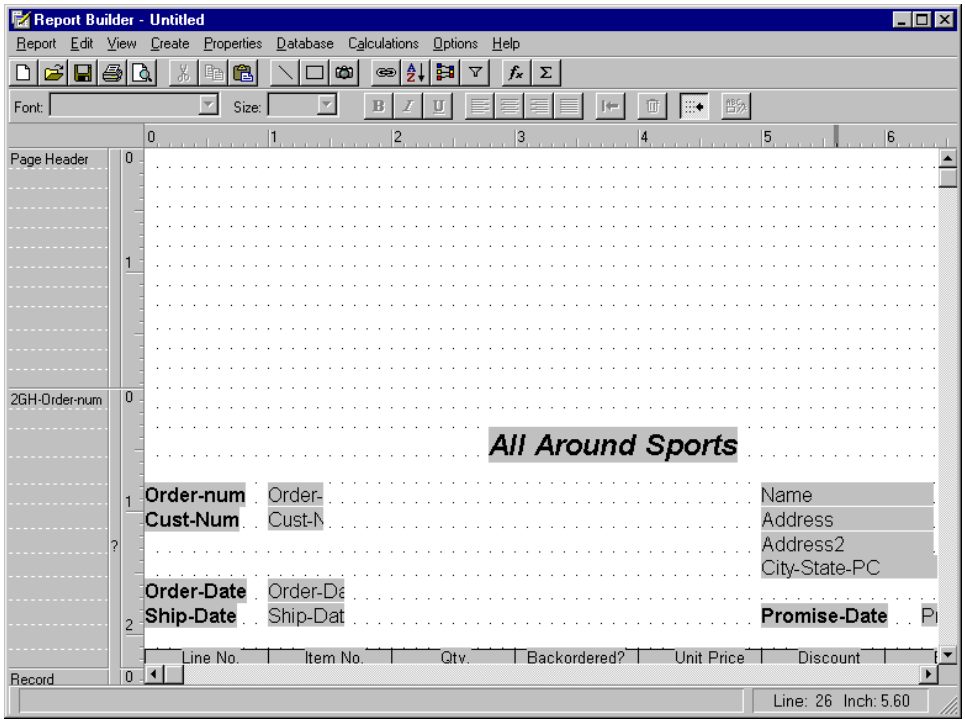



**Figure 9–6: Layout with Completed Group Header**

### 9.5.6 Designing the Page Header

The next section of the report layout you are going to design is the page header. This is the information that appears on all the pages after the first page of the invoice.

To produce the information shown on the second page of the invoice in Figure 1–10, you must perform these tasks:

1. Copy the group header layout.
2. Format the fields.

#### Copying the Group Header Layout

Because the page header includes many of the same fields and formatting as the group header, the easiest way to create the page header is to copy the group header layout.

Follow these steps to copy the group header layout:

1 ♦ Select all the fields, the vertical lines, and the rectangle on the group header band lines.

2 ♦ Choose Edit→ Copy or the Copy button.

3 ♦ Position the edit cursor at the left margin of the second page header band line.

4 ♦ Choose Edit→ Paste or the Paste button. Report Builder pastes all the selected information in the page header.

Figure 9–7 shows how the layout should look with the pasted information.

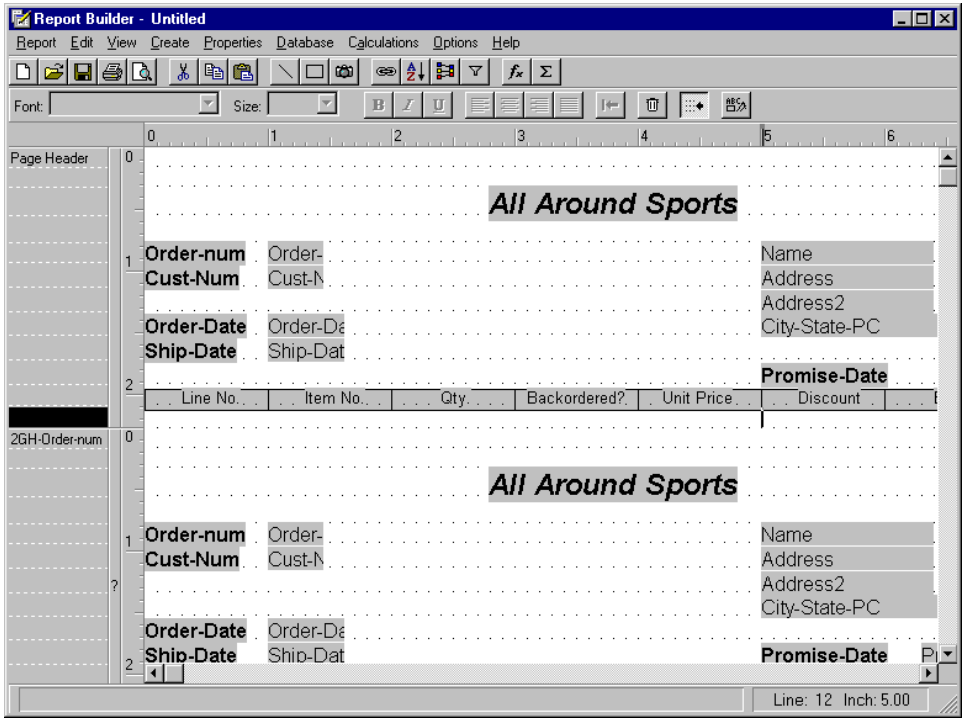



**Figure 9–7: Layout with Pasted Header Information**

### Formatting the Fields

Although the page header includes many of the same fields and formatting as the group header, there are several differences. In this section, you adjust the pasted header information for the page header.

Follow these steps to format the fields:

1 ♦ Move the All Around Sports text field down one band line.

2 ♦ Center the All Around Sports text field on the band line.

3 ♦ Move the Order–num field and label and the Cust–Num field and label down one band line.

4 ♦ Delete the Name, Address, Address2, and City–State–PC fields from the layout.

5 ♦ Move the Page_rb field and label (the Page text field) from the page footer to the fifth page header band line.

6 ♦ Move the Page text field so that its left edge is at the 5-inch mark on the fifth page header band line.

7 ♦ Change the Page text field to Page No., then make it bold.

8 ♦ Move the Page-rb field so that its left edge is to the right of the Page No. text field. When Report Builder creates the Page_rb field, it activates the Merge Left option so that the field will print directly after the label. Therefore, the Page_rb field's position does not matter as long as it is to the right of the Page No. text field.

9 ♦ Move the Promise–Date field and label up one band line.

The layout looks like the one in Figure 9–8.

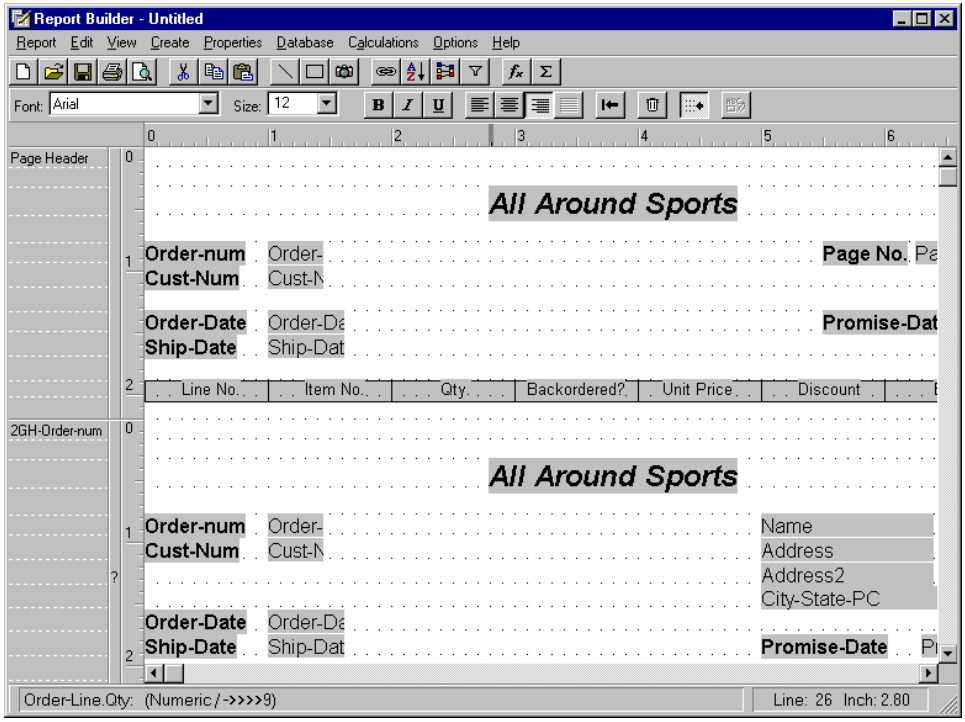



**Figure 9–8: Layout with Completed Page Header**

### 9.5.7 Formatting the Record Information

When you designed the page and group headers, you included the column headings for the report. Now you can insert and format the fields that display the order data for the invoice.

Follow these steps to insert and format the record information:

1 ♦ Insert the following fields on the second record band line **without** their labels: Line–num, Item–num, Qty, Backorder, Price, Discount, and Extended–Price.

2 ♦ Align the fields under the corresponding column heading.

Figure 9–9 shows the layout with the record information. Make sure that the data appears under the proper column headings.

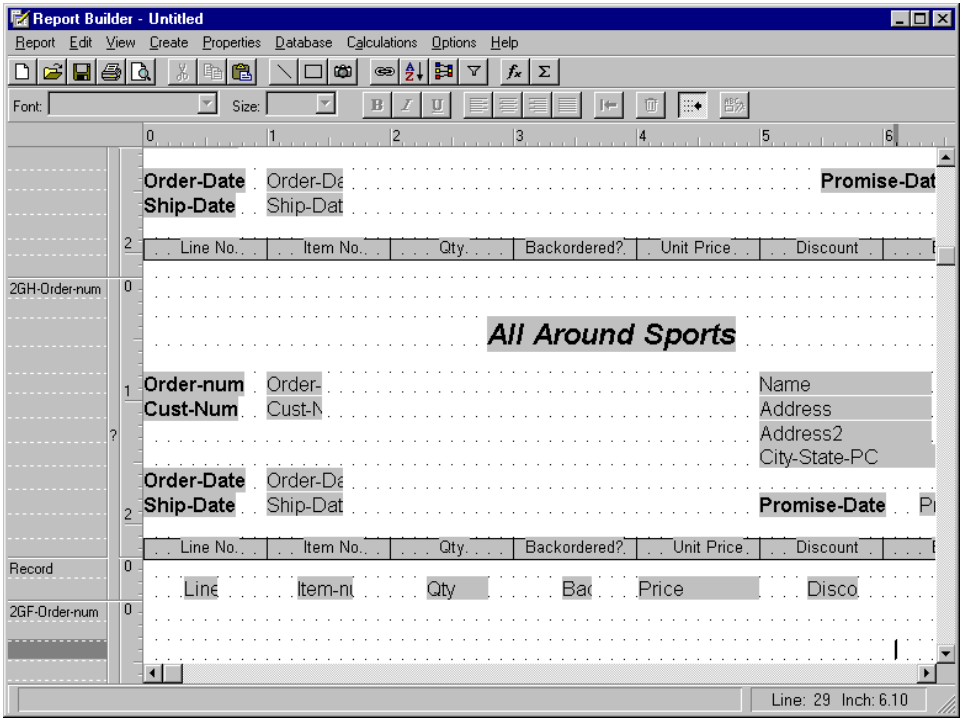



**Figure 9–9: Layout with Completed Record Information**

### 9.5.8 Designing the Group Footer

The group footer contains the information that appears at the bottom of the last page of each invoice. Because it appears only on the last page, it will include the Order–Total.

Follow these steps to design the group footer:

1 ♦ Insert the Order–Total field **with** its label on the third 2GF–Order–num band line.

2 ♦ Move the Order–Total text field so that its left edge is at the 5-inch mark on the third 2GH–Order–num band line, then make it bold instead of underlined.

3 ♦ Draw a rectangle starting at the 6-inch mark on the second 2GF–Order–num band line and ending at the 7.5-inch mark on the fourth 2GF–Order–num band line.

4 ♦ Specify Silver as the rectangle background color.

5 ♦ Position the Order–Total field so that its **right edge** aligns with the right edge of the Extended–Price field (which is on the second record band line).

6 ♦ Type **123 Runners Circle, Waltham, MA 02154** on the fifth 2GF–Order–num band line.

7 ♦ Center the 123 Runners Circle, Waltham, MA 02154 text string on the band line.

Figure 9–10 shows the layout with the group footer.

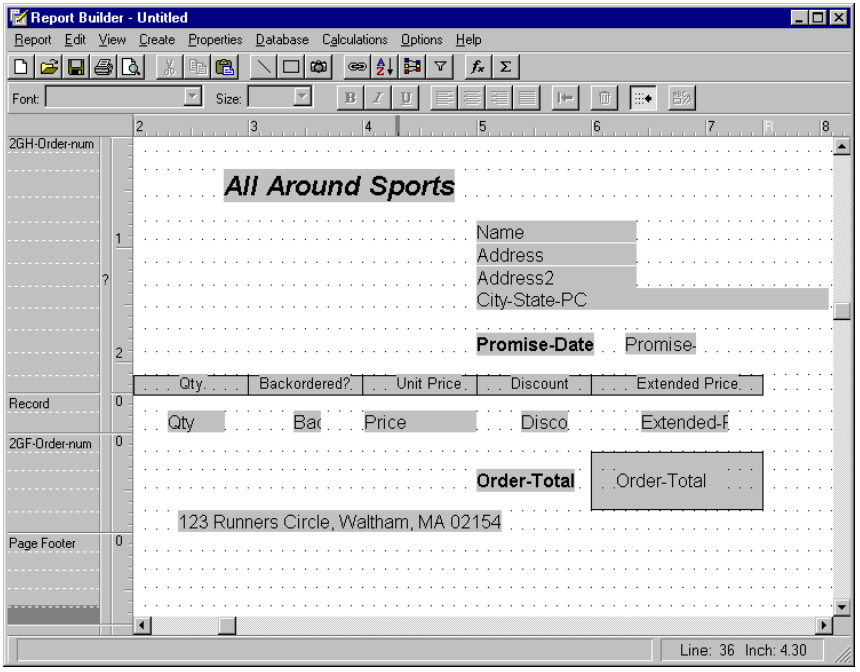



**Figure 9–10: Layout with Completed Group Footer**

Preview the report. Because the group footer only appears on the last page of the invoice, view the second page. Figure 1–10 shows the last page of the invoice with the order total.

## 9.5.9 Designing the Page Footer

The page footer contains the information that appears at the bottom of all the pages except the last page of each invoice.

To produce the information shown on the first page of the invoice, you must perform these tasks:

- Copy the group footer layout.
- Format the fields.

### Copying the Group Footer Layout

Just as you copied the group header information to design the page header, copy the group footer information to create the page footer.

Follow these steps to copy the group footer layout:

1 ♦ Select all the fields and the rectangle on the group footer band lines.

2 ♦ Choose Edit→ Copy or the Copy button.

3 ♦ Position the edit cursor on the second page footer band line.

4 ♦ Choose Edit→ Paste or the Paste button. Report Builder pastes all the selected objects in the page footer.

Figure 9–11 shows how the layout should look with the pasted information.

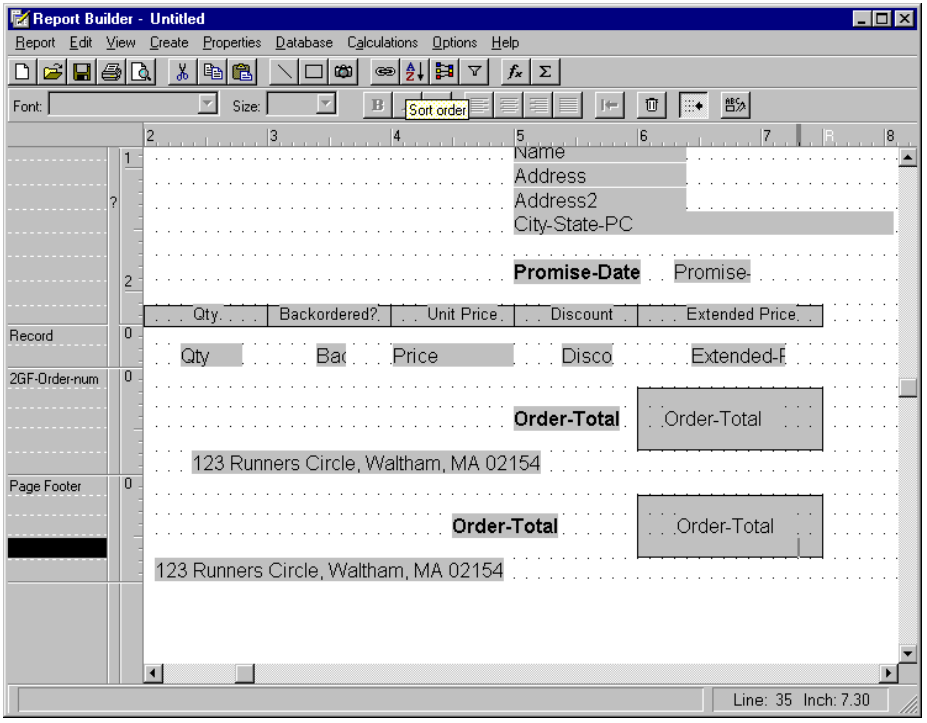



**Figure 9–11: Layout with Pasted Footer Information**

### Formatting the Fields

When you pasted group header information into the group footer, you formatted the fields to display the appropriate information. You do the same here.

Follow these steps to format the fields:

1 ♦ Delete the Order–Total field and label.

2 ♦ Insert the Page–Total field with its label on the third page footer band line.

3 ♦ Move the Page–Total text field so that its right edge is at the 5-inch mark, then make it bold.

4 ♦ Position the Page–Total field on the third page footer band line so that its **right edge** aligns with the right edge of the Order–Total field (which is on the third 2GF–Order–num record band line).

5 ♦ Move the rectangle so that its edges align with the rectangle in the group footer.

When you have completed these changes, you are finished designing the report layout. The layout should look like the one in Figure 9–12.

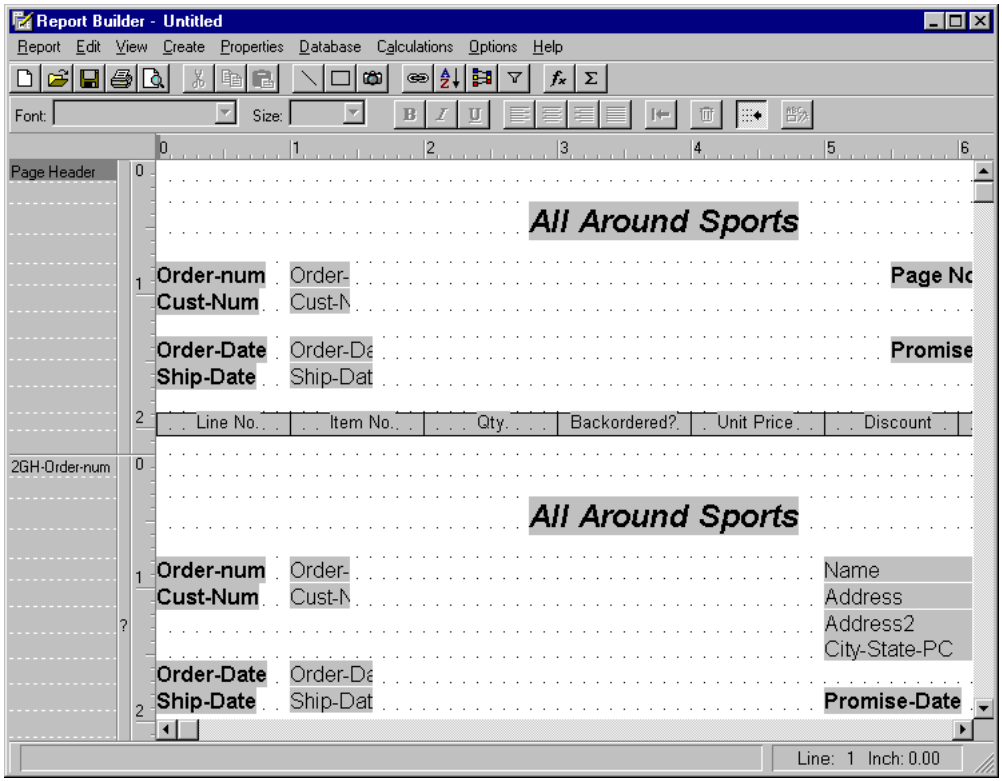



**Figure 9–12: Completed Report Layout**

## 9.6 Previewing and Saving the Report Definition

The final step in creating the report definition is to preview the report to verify that the data appears in the desired format, then save the definition so you can generate the report again at a later time.

### 9.6.1 Previewing the Completed Report Definition

Now that you have completed formatting the report layout, preview the report. Figure 1–9 shows the first page of the invoice. The first page of your report should look similar. If it does not, note the differences. If the differences are in field position, simply reposition the fields. However, if Report Builder displays different data, review the exercise to determine how to make the reports match.

Figure 1–10 shows the second page of the invoice. Notice that the header and footer information is different than the information that appears on the first page. If your report does not display different information on the second page, review the steps for creating the swapped header and swapped footer.

### 9.6.2 Saving the Report Definition

As your final task, save the report definition as Invoice Report Sample in the `Tutorial.prl` report library.

## 9.7 Summary

After performing the steps in this chapter, you should know how to create and use swapped headers and swapped footers.

# 10

# Green Bar Report

A *green bar report* is a report that incorporates shaded horizontal bars to make reports easier to read. Although the horizontal bars can be any color, the term “green bar report” comes from the printed computer paper that has green horizontal bars.

## 10.1 Report Overview and Output

As with all other types of reports, before Report Builder generates a report, you must create the report definition. There are five basic steps to follow to create a report definition:

1. Create the initial report layout.
2. Access and order the data.
3. Define new fields.
4. Design the report layout.
5. Preview and save the report definition.

When you follow these basic steps, you will produce the report shown in Figure 1–11.

The Green Bar Report report definition in the `Tutorial.prl` report library creates this report. However, you should perform the tasks in this chapter to learn how to create them for yourself.

To create this report, you must:

- Connect to the Newsport database.
- Create the Accounts Receivable report definition in Chapter 3, "Accounts Receivable Report."
- Know how to perform the tasks described in the previous chapters. If you have difficulty performing any task for creating this report, see the appropriate chapter for a complete description of the task.

The Green Bar Report Sample definition is the completed report definition for this chapter.

## 10.2 Opening the Initial Report Layout

Unlike most of the reports in this tutorial, you do not have to create a new report definition. Instead, to create the initial report layout for this report, you simply open the Accounts Receivable report definition you created in Chapter 3, "Accounts Receivable Report."

Follow these steps to open the Accounts Receivable Sample report definition:

1 ♦ Choose the Open Report button. The Open Report dialog box appears.

2 ♦ Access the `rbtutor` directory.

3 ♦ Select the `Tutorial.prl` report library, then choose OK.

4 ♦ Select the Accounts Receivable Sample report definition, then choose OK. Report Builder opens the Accounts Receivable report definition shown in Figure 10–1.

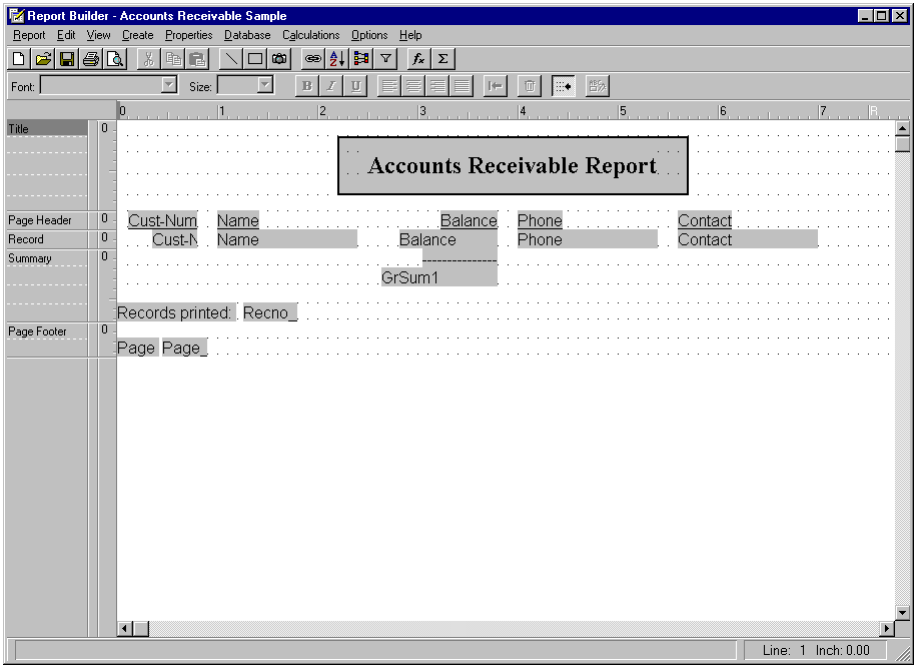



**Figure 10–1: Accounts Receivable Report Layout**

This report layout is the initial layout for the Green Bar report and defines the following report characteristics:

- It displays the accounts receivable information for all the customers in the Newsport database.
- It formats the report title.
- It sorts the report records by the customer balance.

## 10.3 Accessing and Ordering Data

Because the Accounts Receivable report definition already accesses and orders all the information for the report, you do not have to specify any information for this step.

## 10.4 Defining New Fields

To display specific band lines in a different color, you must create two user-defined fields.

Follow these steps to create the user-defined fields for the report:

1 ♦ Create an aggregate field, Record–Count, that counts the number of records in the report using the settings in the following table:

| Option | Setting |
|---|---|
| Type | Count |
| Field | Cust–Num |
| Reset | No–reset |
| Accumulation | Every Composite |
| Processing | Final Pass |

2 ♦ Create the Band–Choice calculated field with the following expression:

((Record–Count - 1) / 3) MODULO 2 = 0

This expression returns either a 0 or 1 for each band line. The number 3 in the expression causes the value to change after every third record so that Report Builder prints three records with a green bar, then three records without a green bar, and so on.

## 10.5 Designing the Report Layout

To design this report, you must follow these steps:

1. Display field names instead of field formats.
2. Copy the existing record band line.
3. Specify conditional printing for each line.
4. Create and modify the rectangle.

### 10.5.1 Displaying Field Names Instead of Field Formats

Specify to display the field names instead of the field formats on the layout by choosing View→ Field Names.

### 10.5.2 Copying the Existing Record Band Line

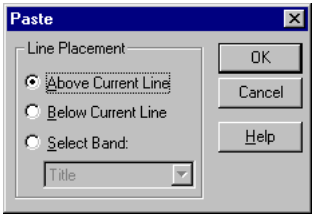
To display the shaded horizontal bars on the report, you must first create a new record band line identical to the existing one.

Follow these steps to copy the record band line:

1 ♦ Select the existing record band line.

2 ♦ Choose the Copy button.

3 ♦ Choose the Paste button. The Paste dialog box appears:




4 ♦ Choose OK. Report Builder pastes the band line copy directly above the original record band line.

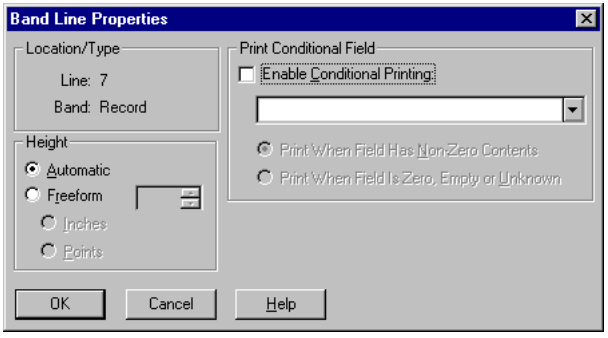
### 10.5.3 Specifying Conditional Printing for Each Band Line

Now that you have two identical record band lines, you must instruct Report Builder when to print each one using the conditional printing feature.

Follow these steps to specify conditional printing for each band line:

1 ♦ Select the first record band line.

2 ♦ Choose Properties→ Band Line Properties. The Band Line Properties dialog box appears:




3 ♦ Activate the Enable Conditional Printing toggle box.

4 ♦ Select the Band–Choice calculated field from the drop-down list.

5 ♦ Activate the Print When Field Is True toggle box, then choose OK. This means that Report Builder prints the band line only when the value in the Band–Choice field is true.

6 ♦ Select the second record band line.

7 ♦ Choose Properties→ Band Line Properties. The Band Line Properties dialog box appears.

8 ♦ Activate the Enable Conditional Printing toggle box.

9 ♦ Select the Band–Choice calculated field from the drop-down list.

10 ♦ Activate the Print When Field Is False or UNKNOWN toggle box, then choose OK. This means that Report Builder prints the band line only when the value in the Band–Choice field is false.

When you return to the report layout, it looks like the one shown in Figure 10–2.

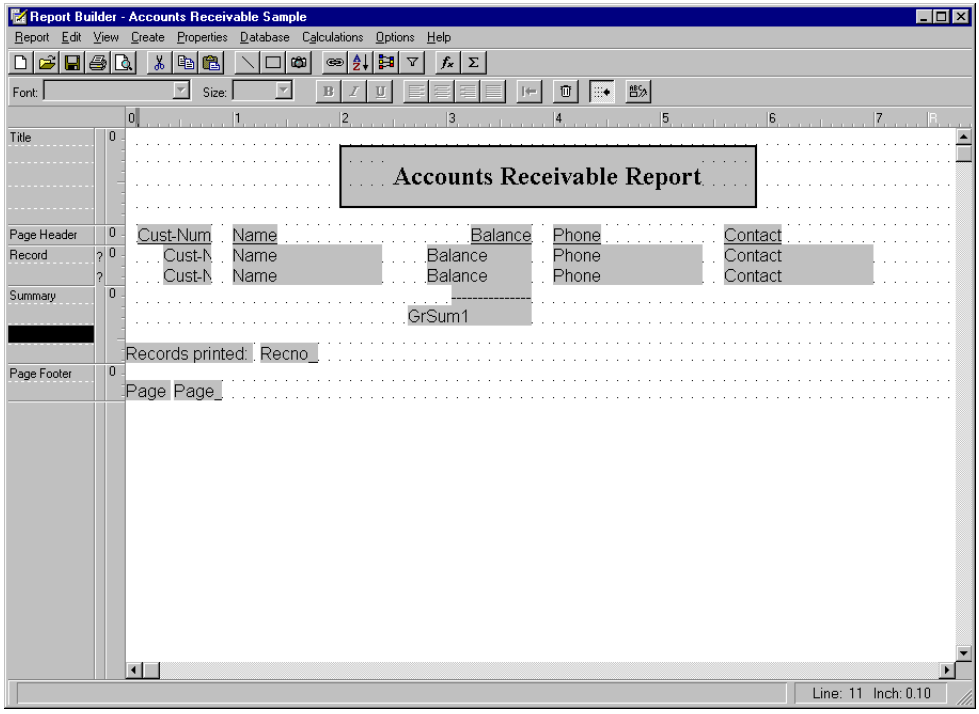



**Figure 10–2: Layout with Conditional Printing Indicators**

Notice the question marks in the band line status area. They indicate that Report Builder prints each of the record band lines only when the specified condition is met.

### 10.5.4 Create and Modify the Rectangle

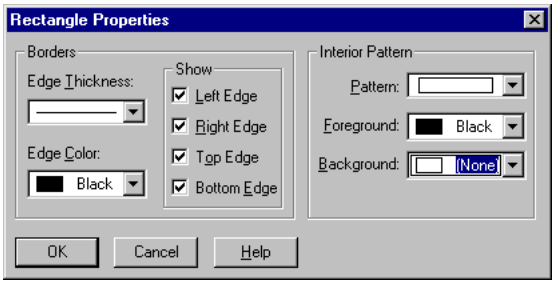
To create the shaded, horizontal bar on the report layout, you must create a rectangle, then modify its properties.

Follow these steps to create and modify the rectangle:

1 ♦ Draw a rectangle on the first record band line that starts at the left margin and extends to the right margin. Make sure that the rectangle encompasses only the first record band line.

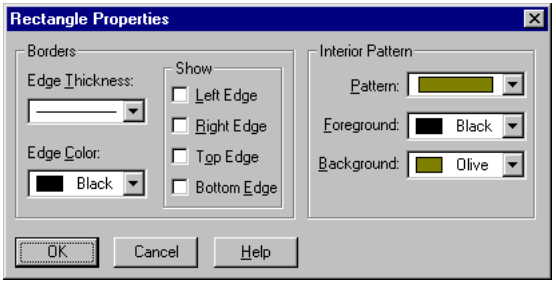
2 ♦ Select the rectangle.

3 ♦ Choose Properties→ Rectangle Properties. The Rectangle Properties dialog box appears:




4 ♦ Deactivate all four edges of the border.

5 ♦ Select the desired color from the Background drop-down list. The following Rectangle Properties dialog box shows the selections for an olive bar:




6 ♦ Choose OK to return to the report layout.

When you finish designing the report layout, it should look like the one shown in Figure 10–3.

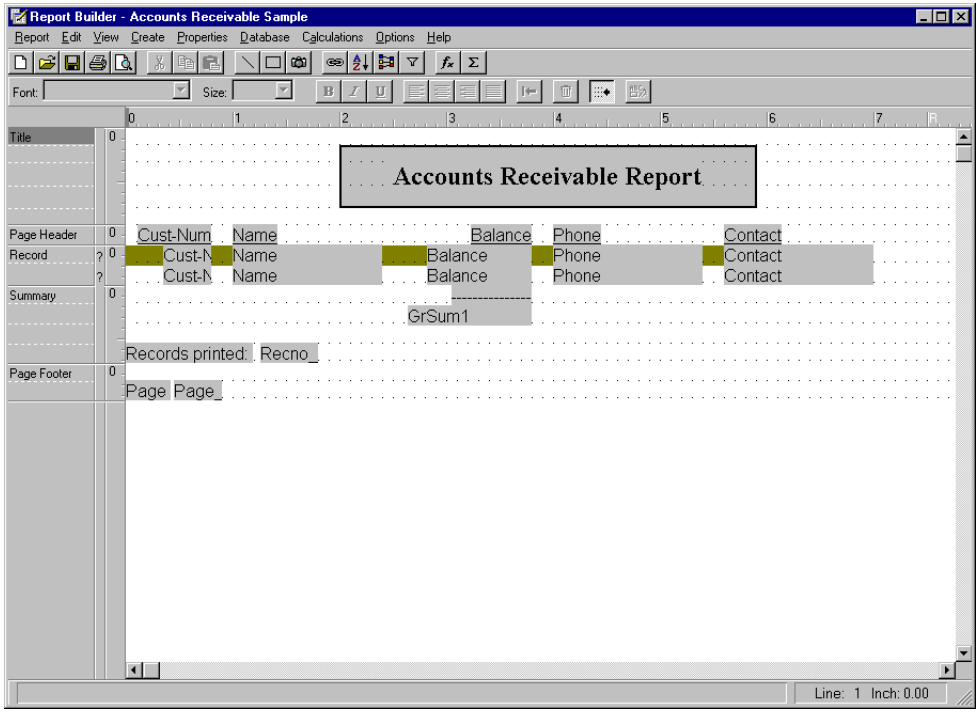



**Figure 10–3: Completed Green Bar Report Layout**

## 10.6 Previewing and Saving the Report Definition

The final step in creating the report definition is to preview the report to verify that the data appears in the desired format, then save the definition so you can generate the report again at a later time.

### 10.6.1 Previewing the Completed Report Definition

Now that you have completed formatting the report layout, preview the report.

### 10.6.2 Saving the Report Definition

As your final task, save the report definition as Green Bar Sample in the `Tutorial.prl` report library.

## 10.7 Summary

This chapter showed you how to use the tasks you mastered in the previous chapters to produce a green bar report.

# Glossary

**Aggregate Field**

A user-defined field that computes summary information about a set of records in the report.

**ASCII**

A seven-bit code representing upper and lower case letters, numbers, symbols, and punctuation marks. ASCII is an acronym for the American Standard Code for Information Interchange.

**Band**

An area on the report layout that controls where Report Builder displays and prints data. Bands consist of one or more band lines.

**Band Area**

The area at the left edge of the report layout where Report Builder identifies the band type.

**Band Line**

A horizontal bar within a band on which you place fields, lines, rectangles, and images.

**Band Line Properties**

The properties that specify additional information about how to present data on the band line.

**Before-image File**

A file that ensures database integrity by keeping track of the status of your database in the event that a transaction is not completed or a system failure occurs. Unless you explicitly place this file somewhere else with the Before Image File Name (-g) startup parameter, the BI file is located in the same directory as your DB file. You can think of the before-image file as a pretransaction image of the database records your application is modifying.

**Built-in Function**

A Report Builder-provided formula that performs a calculation, conversion, or specified operation such as returning the system date or the current page number.

**Calculated Field**

A user-defined field that calculates values as Report Builder generates the report.

**Composite Record**

The record resulting from joining the tables used in a report.

**Composite Table**

The records resulting from all the joins in a report definition.

**Controlling Table**

The table used to initiate a join.

**Cross-tab Report**

A report that provides totals for both rows and columns of data.

**Field Width Indicator**

The representation of a field's width on the report layout. By default, Report Builder indicates a field's position and width on the layout with a shaded area. However, you can modify the field width indicator by changing the shading color or simply using an outline box.

**Filter**

Conditions that allow you to narrow the focus of a report to the specific data you want to display. Filters can consist of one or more conditions that specify what data Report Builder is to retrieve for the report.

**Font Point Size**

A font's height measured in printers' points (1 point = 1/72 inch) which is the standard unit of measurement used by professional printers.

**Footer**

Text or data placed at the bottom of each page in a report. There are two types of footers in Report Builder reports: page footers and group footers.

**Group Footer**

Text or data on the group footer band lines that replaces the text or data in the page footer on the last page of a group. Also see Page Footer.

**Group Header**

Text or data on the group header band lines that replaces the text or data in the page header on the first page of a new group. Also see Page Footer.

**Header**

Text or data placed at the top of each page in a report. There are two types of headers in Report Builder reports: page headers and group headers.

**Inner Join**

A join that includes only those records that have matching values in both tables. Records from either table that do not have a match in the other table are not included in the report.

**Instant Layout Option**

The Report Builder option that creates a basic, usable report layout which you can customize as needed. You can use the Instant Layout at any point while creating the report definition.

**Join**

A user-defined connection between tables that allows Report Builder to gather data from more than one table for a report. When you join tables, you establish a connection between two tables.

**Join Field Pair**

A pair of fields Report Builder uses to join two tables. The pair is made up of one field from the controlling table and one from the related table.

**Left Outer Join**

A join that includes all records in the Controlling Table regardless of whether there are any matching records in the related table. Report Builder includes all the records in the controlling table and any records from the related table that match the join field value in the controlling table. When there is no match for a controlling table record, Report Builder sets the related table fields to UNKNOWN.

**Master Table**

The database table that Report Builder uses as the initial source of data for the report.

**Memo Field**

A portion of text in an unformatted text file that you include in the report layout. You can attach the unformatted text file (memo file) to the report, and then include memo fields in the report layout as you would any other type of field.

**Memo File**

Unformatted text file that contains the text you want to include in a report. Unformatted means that the file does not contain format information from the text editor or word processing program in which you created or edited the file.

**Outer Join**

A join that includes all the records in one table regardless of whether there are any matching records in the other table. Report Builder supports two types of outer joins: left and right. Also see Left Outer Join and Right Outer Join.

**Page Footer**

Text or data on the page footer band lines that appears at the bottom of each page of a report. The page footer can be replaced by the group footer on the last page of a group. Also see Group Footer.

**Page Header**

Text or data on the page header band lines appears at the top of each page in a report. The page header can be replaced by the group header on the first page of a new group. Also see Group Footer.

**Parameter**

An argument to a built-in or user-defined function. It can be a constant value, field, or expression. The parameters to a function provide the actual values that the function processes.

**Proportional Font**

A font that has characters of different widths.

**Related Table**

The table that you join to the controlling table when you define a join. All tables in a report except the master table are called related tables.

**Report**

An organized display of data from a database.

**Report Definition**

A named set of report characteristics that tells Report Builder where to find the data and how to display and print the data.

**Report Layout**

The schematic representation of the report that contains the fields, text, and any lines, rectangles or images that will appear in the report.

**Report Library**

An operating system file that can contain one or more report definitions.

**Right Outer Join**

A join that includes all the records in the Related Table regardless of whether there are any matching records in the controlling table. Report Builder includes all the records in the related table and any records from the controlling table in which the join field value matches the related table join field value. When there is no matching controlling table record, Report Builder gives its fields the UNKNOWN value.

**Server-evaluatable Field**

A calculated field you can use in a sort, join, or filter that the database server, rather than Report Builder, is capable of evaluating.

**Server-evaluatable Filter**

A filter that the database server, rather than Report Builder, evaluates.

**Text Field**

A text string that you enter on the report layout, such as a column label or report title.

**User-defined Field**

A field that you create within a report, such as an aggregate, calculated, or memo field.

**User-defined Function (UDF)**

A function you create to supplement Report Builder's built-in functions. You specify the function's expression and the number and types of parameters it requires, then use the UDF in a calculated field expression as you would any built-in function. You can use a UDF in multiple reports.

**Working Database**

The connected database that is currently in use. Multiple databases can be connected at any time, but only one is the current, working database.

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