RCL Programmer's Manual

Monarch® 9460™ Printer

```
^R|$|DR|^
^R|1|R|30|50|70|20|0|0|0|1|1|1|0|0||^
^R|2|R|250|50|100|20|0|0|0|1|1|1|0|0|ea.|^
^R|3|R|350|50|40|20|0|0|0|1|1|1|0|0|SKU|^
^R|4|R|30|100|40|20|0|0|0|1|1|1|0|0||^
^R|5|R|100|100|150|20|0|0|0|1|1|1|0|0||^
^R|6|R|30|130|170|20|0|0|0|1|1|1|0|0||^
^R|7|R|210|130|20|20|0|0|0|1|1|1|0|0||^
^R|8|R|300|130|70|20|0|0|0|k|1|2|100|0||^
^R|9|R|30|175|30|30|30|0|0|0|k|1|2|100|0||^
^T|A|R|383|203|1|2|3|4|5|6|7|8|9|^
^P|A|1|$9.99|$0.416|||6387910981|KB DIAPERS|SM|24_PK|6387910981|^
```

PRICE
PRICE PER EACH
EA. CONSTANT
SKU CONSTANT
PRODUCT ID
PRODUCT NAME
SIZE
CONTENTS
BAR CODE (PRODUCT ID)

AVERY DENNISON

TC9460RCL Rev AB 12/07

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PREFACE

This manual describes how to use RCL commands with the Monarch® Sierra Sport 2™ 9460™ printer. With these commands, you can

- create and print labels.
- configure and operate the printer.

You should have some programming background and a thorough knowledge of the host you will use with the printer. Following is a summary of the manual.

Chapter 1	**Getting Started** Describes how to create and print labels.
Chapter 2	**Fields and Formats** Explains how you use fields and formats.
Chapter 3	**Command Reference** Describes each RCL command and gives examples.
Chapter 4	**Response Reference** Explains how the printer responds to certain commands.
Appendix A	**RCL Samples** Lists sample formats and data streams.
Appendix B	**Printer Pin Outs** Lists the pin outs for the 9460 printer.

Terms to Know

Review the following list of terms before you read this manual.

Term	Definition
Batch	Data stream containing information specifying the format, the number of copies, and the data for printing.
Continuous mode	Operation mode in which the printer dispenses labels in a continuous strip.
Data stream	Sequence of one or more RCL commands.
Decrementing fields	Fields where data decreases by one for each label in a batch.
Dot	Smallest unit of print on a label. A dot is 1/203rd of an inch on the printer. You measure it across the width of the printhead.
Field	Area containing data on a format.
Format	Layout of the printed label, containing one or more fields.
Incrementing fields	Fields where data increases by one for each label in a batch.
Indexed supplies	Supplies with pre-printed black marks on them. The printer detects these marks or apertures to determine proper supply registration. Non-indexed supplies do not have these marks.
Length axis	Length of a format measured in the feed direction. Use this axis to position a field up or down on a supply. The maximum length is 2436 dots (12 inches).
On-demand mode	Operation mode in which the printer dispenses labels one at a time. The operator must press ⓕ to print each one.
Supplies	Tags, labels, or receipt paper the printer prints on.

Term	Definition
Top-of-form	Position where the supply stops for the start of printing. You may adjust the top of the form to compensate for supply variations and peel mode.
Width axis	Width of a format or supply. Use this axis to position a field left or right on a format. The maximum width is 384 dots (1.89 inches).

Conventions of this Manual

Text in the Century Gothic font indicates an example or syntax description. For example, ^C¦^.

Related Documentation

Manual	Explains how to...
Operator's Handbook	operate the printer.
1-Station Battery Charger Operating Instructions	operate the single-station battery charger.
AC Adapter Operating Instructions	operate the AC adapter.
4-Station Battery Charger Operating Instructions	operate the four-station battery charger.
Installing a Linerless Platen Roller	install the platen roller used with linerless supplies.
Carrying Your 9460 Printer	use the shoulder strap, belt, handle and clip for the printer.
*Programmer's Manual**	use the MPCL language to run the printer.

*This manual is located on Monarch's web site (www.monarch.com) for downloading.

GETTING STARTED

1

Your Monarch® Sierra Sport 2™ 9460™ printer uses the RCL control language to print labels. There are several RCL commands. However, you need only three commands to design and print labels.

The printer prints on labels, tags, and receipt paper. For simplicity, this manual refers to all of these supplies as labels.

The label design is called a format. A format consists of one or more fields, which contain data.

To create a label:

1. **Sketch a format** to resemble how you want the label to look.
2. **Define the fields** using the ^R command.
3. **Create the format** using the ^T command.
4. **Specify print data and the quantity** using the ^P command.
5. **Create the data stream**.
6. **Download the data stream** from the host to the printer.
7. **Modify the format** as necessary.

This chapter guides you through this procedure, using a sample label for an item in an appliance store. The description of each step refers to the sample label. At the end of each step is an example of information you need to create the sample appliance label.

See Chapter 3, “Command Reference,” for more information on RCL commands.

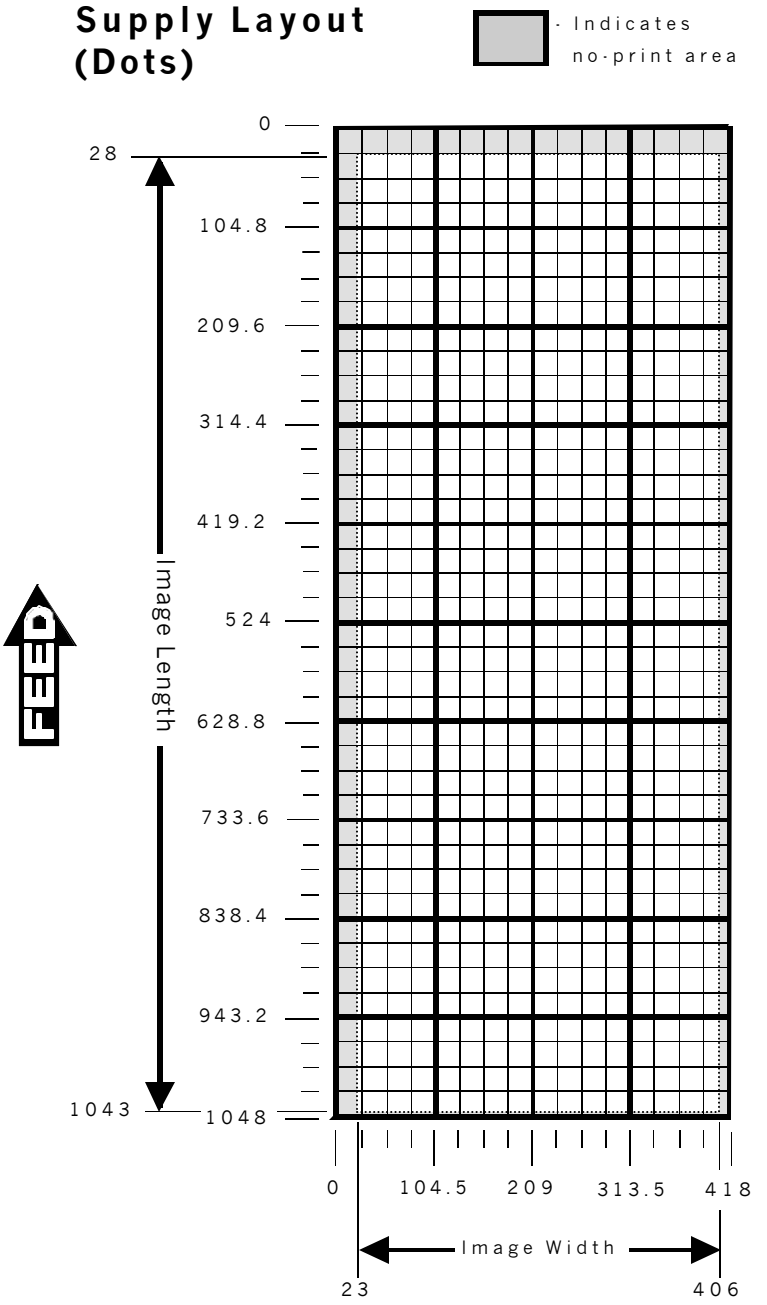
Sketch a Format

When you sketch a format, you must decide which fields to print, where the fields appear, and how the fields appear (size, normal or inverse printing, etc.).

You might also find it helpful to use the following grid, which is measured in dots and appears in actual size. You may want to make copies of this grid for use with formats you design in the future.

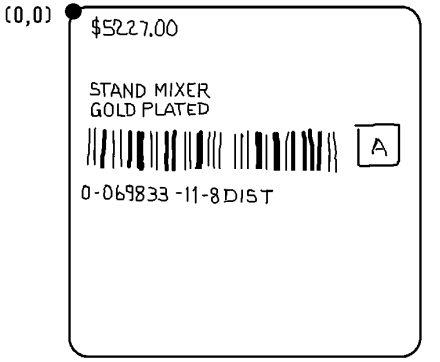
A dot is 1/203rd of an inch.

Supply Layout (Dots)



Example

The sample appliance label must contain (from top-to-bottom) the price, a two-line description, a UPCA bar code to identify the item, and two secondary data fields. In the following steps, you will create the sample appliance label, shown below as a hand-drawn sketch.



Defining Fields using the ^R Command

When you define the fields for your format using the **^R** command, you specify

- location
- type
- rotation
- size
- type of printing
- the data (optional).

A summary of the command appears after the example.

See “Define Field (**^R**)” in Chapter 3 for the syntax and descriptions or see Chapter 2, “Fields and Formats” for more general information.

Example

In the following data stream, ^R¦$¦DR¦^ deletes all current fields and formats, and all the other commands define the fields on the appliance label.

```
^R¦$¦DR¦^ DELETE CURRENT FIELDS
^R¦1¦R¦20¦10¦354¦25¦0¦0¦0¦8¦1¦1¦0¦0¦¦^ PRICE FIELD
^R¦2¦R¦20¦85¦340¦25¦0¦0¦0¦8¦1¦1¦0¦0¦¦^ DESC FIELD 1
^R¦3¦R¦20¦105¦340¦25¦0¦0¦0¦8¦1¦1¦0¦0¦¦^ DESC FIELD 2
^R¦4¦R¦20¦130¦340¦60¦0¦0¦0¦a¦3¦0¦48¦0¦¦^ UPCA
^R¦5¦R¦345¦142¦30¦25¦0¦0¦0¦8¦1¦1¦0¦0¦¦^ "A" IN BOX
^R¦6¦R¦10¦200¦300¦25¦0¦0¦0¦8¦1¦1¦0¦0¦¦^ UNDER UPCA
^R¦7¦R¦330¦130¦50¦50¦0¦0¦0¦A¦3¦0¦0¦0¦¦^ BOX
```

Command Summary

The **^R** command deletes or defines a field. To define a field, specify the following items:

- field identifier
- position of the field
- length and width of the field
- field type
- attributes, such as rotation, justification, and multipliers.

Due to space limitations in this manual, this command summary appears on two pages. In a data stream, this command must appear on one line.

---

^R¦1¦R¦50¦50¦10¦35¦

Length Function R only. Length of the field in dots (**1-1015**). Length+Length Coordinate may not exceed 1015.

Width Function R only. Width of the field in dots (**1-383**). Width+Width Coordinate may not exceed 383.

Length Coordinate Function R only. Point along length axis where the field starts (**1-1015**).

Width Coordinate Function R only. Point along width axis where field starts (**10-383**). Together, Width Coordinate and Length Coordinate specify the upper-left corner of the field.

Function **R** (add field) or **DR** (delete field).

Field Identifier **0-9**, **A-Z**, **a-z**, **:**, **;**, **<**, **=**, **>**, **?**, @, **[**, \, **]**, **-**, and ‘. Use **$** to delete all fields and formats. Monarch recommends you use only alphanumeric characters for this field.

Command Identifier

Continued on next page

0¦0¦0¦10¦4¦4¦0¦0¦¦^

Fixed Data Function R only. Up to 200 bytes of fixed data for the field, or the starting number for an incrementing/decrementing field.

Data Attributes Function R only. **0** (line, graphic, variable text, or bar code that doesn't increment/decrement), **1** (fixed data), **2** (incrementing field), or **3** (decrementing field).

Printing Attributes Function R only. **0** (line, graphic, or if text, black characters on white), **1** (white characters on black-- text only), or **16-406** (height of bar code in dots)

Multiplier 2 Function R only. **0** (graphic, line, or wide element width of UPC, EAN or Code 128 bar code), **1-4** (text height multiplier), or **2-16** (wide element (thick line) width of all other bar codes).

Multiplier 1 Function R only. **0** (graphic), **1-4** (text width), **1-8** (narrow element (thin line) width of bar code), or **1-10** (thickness of a line in dots).

Field Type Function R only. **A** (lines), **a** (UPCA), **b** (UPCA +2), **c** (UPCA +5), **d** (UPCE), **e** (UPCE + 2), **f** (UPCE + 5), **g** (EAN 13), **h** (EAN 8), **j** (EAN 13+5), **k** (Code 39), **l** (I 2 of 5), **m** (Codabar), **n** (Code 128 set a), **o** (Code 128 set b), **p** (Code 128 set c), **q** (MSI), **E-Z** (graphics), or **1-16** (a font identifier).

Justification Function R only. **0** (left-justified or non-text field), **1** (centered), or **2** (right-justified).

Rotation Function R only. **0** (0 degrees) or **1** (90 degrees). Use this field only with text or bar code fields.

Text Field Type Function R only. Enter **0** (fixed-length field). Use this field with text fields only.

Creating the Format using the ^T Command

You create the format by specifying the fields on the format. Be sure to download the fields used in the format before defining the format.

To define a format, use the **^T** command. Following the example is a summary of this command. See "Define Format (**^T**)" in Chapter 3 for the syntax and descriptions.

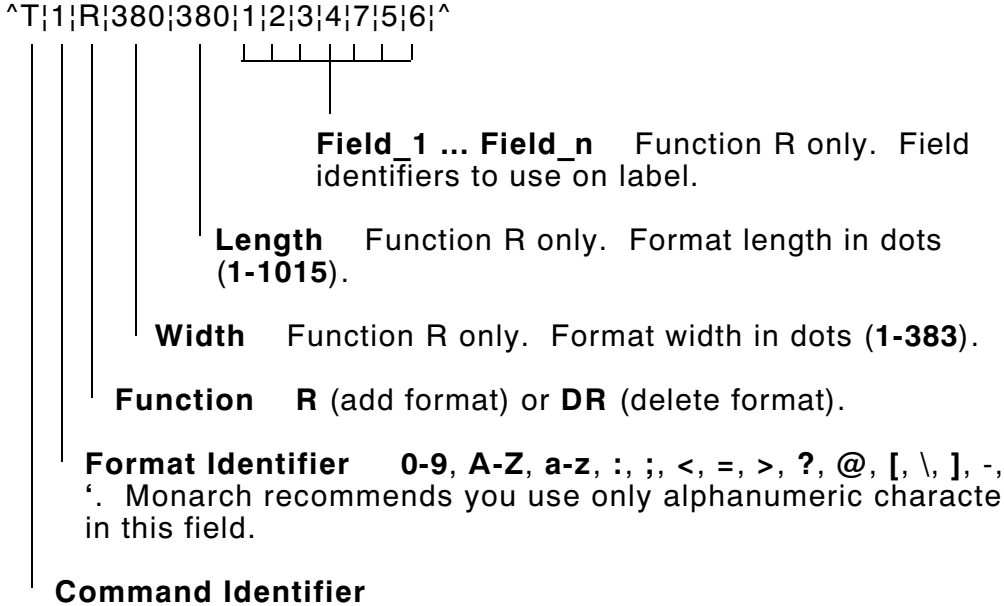
Example

The following command incorporates the fields into the format for the appliance label. The format has identifier 1, dimensions of 380 by 380 dots, and contains fields 1-7.

```
^T¦1¦R¦380¦380¦1¦2¦3¦4¦7¦5¦6¦^ FORMAT DEFINITION
```

Command Summary

The **^T** command combines pre-defined fields into a format. Specify a format identifier, the width and length of the format, and a list of fields in the order they appear on the label.



Specify Print Data and Quantity using the ^P Command

Use the **^P** command to specify the data and quantity of labels to print. Following the example is a summary of the **^P** command. See "Print (**^P**)" in Chapter 3 for the syntax and descriptions.

Example

The following command prints one copy of the appliance label using

- **$5227.00** as the price.
- **STAND MIXER** and **GOLD PLATED** as the description.
- **12345678901** in the UPCA bar code.
- **A** and **0 -069833 -11 -8 DIST** as the secondary data.

```
^P¦1¦1¦$5227.00¦STAND MIXER¦GOLD PLATED¦
12345678901¦¦A¦0 -069833 -11 -8 DIST¦^ PRINT FORMAT
```

Command Summary

The **^P** command prints labels. Specify the format to use, the number of copies, and the data to use.

^P and **{W** are the only two commands that you can spread over multiple lines. All others must fit on one line.

```
^P¦1¦1¦ACME HARDWARE¦43373737376¦^
```

Field_1 ... Field_n Data for each field in the format.

Quantity Number of labels to print (**1-9999**).

Identifier Format identifier. Enter any of the following characters: 0-9, A-Z, a-z, :, ;, <, =, >, ?, @, [, \,], -, and ‘.

Command Identifier

To make your data streams more readable, put a carriage return and/or line feed after each ¦ character. For example

```
^P¦A¦10¦
Field 1¦
Field 2¦
Field 3¦^
```

Carriage returns and line fields are also valid characters to include in a field's data.

Creating the Data Stream

Enter the data stream in a file using your host, and then download the whole data stream at once.

The first line (delete all current fields and formats) is not necessary unless you are going to download other fields or formats with the same identifiers.

Example

Following is the entire appliance label data stream.

```
1  ^R¦$¦DR¦^ DELETE CURRENT FIELDS
2  ^R¦1¦R¦20¦10¦354¦25¦0¦0¦0¦8¦1¦1¦0¦0¦¦^ PRICE FIELD
3  ^R¦2¦R¦20¦85¦340¦25¦0¦0¦0¦8¦1¦1¦0¦0¦¦^ DESC FIELD 1
4  ^R¦3¦R¦20¦105¦340¦25¦0¦0¦0¦8¦1¦1¦0¦0¦¦^ DESC FIELD 2
5  ^R¦4¦R¦20¦130¦340¦60¦0¦0¦0¦a¦3¦0¦48¦0¦¦^ UPCA
6  ^R¦5¦R¦345¦142¦30¦25¦0¦0¦0¦8¦1¦1¦0¦0¦¦^ "A" IN BOX
7  ^R¦6¦R¦10¦200¦300¦25¦0¦0¦0¦8¦1¦1¦0¦0¦¦^ UNDER UPCA
8  ^R¦7¦R¦330¦130¦50¦50¦0¦0¦0¦A¦3¦0¦0¦0¦¦^ BOX
9  ^T¦1¦R¦380¦380¦1¦2¦3¦4¦7¦5¦6¦^ FORMAT DEFINITION
10 ^P¦1¦1¦$5227.00¦STAND MIXER¦GOLD PLATED¦
   12345678901¦¦A¦0 -069833 -11 -8 DIST¦^ PRINT FORMAT
```

The large numbers to the left of the example identify the commands and are not part of the data stream.

This data stream

- deletes all current field and format definitions from the printer (command 1).
- defines fields 1-7 (commands 2-8).
- defines format 1, specifying it consists of fields 1-7 (command 9).
- prints the format pictured below (command 10).

Downloading the Data Stream

To download an RCL data streams from a PC to a printer either use communications software or the DOS COPY command.

To download a data stream from a PC:

1. Determine the printer's current communication parameters by printing a diagnostic label. See the Operator's Handbook.
2. Connect your printer to the serial port of the PC using Monarch cable 12029314 (9 pin) or 12029315 (25 pin).

3. Set the PC's communication parameters to match the printer's communication parameters. You can use the DOS MODE command or a communications package that transfers ASCII files.

   Example: MODE COM1:9600,N,8,1,P

   This command sets communication parameters for COM1 to 9600 baud, no parity, 8 word length, and 1 stop bit. It also retries communications until the printer accepts the transmission.

   If you use the MODE command, use DTR flow control in the printer. If you're using a communications package, see its documentation.

   ---

4. Set the flow control to match on the printer and PC. To set it on the printer, see the Operator's Handbook. To set it on the PC, use a communications utility.

5. Send the data stream file to the printer's serial port. If you're using a communications package, see its documentation. If you used the MODE command in step 3, use the COPY command:

   Example: COPY PRINT.DST COM1

   This command sends the file PRINT.DST (containing a data stream) to port COM1. The data stream can have any file extension.

To download a data stream from another host, see the host's documentation.

Modifying a Format

You may modify the format as often as you need. Go back to the appropriate point in this procedure and repeat the steps.

FIELDS AND FORMATS 2

This chapter includes detailed information about

- using field types.
- positioning a field on a format.
- specifying the field data.
- using the printer library.

Using Field Types

Fields may contain

- text
- bar codes
- lines/boxes
- graphics.

Text Fields

Text fields include letters, numbers, and special printing and non-printing characters. When creating a text field, specify which font to use. You can use one of several printer-resident fonts or one of your own.

A field can contain up to 200 characters. Use carriage returns and/or line feeds in the data to avoid having the field run off the label.

If a character is not in the font the printer is using, the printer prints a space in place of the character. See “Font Download,” in Chapter 3 for information about downloading other fonts. Also, see “Library Management,” in Chapter 3 for information about deleting fonts.

Incrementing and decrementing fields are special types of fields. They change by one for each label in a batch. For example, for an incrementing field, if the first label has 001 on it, the second would have 002, etc. Decrementing fields are the same, but the number would decrease for each label. You specify the starting number in the fixed data field of the **^R** command. Include leading zeros for the starting number to make it the same length as the maximum number. For example, if the first number is 1 and the maximum number is 999, enter 001 for the starting number. The printer calculates the number for each label. These fields must always be numeric and no more than 11 digits long. Also, only one text field and only one bar code field per format can be incrementing or decrementing.

Standard Fonts

The printer uses CG Triumvirate Bold™ and CG Triumvirate Bold Condensed™ as standard fonts, described in the following table. Identifiers 1-6 are for CG Triumvirate Bold. Identifiers 7-12 are for CG Triumvirate Bold Condensed.

ID	Point Size	Character Set	Cell Height*	Default Width	Default Height	Memory
1	6.5	Alphanumeric	20	8	11	3248
2	8	Alphanumeric	25	10	14	3820
3	10	Alphanumeric	30	12	17	4864
4	12	Alphanumeric	35	15	22	6704
5	18	Numeric	51	47	52	3632
6	22	Numeric	63	56	63	4896
7	6.5	Alphanumeric	20	6	11	2688
8	8	Alphanumeric	24	8	15	3808
9	10	Alphanumeric	30	10	18	4656
10	12	Alphanumeric	35	11	22	6260
11	18	Numeric	49	42	50	3376
12	22	Numeric	59	50	60	4768

* The height of your field must be at least this amount, or the field will not print.

Cell Height, Default Width, and Default Height are in dots.

Bar Code Fields

Bar codes encode data so a scanner can read it. You can use one of the following bar codes available in the printer.

Bar codes produced using single dot elements may not be scannable.

- UPCA (+2, +5, +Price CD)
- UPCE (+2, +5)
- EAN8 (+2, +5)
- EAN13 (+2, +5, +Price CD)
- Interleaved 2 of 5 (also with Barrier Bar)
- Code 39
- Codabar
- Code 128 (sets A, B, and C)
- MSI.

You cannot add or delete bar codes other than the ones included with the printer.

Bar codes cannot be incrementing or decrementing unless there is another incrementing or decrementing field on the same format.

Do not use an MSI bar code with an incrementing text field. This combination may cause the check digit on the MSI bar code to be incorrect.

Note the following items about bar codes:

- Codabar uses “A” as the start and stop character, unless you include another start/stop character in the print batch data.
- Bar codes can accept 200 characters for their input data. To keep the data from running off the label, use carriage return and/or new line characters in the data.
- I 2 of 5 bar codes pad the field data to the left with a zero when you give it an odd number of data characters.
- The printer calculates check digits and adds them to the bar code data for all bar codes with system check digits.
- If you assign too few characters to bar codes that require a certain number of characters, an error occurs. If you assign too many characters, the printer truncates the data and an error occurs.

Code 128 Bar Code Fields

Code 128 bar codes use four characters to perform special functions. To use the function characters in a bar code, imbed the corresponding sequence (preceded by a tilde (~)) in the bar code’s data (you specify the data with the ^P or ^R command). For example, suppose your data is 1234. You might enter 123~2034 to use function 4.

Function 1 Char. Sets: A, B, C Enter: ~200

If ~200 occurs in position 1 or 2 of the data, the scanner treats the data as fitting the UCC standard. If ~200 occurs in any other position, the scanner treats it is a field separator.

Function 2 Char. Sets: A, B Enter: ~201

If the scanner reads ~201 anywhere in the data, it stores the data temporarily and prefixes it to the data in the next Code 128 bar code it reads.

Function 3 Char. Sets: A, B Enter: ~202

If the scanner reads ~202 anywhere in the data, it treats the entire bar code as instructions to program the scanner.

Function 4 Char. Sets: A, B Enter: ~203

Character sets A and B consist of characters 0-127 of the ASCII chart. However, using function 4, you can access characters 128-256. For example, the character “a” is ASCII 97. By preceding “a” with ~203 in your data, you change the “a” to ASCII 225 (97+128). A single ~203 shifts only the next character. Two ~203’s shift the data until the end of the bar code or until another two ~203’s appear.

Line Fields

The lines you print can be vertical or horizontal. You can also create boxes. See “Creating a Box Field” in Chapter 3 for more information.

Thick lines use more battery power during printing.

Graphic Fields

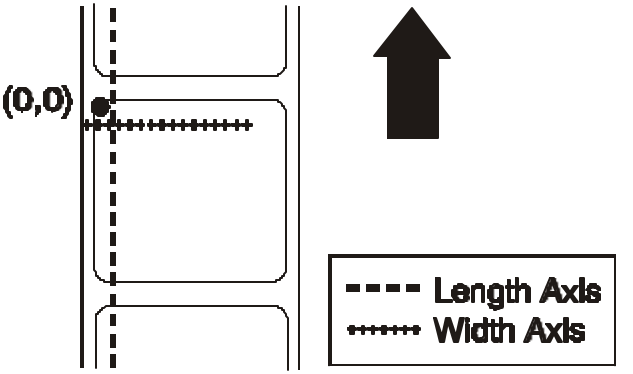
You can print graphics, such as a logo, on your labels. Using almost any PC drawing program, create graphics and save them as black and white .PCX files. Graphics remain in printer memory until you delete them.

See “Library Management (^l)” in Chapter 3 to learn how to download or delete graphics.

Dark cells of graphics cannot exceed 20 percent of a tag or label or 50 percent of any square inch of the tag or label.

Positioning a Field on a Format

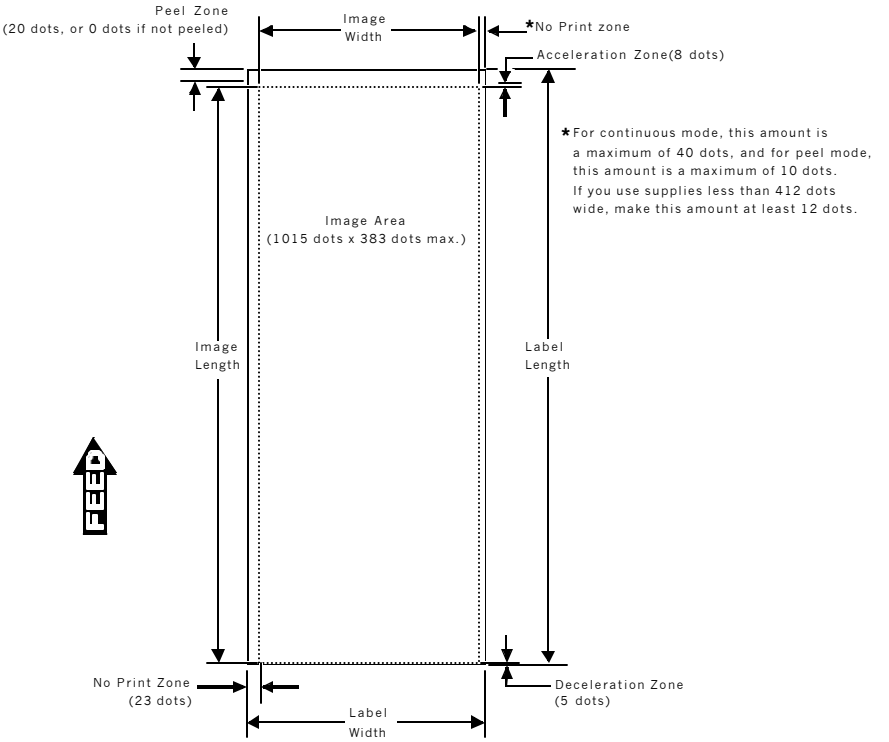
You use a coordinate system to place a field on a format. The following diagram shows this system.



The (0,0) coordinate is the upper left-hand corner of the format. For example, to position a field at (40,30) move 40 dots to the right of (0,0) and 30 dots down.

The maximum length of a format is 1015 dots (5 inches). The maximum width of a format is 383 dots (1.89 inches). Use supplies up to a maximum of 2.05 inches (416 dots) wide. Contact Monarch if you have special label requirements.

There are limitations to where you can place fields. The following diagram shows these limitations.



Specifying Field Data

For fixed data, specify the data when you define the field with the **^R** command. For variable data, specify the data when you print the format with the **^P** command.

For example, you would specify a field containing the store name with the **^R** command because the store name does not change from batch to batch. However, you would specify a field containing a price with the **^P** command because the price may change with each batch.

Using the Printer Library

The printer has a library where it stores

- formats
- fields
- fonts
- graphics.

By using this library, you can easily create your formats. For example, suppose you have a graphic you want to appear in several formats. Download the graphic once. Then, use the graphic in as many data streams as you want. Use the **^I** command to request an inventory of the library. To add or delete items from the library, use the following commands.

Command	Function
^T	Adds or deletes formats.
^R	Adds or deletes fields.
^I	Adds or deletes graphics.
{W	Adds fonts.
^I	Deletes fonts.

See Chapter 3, “Command Reference” for information about these commands.

COMMAND REFERENCE

3

This chapter describes the RCL commands in detail, and they appear in alphabetical order. Following is a summary of each command.

Command	Description
^A	**Change Communication Parameters** Changes the printer's baud rate, parity, word length, and flow control.
^C	**Clear Error Status** Clears batch errors from memory.
^F	**Delete Batches** Deletes all batches or only the current batch from the printer.
^L	**Set Supply Length** Specifies the type of supply in the printer and where data prints vertically on the label.
^l* (*lower-case L*)	**Library Management** Adds or deletes graphics, deletes fonts, formats, and fields from the printer library, or takes inventory of the printer library.
^O	**Select Printer Operation Mode** Sets the printer to on-demand or continuous dispense mode.
^P	**Print** Specifies batch data and prints a specified number of labels.

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Command	Description
^R	**Define Field** Defines or deletes a field from the printer library.
^S*	**Request Printer Status** Returns the printer's status to the data collection terminal.
^s	**Sleep Mode** The 9460 printer ignores this command.
^T	**Define Format** Creates or deletes a format.
^tavg	**Adjust Print Contrast** Darkens or lightens the print by a specified percentage from the printer's *default* (not current) setting.
{W**	**Font Download** Sends a font to the printer from the host.

* These commands sometimes request a response from the printer. To learn more about printer responses, see Chapter 4, "Response Reference."

** This command does not use a ^ character.

The following pages provide descriptions and syntax for each command. See Appendix A, "RCL Samples" for data stream samples.

Syntax Conventions

Following is the structure of an RCL command. This general syntax does not apply to the **{W** command.

Each command (except {W) begins and ends with a caret character (^). A split vertical bar (¦) separates each field in the commands.

^Cmd_id¦field_1¦...¦field_n¦^space comment

Field	Description
^	Starting token.
cmd_id	Command identifier.
field_1 ... field_n	Fields supplying information to the command. Not all commands have these fields. When you need to use the following characters in these fields, substitute the corresponding sequence instead. **Character** — **Sequence** Split vertical bar (¦) — ~124 Caret (^) — ~094 Left Brace ({) — ~123 Tilde (~) — ~126 Sometimes the instructions say to leave the field blank. To do so, enter only a split vertical bar.
^	Ending token.
space	A space character (required if you specify a comment).
comment	*Optional.* Enter any comment between this point and the end of the line.

All RCL commands (except {W and ^P) must fit on one line. Sometimes they appear on two lines in this manual due to space limitations.

Change Communication Parameters (^A)

Use this command to change the printer's

- baud rate
- parity
- word length
- flow control.

The printer always uses one stop bit. The new values take effect immediately.

The parameters you set with this command override the values specified in the printer's online setup. Although the online setup may offer more choices for these parameters, the values listed here are recommended for RCL data streams.

Always change the communications parameters on the printer before the host. If you change the host's parameters first, you must change the printer's parameters online (rather than using this command). See the Operator's Handbook for more information.

Syntax

^A¦baud_rate¦parity¦word_length¦flow_control¦^

baud_rate	**2**	1200
	3	2400
	4	4800
	5	9600
	6	19200
	7	38400*
		*On some printer/terminal systems, 38400 may not be a reliable baud rate. If you have problems, lower the baud rate.
parity	**N**	None (use only for word_length 8)
	E	Even (use only for word_length 7)

word_length	**8**	8 bits (use only for N parity)
	7	7 bits (use only for E parity)
flow_control	**X**	XON/XOFF
	C	RTS/CTS
	D	DTR

If you change the flow control from DTR to XON/XOFF, the printer sends an XON character after it reconfigures the serial port.

If the flow control parameters for the host and printer do not match, and you try downloading data streams to the printer, they will work, but eventually you will receive an overrun error.

Example

^A¦5¦N¦8¦X¦^

This command configures the printer for 9600 baud, no parity, an 8-bit word length, and XON/XOFF flow control.

Clear Error Status (^C)

The Clear Error Status command clears batch errors from memory. In general, batch errors involve software problems (e.g., invalid commands or bad data). Correct the error, send this command (or press the left-hand ⓐ key) and continue operation.

System errors involve hardware or operation problems (e.g., low battery, out of paper). The printer clears system errors automatically when you correct the condition.

See "Status Flags" and "Clearing Status Bits" in Chapter 4, “Response Reference” for more information.

Syntax

^C¦^

Delete Batches (^F)

The Delete Batches command removes the current batch after it prints the next complete label or removes all batches immediately. To remove the current batch manually, press the left-hand ▲ key for 3-5 seconds.

Syntax

^F¦function¦^

function	**A**	Remove all batches
	C	Remove the current batch

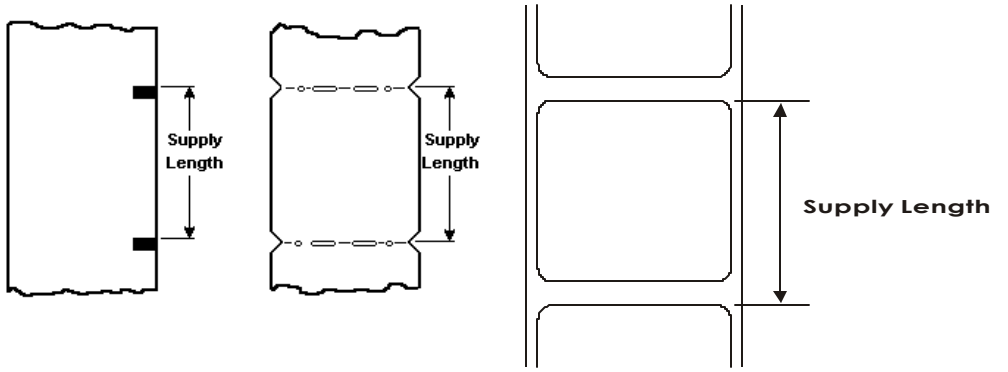
Example

^F¦A¦^

This command removes all batches from the printer.

Set Supply Length (^L)

The Set Supply Length command sets the type of supply you are using and defines where data prints vertically on the form. It also prints a blank label. The following diagrams illustrate how supply length is determined on various types of supplies.



Syntax

^L¦supply_type¦vertical_pos¦^

supply_type The type of supplies you're using.

F Indexed (black mark)
C Non-indexed (no black mark)

vertical_pos The printer ignores this parameter.

Example

^L¦F¦X¦^

This command informs the printer it is using indexed supplies. It also prints a blank label.

Library Management (^l)

The Library Management command

- adds black and white .PCX graphics to the printer library.
- deletes all graphics, fonts, formats, and fields from the printer library. You must delete a font library before replacing it.
- takes inventory of the printer library. The printer responds with the Library Inventory response described in Chapter 4, “Response Reference.”

The letter for this command is a lower-case L, not the number one.

To download a graphic, use any communications program. For example, if you use the DOS MODE and COPY commands, you would:

1. Set your PC communication parameters and serial port with the MODE command.
2. Download the ^l command to the serial port using the COPY command.
3. Download the .PCX file to the serial port. If you use COPY, include the /b switch.

When downloading a graphic, do not interrupt the previous procedure or send a graphic that exceeds the space allotted. Either of these conditions may lock the printer. To unlock the printer, turn it off and then on again.

Syntax

^I¦function¦memory¦identifer¦mem_req¦^

function
- **A** Add a graphic.
- **D** Delete all graphics, fonts, fields, or formats.
- **I** Take inventory.

memory If **function** is A, enter R (printer RAM). Otherwise, leave this field blank (but remember to include the split vertical bar).

identifier The graphic identifier. Enter $ to delete all graphics or fonts. If **function** is I, leave this field blank (but remember to include the split vertical bar).

mem_req If **function** is A, enter the amount of memory for the graphic in bytes. Use the value listed for the file when you use the DOS DIR command.

If the **function** is D, enter either A (to delete all fonts and graphics) or G (to delete all graphics, fields, and formats).

Example

^I¦A¦R¦H¦5734¦^

This command specifies the header information for graphic H, which is 5734 bytes long. After receiving this command, send the graphic file to the printer.

Select Printer Operation Mode (^O)

The Select Printer Operation Mode command sets the printer to print and feed

- continuously (without pause) until the end of the batch.
- on-demand, or one at a time. The user must press ⓕ to print each label.

Continuous mode is the default print mode. After the printer mode has been changed, the printer stays at that mode until it is changed again.

Syntax

^O¦mode¦^

mode	**C**	Continuous mode
	D	On-demand mode

Example

^O¦D¦^

This command sets the printer to on-demand mode.

Print (^P)

The Print command prints a batch of labels using a specified format.

If the printer battery loses power, replace the battery. The printer remembers the last batch. However, if you replace the battery without power loss, you'll lose the batch.

Syntax

^P¦identifier¦quantity¦field_1¦...¦field_n¦^

identifier The format identifier. Enter any of the following characters: 0-9, A-Z, a-z, :, ;, <, =, >, ?, @, [, \,], -, and ‘.

quantity The number of labels to print (1 to 9999). If you are using on-demand mode, the **quantity** must be two or greater.

field_1 ... field_n The data for each field in the format. Provide data in the same order as the format definition. Text fields can contain up to 200 characters.

To make your data streams more readable, put a carriage return and/or line feed after each ¦ character. For example

```
^P¦A¦10¦
Field 1¦
Field 2¦
Field 3¦^
```

Carriage returns and line fields are also valid characters to include in a field's data.

Example

^P¦1¦1¦ACME HARDWARE¦43373737376¦^

This command prints one label using format 1, which contains two fields. Field 1 is ACME HARDWARE, and field 2 is 43373737376.

Define Field (^R)

The Define Field command specifies information the printer must know about a field. In defining the location of this field, determine where the upper-left corner of the field is.

A field definition stays in the printer until you erase it with this command. You can store a maximum of 30 field definitions in the printer and use up to 30 fields per format. The printer discards definitions overflowing into unavailable space.

You can use a field in multiple formats.

Syntax

^R¦identifier¦function¦w-coord¦l-coord¦width¦length¦
txtfld_type¦rotation¦justification¦field_type¦mul_1¦mul_2¦prt_attrib¦
data_attrib¦fixed_data¦^

The syntax for this command is spread over three lines due to space limitations in this manual. In an actual data stream, the command must fit on one line.

---

identifier The field identifier. Enter any of the following characters: 0-9, A-Z, a-z, :, ;, <, =, >, ?, @, [, \,], -, and ‘. For more readable data streams, Monarch recommends that you use only alphanumeric characters. You cannot change this identifier after you create the field.

To delete all fields and formats, enter $.

If you want to add a field with the same identifier as an existing field, delete the existing field first.

function

R	Add
DR	Delete

Use the following parameters only when **function** is R.

w-coord The point along the width axis where the field starts (10 to 383). The value you enter is a measurement (in dots) from the left side of the supply to the point (as the feed direction points away from you).

W-coord and **l-coord** specify the upper-left corner of the field.

l-coord The point along the length axis where the field starts (1 to 1015). The value you enter is a measurement (in dots) from the bottom of the supply to the point (as the feed direction points away from you).

width The width of the field in dots (1 to 383).

The sum of **w-coord** and **width** may not exceed 383, which is the width of the printhead.

length The length of the field in dots (1 to 1015).

The sum of **l-coord** and **length** may not exceed 1015. If the field is a bar code, enter at least 46 for a scannable bar code.

For the field to print, **length** must be at least the cell height of the font you use. See Chapter 2, "Fields and Formats," for the cell heights. For a bar code, the minimum height is 16 dots. (A dot is 1/203rd of an inch.)

txtfld_type **Text fields only.** The size type of the data for the field. Enter **0** (fixed length field).

rotation **Text and bar code fields only.** The rotation of data within the field. Rotation occurs in a counterclockwise direction using the lower-left corner of the field as an anchor.

0 0-degree rotation
1 90-degree rotation

justification **Text fields only.** The placement for the data in the field. For non-text fields, enter **0**.

0 Left Justification
1 Centered
2 Right Justification

Monarch recommends that you use left justification for incrementing and decrementing fields.

field_type The field type identifier.

A Lines
a UPCA
b UPCA+2
c UPCA+5
d UPCE
e UPCE+2
f UPCE+5
g EAN13
h EAN8
j EAN13+5
k Code 39
l Interleaved 2 of 5
m Codabar
n Code 128 set A
o Code 128 set B
p Code 128 set C
q MSI
E-Z Graphics
1-16 Font Identifier

For information about Code 128 bar codes and resident text identifiers (fonts), see Chapter 2, “Fields and Formats.”

mul_1 The first multiplier of the field. The meaning of this field depends on the field type.

Text	Width multiplier of the font. **1** Multiply by 1 **2** Multiply by 2 **3** Multiply by 3 **4** Multiply by 4
Bar code	Narrow element (thin line) width of the bar code (**1-8**).
Line	Enter the line thickness in dots (**1-10**).
Graphic	Enter **0**.

mul_2 The second multiplier of the field. The meaning of this field depends on the field type.

Text	Height multiplier of the font. **1** Multiply by 1 **2** Multiply by 2 **3** Multiply by 3 **4** Multiply by 4
Bar code	Wide element (thick line) width of the bar code. **0** UPC, EAN, and Code 128 bar codes **2-16** All other bar codes
Graphic or Line	Enter **0**.

prt_attrib The printing attributes. The meaning of this field depends on the field type.

Text	**0** Black characters on white **1** White characters on black Printing white characters on black drains the printer battery quickly. Monarch recommends that you do not choose this option for incrementing or decrementing fields.
Bar code	Height of the bar code in dots (**16-406**). A dot is 1/203rd of an inch.
Graphic or Line	Enter **0**.

data_attrib The field attributes.

0 The field is a line, graphic, or a variable text or bar code that neither increments nor decrements.
1* The field data never changes (text).
2*# Incrementing field (text or bar code).
3* Decrementing field (text or bar code).

* These fields require you to enter something in the fixed_data field.

Do Not use an MSI bar code with an incrementing text field. This combination may cause the check digit on the MSI bar code to be incorrect.

fixed_data If the field never changes, enter up to 200 bytes of data in this field. Or, if it is an incrementing or decrementing field, enter the starting number in this field. Otherwise, leave it blank (but include the split vertical bar).

If you enter something in this field, when you print the format with the ^P command, leave the part (for data) corresponding to this field blank. Be sure to include the split vertical bar to delimit the field.

Except for the single incrementing or decrementing field per format, you cannot use this field for a bar code.

To create a new line, use carriage return and/or line feed.

Example

^R¦1¦R¦50¦50¦10¦35¦0¦0¦0¦10¦4¦4¦0¦0¦¦^

This command defines a field that is at point (50,50) and is 10 dots wide and 35 dots long. This field is fixed, left justified, and not rotated. Also, this field uses font 10 and is 4 times as wide and high than normal.

Creating a Box Field

A box is a special field. To create one, use the ^R command, except you follow this procedure, too.

1. Enter **A** for field_type.

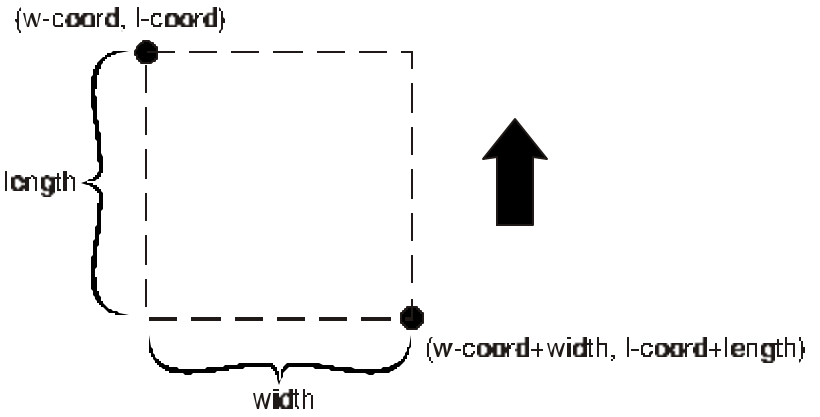
2. Choose the coordinates for the upper-left corner of the box. For example, if you choose (20,30), the corner would be 20 dots to the right and 30 dots down from the upper-left corner of the format. Enter those values for **w-coord** and **l-coord**. For example, enter 20 for **l-coord** and 30 for **w-coord**.

3. Choose the coordinates for the lower-right corner of the box. For example, if you choose (50,70), the corner would be 50 dots to the right and 70 dots down from the upper-left corner of the box.

4. Calculate the difference between the first coordinates of each corner and the difference between the second coordinates of each corner. Enter the results of your calculations in **width** and **length**, respectively. For example, enter 30 for length (50 - 20), and 40 (70 - 30) for width.

Neither **width** nor **length** can be zero.

The following diagram explains the relationship between the fields you use.



Request Printer Status (^S)

The Request Printer Status command asks the printer for its current state. The printer responds with the Status response described in Chapter 4, “Response Reference.”

Syntax

^S ¦ ^

If the printer has a low battery or the receive buffer is full, you can still receive the Status response by sending an ENQ character (hexadecimal 5) to the printer.

Sleep Mode (^s)

The 9460 printer ignores this command.

Define Format (^T)

The Define Format command creates or deletes a format. A format definition stays in the printer until you erase it with this command.

You can store up to 15 format definitions. The printer discards definitions overflowing into available space.

Syntax

^T¦identifier¦function¦width¦length¦field_1¦...¦field_n¦^

identifier The format identifier. Enter any of the following characters: 0-9, A-Z, a-z, :, ;, <, =, >, ?, @, [, \,], -, and ‘. Monarch recommends you use only alphanumeric characters in this field.

If you want to use the same identifier as a format already in the printer, delete the format in the printer first.

function
- **R** Add format
- **DR** Delete format

Use the following parameters only when function is R.

width The format width in dots (1-383). A dot is 1/203rd of an inch.

length The format length in dots (1-1015).

field_1... field_n A list of up to 30 field identifiers used to print this label. These identifiers are from the **identifier** field of the ^R command. List them as they appear from top to bottom on the format. You can list fields appearing side-by-side in any order. If the fields are not in order, an error occurs.

Example

^T¦1¦R¦380¦380¦1¦2¦3¦4¦7¦5¦6¦^

This command defines format 1 and stores it in RAM. The dimensions are 380 dots wide by 380 dots high, with fields 1 through 7.

Adjust Print Contrast (^tavg)

The Adjust Print Contrast command lightens or darkens the print by a specified amount.

Syntax

^tavg¦direction¦amount¦^

direction Adjustment direction.
+ Darkens the print
- Lightens the print

amount Adjustment amount. If you're darkening the print, enter a number from 1-35. If you're lightening the print, enter a number from 1-15. To return the print contrast to the default setting, enter 0.

Example

^tavg¦+¦35¦^

This command darkens the print to a value of 35.

Font Download ({W)

The Font Download command sends information about new fonts to the printer.

If you download a font that is greater than 64K, the printer will reject the download.

This command is only for new fonts. If you want to download a font using a number of an existing font, you must delete the existing font first. The standard fonts that the printer comes with are described in Chapter 2, “Fields and Formats.”

Contact your sales representative to obtain new fonts for the printer or to see if any fonts you have will work with the printer.

Be sure to always back up your fonts.

Syntax

```
{W,identifier,A,R,mem-req|
font_data|
}
```

This command starts with a **{** character and ends with a **}** character, instead of using the **^** character in both places, as the other commands do.

---

identifier The font identifier.

mem-req **One-sixteenth** of the memory (in bytes) needed to save the font image. For example, if the font requires 1600 bytes, enter 100. This value ranges from 0 to 2048.

font_data The data representing the font images.

RESPONSE REFERENCE

4

The printer sends two different responses, depending on your request.

- Status Response (Printer Status Request)
- Library Inventory Response (Inventory Request)

These responses appear on your host. See the following sections for more information.

Syntax Conventions

Printer responses have the following structure.

\response_ltr¦field_1¦...¦field_n¦\

Field	Description
\	Starting token for a response.
response_ltr	Response identifier letter.
field_1 ... field_n	Information fields.
\	Ending token for a response.

The printer separates the information fields with a split vertical bar (¦).

Status Response (\S)

The printer responds to the Request Printer Status (**^S**) command with the Status response. See “Status Flags” in this chapter for more information.

If the battery is low or the receive buffer is full, you can still receive the Status response by sending an ENQ character (hexadecimal 05) to the printer.

Syntax

\S¦0¦version¦status_flag_1¦status_flag_2¦status_flag_3¦ last_batch¦\

version	The software version.
status_flag_1, status_flag_2, status_flag_3	Three status flags, each represented by a byte. Because each bit in these bytes represents a different error, you must translate the bytes into a bit string to determine the status of the printer. For example, you might receive @ for status_flag_1, which translates to 01000000. By consulting "Status Flags" in this chapter, you see this means there are no errors.
last_batch	Two bytes in the format **P*x***, where *x* is the identifier of the format used in the last batch. The identifier is a space if you haven't run any batches since you powered on or reset the computer.

Example

\S¦0¦1.0¦@¦@¦@¦P1¦\

This response indicates the printer is running version 1.0 software, and no errors occurred in the batch that used format 1.

Status Flags

There are three status flags. Each flag is a byte long, and each bit of the flag specifies a different error.

Status Flag 1

The following table describes the meaning of each bit in status flag 1.

Bit	Description
7	0 (constant).
6	1 (constant).
5	0 (constant).
4	**General Printer Status** Describes if the printer is working correctly (0) or an error occurred (1).
3	0 (constant).
2	**Supply Feed Status** Describes whether the supplies are loaded (0) or not (1).
1	**Printhead Status** Describes whether the printhead is working correctly (0) or it has bad dots or a driver problem (1).
0	**Power Status** Describes whether the power is okay (0) or there is a low battery or other power supply problem (1). A low battery condition occurs when the battery voltage falls below 7 volts. When this problem occurs, you can use only the ENQ character to request the printer's status.

Status Flag 2

The following table describes the meaning of each bit in status flag 2.

Bit	Description
7	0 (constant)
6	1 (constant)
5	0 (constant)
4	0 (constant)
3	0 (constant)
2	0 (constant)
1	0 (constant)
0	0 (constant)

Status Flag 3

The following table describes the meaning of each bit in status flag 3.

Bit	Description
7	0 (constant)
6	1 (constant)
5	**Command Status** Describes whether the last command downloaded to the printer was successful (0) or not (1).
4	0 (constant)
3	0 (constant)
2	0 (constant)
1	0 (constant)
0	**Supply Status** Describes whether the printer can see a sense mark on the supplies (0) or not (1).

Status Flag Examples

This section gives examples of the status flags under various conditions. These examples do not cover all cases. Going left to right, these bit strings list bit 7 to bit 0. Each example lists

- the bit string for each flag.
- the ASCII character corresponding to the bit string.

Condition: Ready to print, no previous errors.

Flag 1	01000000	@
Flag 2	01000000	@
Flag 3	01000000	@

Condition: Invalid command.

Flag 1	01010000	P
Flag 2	01000000	@
Flag 3	01100000	,

Condition: Out of paper.

Flag 1	01010100	T
Flag 2	01000000	@
Flag 3	01000000	@

Condition: There is a problem with the printhead.

Flag 1	01010010	R
Flag 2	01000000	@
Flag 3	01000000	@

Condition: The battery or power supply is low and the printer is currently printing.

Flag 1	01110001	Q
Flag 2	01000000	@
Flag 3	01000000	@

Clearing Status Bits

When you correct printhead, paper out, temperature, or voltage errors, the printer clears the status bits automatically. You must clear the other status bits with the Clear Error Status (**^C**) command or by pressing the left-hand ⓐ key. For more information, see "Clear Error Status (^C)" in Chapter 3.

Library Inventory Response (\ll)

The printer responds to an inventory request from the Library Management (**^I**) command with the Library Inventory response.

Syntax

\ll¦report¦\

report A report describing the contents of the printer library. This report appears on the printer's screen and lists the amount of free and used memory (for fonts and graphics), and the formats, fields, fonts, and graphics stored in the printer.

Example

```
\ll¦mem used: n/a
mem free: n/a
templates: 1,D,e,@
print regions: 5,G,j,{
fonts: 1:1000,2:1001,3:1003,16:16
graphics: E,F,H
¦\
```

This response specifies that the printer contains four formats (1, D, e, and @), four fields (5, G, j, and {), four fonts (1, 2, 7, and 16), and three graphics (E, F, and H).

TROUBLESHOOTING 5

This chapter explains how to reset the printer, call Technical Support, and gives explanations of your printer's errors. The errors are classified by type and are listed in order. Call Technical Support if you receive any error message not listed in this chapter.

If you have trouble loading supplies or performing maintenance, refer to your Operator's Handbook.

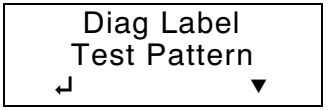
Follow the directions provided with the error description to correct the problem. If you cannot clear an error, turn off the printer, wait several seconds and then turn on the printer. Call Technical Support if you receive any error message not listed in this chapter.

To clear a data error, press the left ▲ button. If a formatting error occurs, the label prints, but data may be missing.

Printing Diagnostics Labels

From the Diagnostics menu, select Printer. You will see:

1. From the Printer menu, select Test Label. You will see:



2. From the Test Label menu, select Diag Label. The diagnostic label prints and you return to the Test Label menu. The diagnostic label shows the printer's configuration, as well as the model number and software version number.

See the Operator's Handbook to learn how to print two other types of diagnostics labels: the test pattern and the grey scale.

Reading the Diagnostic Label

Following is the diagnostic label:

```
M9460 – v. 1.0
1. Mode – Indexed
2. Baud Rate - 9600
3. Comm – 8, None, 1
4. Flow Control - DTR
5. Sleep – n/a
6. Print Contrast - +35
Print Total - 00000335
Resident Font ID's -
1,2,16
```

The label lists the mode, communication parameters, print contrast setting, the number of inches printed and the fonts resident in the printer. (Sleep mode is not applicable.)

Resetting Printers

Sometimes the printer receives mixed signals and loses its ability to communicate. If this happens, reset the printer and attempt communication again. To reset the printer, turn off the printer, wait 15 seconds, and turn it back on.

When you turn off the printer, all the information set through the online configuration packets (A-M) is saved. See the sections in Chapter 2, "Configuring the Printer," for more information about each packet.

If You Receive an Error Message

Any time you receive a message that is not described in this manual, or the recommended action does not solve the problem, call Technical Support.

If the PC and Printer Aren't Communicating

If your PC is having trouble communicating with your printer, follow these steps:

1. Check any messages that occur at the printer and at the computer. See the following error message listing in this chapter for more information.
2. Make sure you are using the correct printer cable.
3. Make sure the cable is plugged into the correct port on the computer.
4. Compare your printer's communications settings (especially flow control) with the settings on your PC. Your printer and PC communications should match. Print the diagnostics labels to identify the printer's communications settings.
5. Make sure the printer is online (ready to receive data).

If all of the above are correct, reset your printer. Try the function again. If you still can't establish communications, call Technical Support.

Calling Technical Support

Follow these steps before you call:

1. Make sure your PC and printer are properly connected.
2. Record any error messages that occurred.
3. Try to recreate the problem, if you can.
4. Check your port settings. Your problem may be corrected simply by changing the communication settings.
5. List any changes that have recently been made to the system. Try to record what you did when the problem occurred.
6. Reset your printer. For information on resetting your printer, see "Resetting Printers."
7. Reboot your computer. Refer to your computer documentation for specific instructions.

If these steps do not solve the problem, call Technical Support at the number listed on the back of this manual.

Have the following information ready before you call:

- computer brand name and software, or terminal brand name and model
- Monarch printer model
- printer serial number
- support agreement, contract number, or invoice information
- customer number

General Errors

General errors indicate that incorrect data was received from the host. After checking the packet and correcting the problem, transmit the print job again.

Error Code	Description
400	The character immediately following **{** is invalid.
404	The number or string that is currently being processed is too long.
409	The printer memory is full. Delete unnecessary formats or graphics from memory. If you are using a graphic file that is very large, consider using another mapping method (such as run length encoding) to reduce the required memory.
410	Parity on the printer does not match the parity on the host. Check the parity setting under SETUP options.
411	Framing error. The printer cannot communicate with the host. Make sure the host is turned on, communication cables are connected correctly, port settings are correct, and communications are active. Check the baud rate, word length, and stop bits to make sure they match those at the host. Do not toggle between Microsoft® Windows® and MS-DOS™ while using the COPY command, or you will receive a framing error. Exit Windows **before** using the COPY command. Re-transmit the data.
412	There is a problem with flow control between the printer and the host. Make sure the printer and the host flow control settings match (both are DTR or both are XON/XOFF). If the error persists, call Technical Support.
413	Online receive queue is full. Check your printer's XON/XOFF or DTR SETUP values to be sure there isn't a flow control problem.
414	The internal keyboard buffer is full or you need a new keypad. Call Technical Support.

Continued on the next page

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Error Code	Description
415	The buffer size you defined exceeds the total available in your machine.
611	Font, bar code or density is invalid. The font, bar code or density in the batch does not fit the format.
614	Portion of field off tag. There may be an invalid character in the packet. Make sure you did not enter O for zero.

Machine Faults

Machine faults occur when there is a problem with the printer.

Error Code	Description
750	Printhead is overheated. Turn off the printer to let the printhead cool. If the error persists, call Technical Support.

For errors 751-753, Check the

- supply tracking
- supply marks
- black mark sensor position
- supply roll for binding.

If the error continues to appear, change the supply.

751	Printer did not sense a black mark when expected. The supply may be jammed.
752	Printer sensed a mark in the wrong place.
753	Printer sensed a mark that is too long.

756	The printer is out of supplies. Load supplies.
757	Load supplies. The calibrated supply length differs by plus or minus .25 inches from the format.
758	Check supply. Either the supply is not seen, or the on-demand sensor is broken. Check for a label jam. Clear the supply path or reload supplies. This error may occur if you remove a label too quickly in on-demand mode. The printer does not recalibrate after this error.
762	Low battery. Recharge the battery.
765	Printhead failure. You need a new printhead.
768	Printhead has more than 10 bad dots or is not connected.

If you receive error 765 or 768, you can get the printer repaired if you have an on-site maintenance agreement. If you do not have an agreement, return the printer to Monarch as described later in this chapter.

790	The printer is busy. Turn off the printer. Wait two seconds and turn it back on. Resend the packets. If the problem continues, call Technical Support.
791	The printer has an error pending. Turn off the printer. Wait two seconds and turn it back on. Resend the packets. If the problem continues, call Technical Support.

Flash Memory Errors

The following errors occur when a problem occurs with the printer's flash memory.

Error Code	Description
800	A directory in flash memory is full.
801	Flash memory is full. Re-flash the printer.
802	A directory in flash memory cannot be found.
803	There is no directory in flash memory.
810	A file in flash memory is not open.
811	A file in flash memory is already open.
812	The file in flash memory is full.
813	You cannot access flash memory.
820	An error occurred in the flash program.
821	An error occurred while erasing flash memory.
822	There is a flash ID error.

If you receive any of these errors (except 801), the printer needs to be serviced. Call 1-800-543-6650

Hard Printer Failure Errors

Call Technical Support if you receive any hard printer failure errors.

Error Code	Description
904	No memory for native layer.
907	Low RAM error.
909	RAM corrupted.
911	Version string mismatch.
SYSTEM ERROR VECTOR ##	## can be: **2** Bus Error **3** Address Error **4** Illegal Instruction **5** Zero Division **6** CHK, CHK2 Instructions **7** TRAP Instructions **8** Privilege Violation **9** Trace **10** Line 1010 Emulator **24** Spurious Interrupt **48** User-defined vectors (48-255) This error is fatal. If you receive it, reset and/or re-flash the printer. If the error persists, call Monarch at the number listed on the back of this manual for instructions. Return the printer to Monarch if they determine you should do so.

Returning the Printer to Monarch

To send the printer back to Monarch, use the original packaging (box and packing material) and include the documentation. Use the following address:

Monarch ERC
200 Monarch Lane
Door 39
Miamisburg, OH 45342

The warranty does not apply if you do not follow these instructions.

RCL SAMPLES

A

Use the sample data streams and formats in this section as models. There are samples for

- normal printing
- error recovery
- testing print contrast
- various formats.

The large numbers to the left of each command in this chapter identify the commands and are not part of the data stream.

Normal Printing

```
1  ^R¦$¦DR¦^
2  ^R¦1¦R¦10¦10¦370¦42¦0¦0¦0¦2¦1¦1¦0¦0¦¦^
3  ^R¦2¦R¦90¦50¦290¦60¦0¦0¦0¦a¦3¦0¦48¦0¦¦^
4  ^R¦3¦R¦10¦140¦290¦42¦0¦0¦0¦2¦1¦1¦0¦0¦¦^
5  ^R¦4¦R¦10¦200¦290¦42¦0¦0¦0¦2¦1¦1¦0¦0¦¦^
6  ^T¦1¦R¦300¦300¦1¦2¦3¦4¦^
7  ^P¦1¦1¦ACME HARDWARE¦43373737376¦Hammer¦$19.95¦^
```

This data stream

- deletes all existing fields and templates (command 1).
- defines fields (commands 2-5).
- creates a format with the fields (command 6).
- prints one copy of the format pictured below (command 7).

Error Recovery

```
1   ^S¦^
2   ^C¦^
3   ^F¦A¦^
```

This data stream

- requests the printer's status (command 1).
- clears the print error status bits from the status flags (command 2).
- removes all queued batches from the printer (command 3).

Testing Print Contrast

```
1   ^tavg¦+¦35¦^
2   ^P¦1¦1¦ACME HARDWARE¦43373737376¦Hammer¦$19.95¦^
```

This data stream

- darkens the print to a value of 35 (command 1).
- prints a label for you to see the new contrast setting (command 2).

It assumes you've already loaded the fields and format. The ^P command is for the format created in the "Normal Printing" sample in this appendix.

Format Sample 1

```
^R¦$¦DR¦^
^R¦1¦R¦20¦10¦300¦36¦0¦0¦0¦10¦1¦1¦0¦0¦¦^
^R¦2¦R¦20¦85¦200¦36¦0¦0¦0¦10¦1¦1¦0¦0¦¦^
^R¦3¦R¦20¦160¦200¦36¦0¦0¦0¦10¦1¦1¦0¦0¦¦^
^T¦1¦R¦384¦406¦1¦2¦3¦^
^P¦1¦1¦ITEM: JUMPSUIT¦SIZE: MEDIUM¦PRICE: $52.99¦^
```

This data stream prints the following label.

Format Sample 2

```
^R¦$¦DR¦^ DELETE ALL CURRENT FIELDS AND FORMATS
^R¦1¦R¦20¦10¦200¦35¦0¦0¦0¦10¦1¦1¦0¦0¦¦^ ITEM TEXT
^R¦2¦R¦160¦15¦200¦21¦0¦0¦0¦7¦1¦1¦0¦0¦¦^ ITEM FIELD
^R¦3¦R¦20¦85¦200¦35¦0¦0¦0¦10¦1¦1¦0¦0¦¦^ SIZE TEXT
^R¦4¦R¦160¦90¦200¦21¦0¦0¦0¦7¦1¦1¦0¦0¦¦^ SIZE FIELD
^R¦5¦R¦20¦150¦200¦35¦0¦0¦0¦10¦1¦1¦0¦0¦¦^ PRICE TEXT
^R¦6¦R¦160¦155¦200¦21¦0¦0¦0¦7¦1¦1¦0¦0¦¦^ PRICE FIELD
^T¦1¦R¦384¦406¦1¦2¦3¦4¦5¦6¦^ FORMAT DEFINITION
^P¦1¦1¦ITEM:¦BURGER¦SIZE:¦LARGE¦PRICE:¦$1.99¦^ PRINT
```

This data stream prints the following label.

Format Sample 3

```
^R¦$¦DR¦^
^R¦1¦R¦10¦10¦42¦370¦0¦1¦0¦2¦1¦1¦0¦0¦¦^
^R¦2¦R¦90¦90¦290¦60¦0¦0¦0¦a¦3¦0¦48¦0¦¦^
^T¦1¦R¦300¦300¦1¦2¦^
^P¦1¦1¦ACME HARDWARE¦43373737376¦^
```

This data stream prints the following label.

Format Sample 4

```
^R¦$¦DR¦^ DELETE CURRENT FIELDS
^R¦1¦R¦100¦10¦200¦31¦0¦0¦1¦1¦1¦1¦0¦0¦¦^
^R¦2¦R¦100¦200¦200¦31¦0¦0¦1¦1¦1¦1¦0¦0¦¦^
^R¦3¦R¦100¦250¦200¦31¦0¦0¦1¦1¦1¦1¦0¦0¦¦^
^T¦1¦R¦384¦406¦1¦2¦3¦^
^P¦1¦5¦ACE GROCERY¦Chicken Soup¦$1.95¦^
```

This data stream prints the following label.

Format Sample 5

^P¦1¦1¦Thrifty Cards & Gifts¦Greeting Card¦$1.25¦^

This data stream, which uses the format defined in sample 4, prints the following label.

PRINTER PIN OUTS

B

You use the printer with a host. The following table explains the printer's pin outs, so you can understand how the two devices are connected.

ANSI/EIA-232-D		
Contact #	**Circuit**	**Description**
6	CC	DSR (Data Set Ready)
1	CF	Received Line Signal Detector
4	CD	DTR (Data Terminal Ready)
5	AB	Signal Ground
2	BB	Received Data (RXD)
3	BA	Transmitted Data (TXD)
8	CB	Clear to Send (CTS)
7	CA	Request to Send (RTS)
9	CE	Ring Indicator

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1-800-363-7525 (In Canada)