

Bradyprinter™

200 **300**
MVP **MVP**

User's Guide



Customer order # 62296
Manufacturer part # 77965LB-12 Rev. 1

Proprietary Statement

This manual contains proprietary information of Brady Corporation. It is intended solely for the information and use of parties operating and maintaining the equipment described herein. Such proprietary information may not be used, reproduced, or disclosed to any other parties for any other purpose without the expressed written permission of Brady Corporation.

Product Improvements

Continuous improvement of products is a policy of Brady Corporation. All specifications and signs are subject to change without notice.

FCC Compliance Statement

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced Radio/TV technician for help.

NOTE: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance.

“The user is cautioned that any changes or modifications not expressly approved by Brady Corporation could void the user’s authority to operate the equipment.”

Canadian DOC Compliance Statement

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

Liability Disclaimer

Brady Corporation takes steps to assure that its published Engineering Specifications and Manuals are correct; however, errors do occur. Brady Corporation reserves the right to correct any such errors and disclaims liability resulting therefrom.

No Liability for Consequential Damage

In no event shall Brady Corporation or anyone else involved in the creation, production, or delivery of the accompanying product (including hardware and software) be liable for any damages whatsoever (including, without limitation, damages for loss of business profits, business interruption, loss of business information, or other pecuniary loss) arising out of the use of or the results of use of or inability to use such product, even if Brady Corporation has been advised of the possibility of such damages. Because some states do not allow the exclusion or limitation of liability for consequential or incidental damages, the above limitation may not apply to you.

Copyrights

This copyrighted manual and the label printers described herein are owned by Brady Corporation. All rights are reserved. Unauthorized reproduction of this manual or the software in the label printer may result in imprisonment of up to one year and fines of up to \$10,000 (17 U.S.C.506). Copyright violators may be subject to civil liability.

All products and brand names are trademarks of their respective companies. All rights reserved.

© 2001 Brady Corporation. All rights reserved.

DECLARATION OF CONFORMITY

I have determined that the Brady printer identified as the
Bradyprinter™ 200MVP and 300MVP

manufactured by:

Zebra Technologies Corporation

333 Corporate Woods Parkway
Vernon Hills, Illinois 60061-3109 U.S.A.

has been shown to comply with the applicable technical standards of the FCC

for Home, Office, Commercial, and Industrial use

if no unauthorized change is made in the equipment,
and if the equipment is properly maintained and operated.


Clive Kusner



For Technical Support Service, call us directly at **1-800-643-8766** or visit our web site: **<http://www.bradyid.com>**.

W.H. BRADY CO. CUSTOMER SERVICE FORM

This form should be completed in full before requesting technical assistance.

SERIAL # _____

MODEL # _____

(Be specific, include ALL letters and numbers)

COMPANY _____

ADDRESS _____

CITY _____

STATE, ZIP _____

PHONE # (_____) _____

CONTACT _____

Hours available for return call _____

Hardware Interface Type _____

Unit Interfaced with _____

Description of problem including actions taken just prior to problem occurring:



Table of Contents

<i>Welcome</i>	1
Hello!	1
Unpacking and Inspection.....	1
Reporting Damage	2
Storage	2
Media and Ribbon Requirements.....	2
Printer Power	3
Printer Overview	4
<i>Calibrating the Printer</i>	5
Purpose.....	5
Types of Media	6
Non-Continuous Web Media.....	6
Continuous Media.....	7
Non-Continuous Black Mark Media	7
Choosing the Print Mode	8
Loading the Media	8
Positioning the Media Sensor	9
Transmissive Sensor	9
Adjusting the Transmissive Sensor	9
Reflective Sensor	10
Adjusting the Reflective Sensor	11
Loading the Ribbon.....	12
Auto Calibration.....	13
Operator Controls.....	14
POWER Switch	14
Front Panel.....	14
Configuring the Printer	15
Configuring the Software of Printer Driver	16
Printing a Test Label	16

<i>Establishing Communication</i>	17
System Considerations	17
Interfaces	17
Data Specifications	17
Cabling Requirements	18
 <i>Printer Basics</i>	 19
Front Panel.....	19
Front Panel Display	19
Front Panel Keys	20
Front Panel Lights	21
Roll Media Loading.....	22
Tear-off Mode	22
Cutter Mode.....	23
Value Peel-off Mode	24
Liner Take-up Mode.....	26
Power Peel-off Mode	28
Power Rewind Mode.....	30
Fanfold Media Loading	32
Ribbon Loading	34
Loading the Ribbon	34
Ribbon Removal.....	36
 <i>Configuration</i>	 37
Entering the Setup Mode	37
Changing Password-Protected Parameters	38
Leaving the Setup Mode.....	39
Configuration and Calibration Sequence	40
 <i>Routine Care and Adjustments</i>	 55
Cleaning.....	55
Cleaning the Exterior	56
Cleaning the Interior.....	56
Cleaning the Printhead and Platen Roller	56
Cleaning the Sensors	57
Cleaning the Power Peel-Off Module	58
Cleaning the Value Peel-Off Module.....	59
Cleaning the Cutter Module	60

Lubrication	61
Printhead Pressure Adjustment	62
Power Rewind Media Alignment.....	64
Fuse Replacement	65
<i>Troubleshooting</i>	67
LCD Error Conditions and Warnings	67
Print Quality Problems.....	69
Communication Problems.....	71
Printer Diagnostics.....	73
Power-On Self Test.....	73
Additional Printer Self Tests	73
CANCEL Key Self Test	74
PAUSE Key Self Test.....	75
FEED Key Self Test	76
Loading Factory Defaults	77
<i>Specifications</i>	79
General Specifications	79
Printing Specifications	80
Ribbon Specifications	80
Media Specifications.....	81
Options.....	81
Zebra Programming Language (ZPL II).....	82
Bar Codes.....	82
AC Power Cord.....	83
Power Line Cord Specifications	83
<i>Warranty Information</i>	85
<i>BradyConnect License Agreement</i>	87
<i>Appendix</i>	91
Printer Interface Technical Information.....	91
Serial Data Communications	91
Parallel Data Communications	96
<i>Index</i>	97



Welcome

Hello!

- This user's guide provides all the information you need to operate your Bradyprinter™ 200MVP or 300MVP printer.
- The *ZPL II® Programming Guide Volume I and Volume II* shows you how to create the perfect label format for your application.
- The maintenance manual contains the information you need to maintain your printer.

Unpacking and Inspection

Carefully unpack and inspect the printer for possible shipping damage:

- Check all exterior surfaces.
- Raise the media access door and inspect the media compartment.

In case shipping is required, save the carton and all packing material.

Reporting Damage

If you discover shipping damage:

- Immediately notify the shipping company and file a damage report. *Brady Corporation is not responsible for any damage incurred during the shipment of the equipment and will not repair this damage under warranty.*
- Keep the carton and all packing material for inspection.
- Notify your local Brady distributor.

Storage

If you are not placing the printer into operation immediately, repackage it using the original packing materials. The printer may be stored under the following conditions:

- Temperature: -40° F to 140° F (-40° C to 60° C)
- Relative humidity: 5% to 85%, non-condensing

Media and Ribbon Requirements

Since print quality is affected by media and ribbon, printing speeds, and printer operating modes, it is very important to run tests for your applications.

- Continuous roll media, fanfold media, or card stock with optional perforations and registration holes may be used.
- Printhead life may be reduced by the abrasion of exposed paper fibers when using perforated media.
- The ribbon **MUST** be as wide as or wider than the media being used. If the ribbon is narrower than the media, areas of the printhead are unprotected and subject to premature wear. (When printing in direct thermal mode, ribbon is not used and should not be loaded in the printer.)

Printer Power

The power supply in the printer automatically detects the applied line voltage and works in the 90 to 265 VAC range.



WARNING: For personnel and equipment safety, always use a three-prong plug with an earth ground connection.



NOTE: If the power cord included is not suitable for your requirements, refer to “Power Line Cord Specifications” on page 83.

Refer to Figure 1.

The AC power cord connector must be plugged into the mating connector at the rear of the printer.

Make sure that the POWER switch is in the “off” position before connecting the power cord to an electrical outlet.

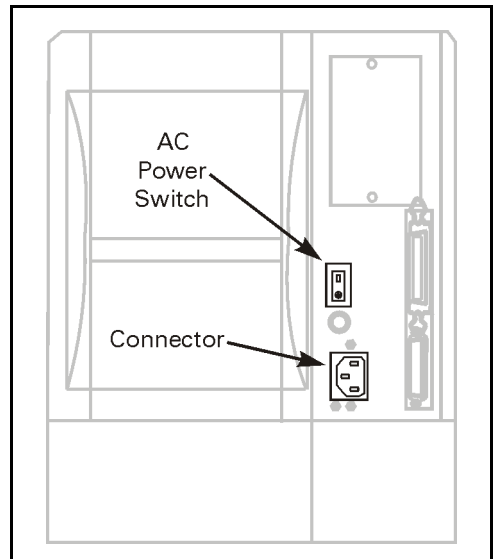


Figure 1

Printer Overview

Figure 2 outlines the basic components of your printer. However, depending on the options you have selected, your printer may look slightly different.

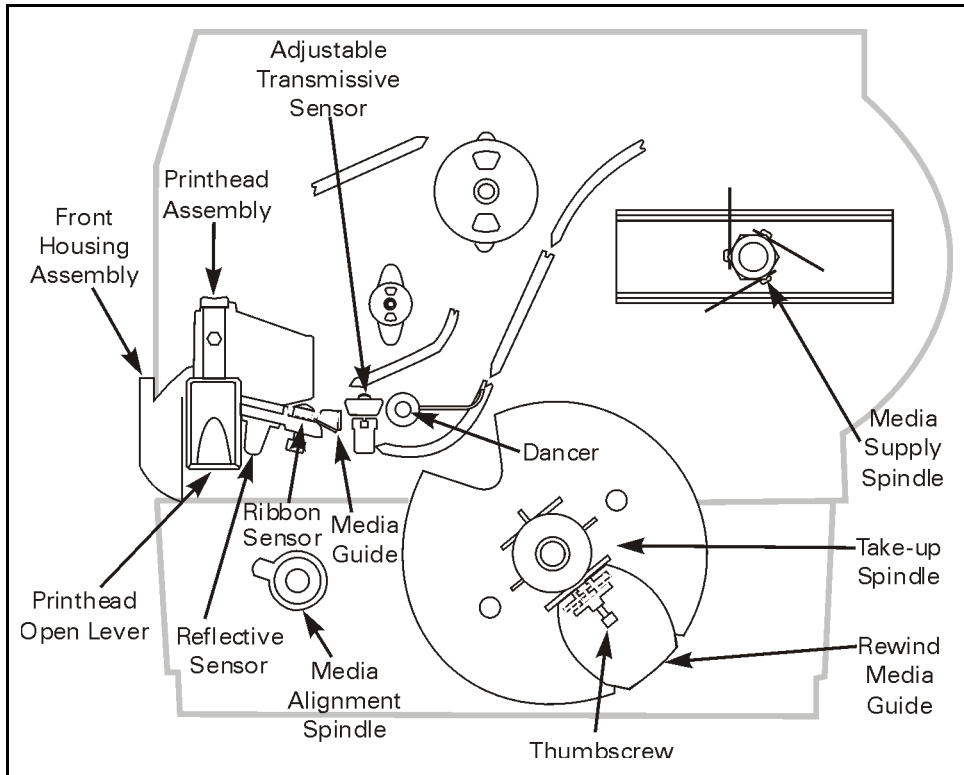


Figure 2

Calibrating the Printer

This chapter of the user's guide is *so* important that we've printed it on a different color paper! That way, it will be easy for you to find when you must calibrate (set up) the printer for your particular application.

Purpose

- To calibrate the printer.
- To verify that the printer is properly set up by printing a test label.



NOTE: This procedure must be performed when the printer is first installed or if it cannot properly detect the top of the label.

To calibrate the printer, perform the following procedures:

- Determine the **type of media** (labels) being used.
- Choose the **print method**.
- Position the **media sensor** (if necessary).
- **Configure the printer and software or driver** based on the label being used.
- Print a **test label**.

Types of Media

Non-Continuous Web Media

Non-continuous web media (refer to Figure 3) refers to individual labels that are separated by a gap, notch, or hole. When you look at the media, you can tell where one label ends and the next one begins.

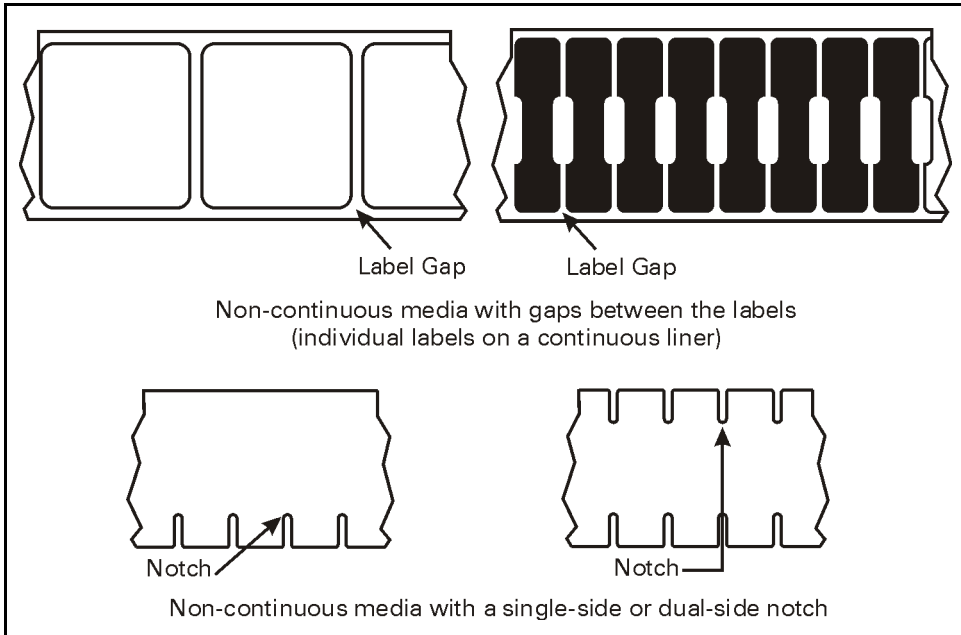


Figure 3

Continuous Media

Continuous media (refer to Figure 4) is one uninterrupted roll of material that allows the image to be printed anywhere on the label.

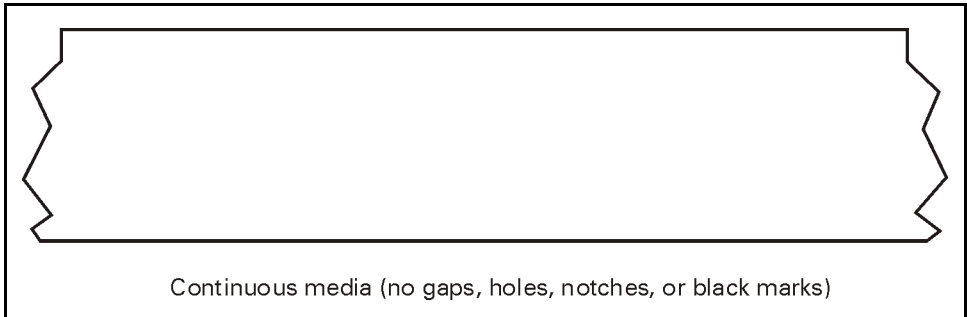


Figure 4

Non-Continuous Black Mark Media

Non-continuous black mark media has black marks printed on the back that indicate the start and end of each label (refer to Figure 5).

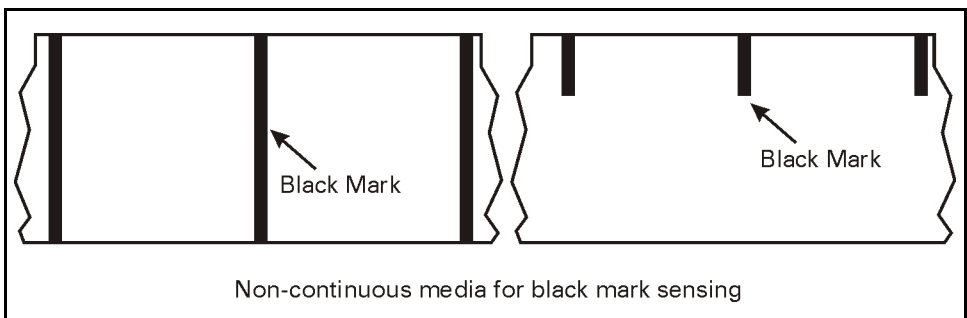


Figure 5

Choosing the Print Mode

- In **tear-off** mode, each label (or a strip of labels) can be torn off after it is printed.
- In **peel-off** mode, backing material is peeled away from the label as it is printed. After this label is removed from the printer, the next one is printed.
- In **cutter** mode, the printer automatically cuts the label after it is printed (only if optional cutter unit is installed).
- In **rewind** mode, the media and/or backing are rewound onto a core as the labels are printed (only if optional rewind unit is installed).

Loading the Media

Figure 6 illustrates one method of media loading. For more detailed instructions, as well as information about how to load the different types of media and the various printing modes, refer to the instructions that begin on page 22.

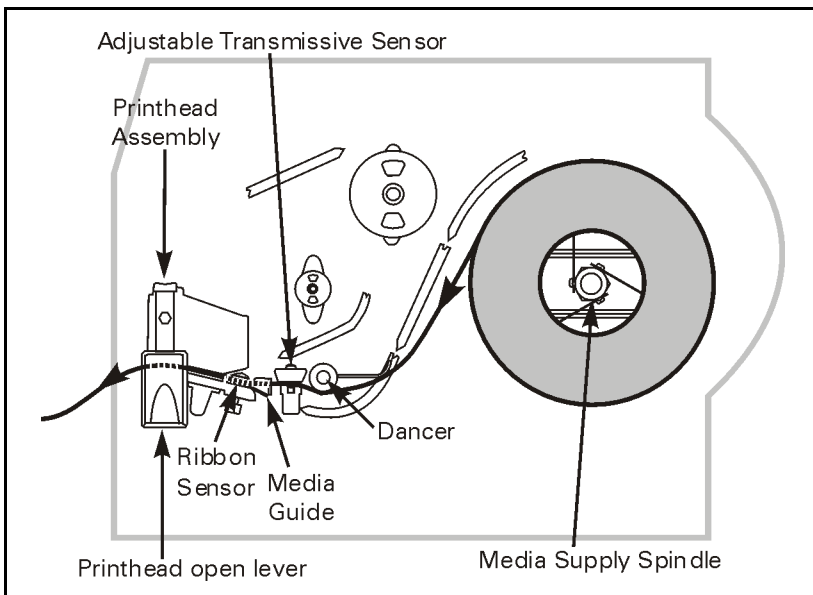


Figure 6

Positioning the Media Sensor

The correct positioning of the media sensor is important — it can make the difference between a perfect label and a call to Technical Support!

There are two media sensors in this printer: “transmissive” and “reflective.”

Transmissive Sensor

The transmissive sensor is the default sensor and can be manually adjusted to achieve optimal print performance. Equipped with an adjustment tab, the transmissive sensor can be moved to different positions which correspond to specific Brady media, ensuring correct sensor alignment for each type of Brady media that is used.



NOTE: Brady recommends recalibrating the printer if a different type or size of media is used.

Adjusting the Transmissive Sensor

Refer to Figure 7.

1. Open the printhead assembly by pressing the printhead open lever and lock the printhead assembly in the full open position.
2. Locate the white adjustment tab on the lower back of the adjustable transmissive sensor (see Figure 7-inset A).
3. While holding the adjustment tab, locate the adjustment tab slider on the lower front of the adjustable transmissive sensor (see Figure 7-inset B).
4. Slowly push the adjustment tab toward the mainframe wall until the inner most edge of the adjustment tab slider lines up with the appropriate white vertical mark on the lower front of the adjustable transmissive sensor.



NOTE: The appropriate white vertical mark is determined by the location of the slots in the Brady media being used. For Self Lam put ups (B427, B461), choose the inner most white vertical mark; for Permasleeve put ups (B341, B342), select the other white vertical mark. For all other Brady material put ups, move the adjustment tab so that the adjustment tab slider lines up between the white vertical marks.

5. Load the media.
6. Close the printhead assembly.
7. Calibrate the media.

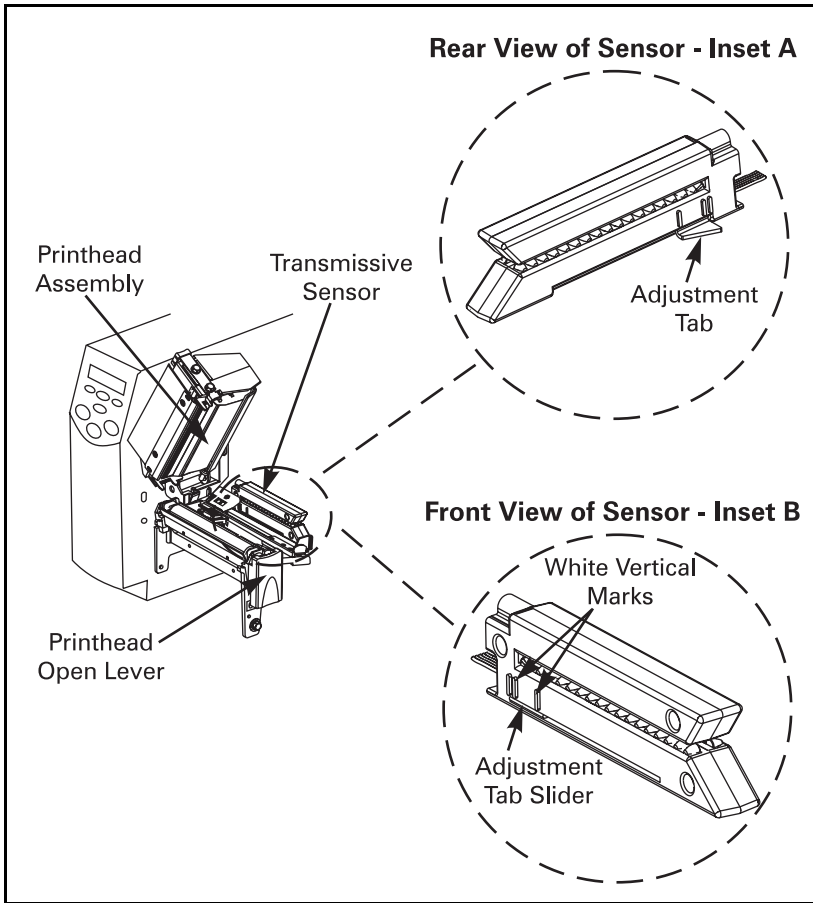


Figure 7

Reflective Sensor

The reflective sensor is a secondary media sensing system that is activated only if the adjustable transmissive sensor cannot be used to calibrate the media. The reflective sensor will usually not be activated if Brady media is used.

If the reflective sensor is required, use the adjustment procedure outlined on the next page.

Adjusting the Reflective Sensor

Refer to Figure 8.

1. Open the printhead assembly by pressing the printhead open lever.
2. Locate the reflective sensor positioning lever.
3. Move the reflective sensor positioning lever across the width of the media until the reflective sensor aligns with the start-of-label indicator. The glow of the red light assists in the proper placement of the reflective sensor.
4. Close the printhead assembly.

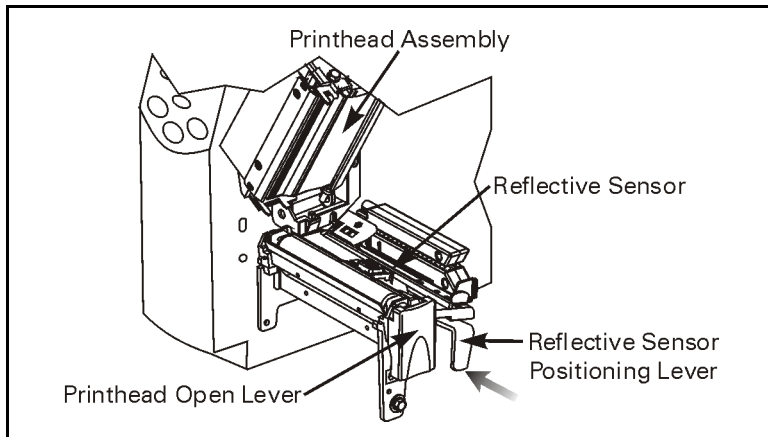


Figure 8



NOTE: If you are using continuous media, position the reflective sensor anywhere under the media so that the printer can detect an out-of-paper condition.

Loading the Ribbon

Refer to Figure 9.

For more detailed information, refer to the instructions that begin on page 34.

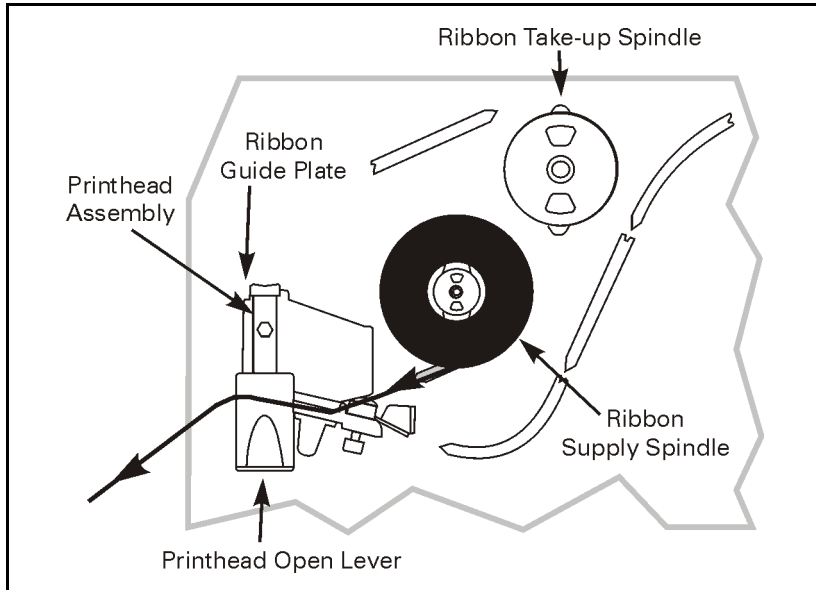


Figure 9

Auto Calibration

When auto calibrating, the printer determines the label length and media/ribbon sensor settings.

Auto calibration occurs when the printer is turned on and each time the printer recovers from an error condition. (To clear an error, open and close the printhead assembly and then press the PAUSE key.) The printer begins to auto calibrate when all errors have been cleared.

The results of the auto calibration are stored in the printer's memory and are retained even if printer power is removed. These parameters remain in effect until the next calibration is performed.



NOTE: The auto calibration process does not take place if the ZPL command or front panel setting for “MEDIA POWER UP” or “HEAD CLOSE” is set to either “feed” or “no motion.” In these cases, the printer assumes the media is correctly positioned and starts printing without auto calibrating.

Operator Controls

POWER Switch

The POWER switch is located at the back of the printer above the power cord. Turn on the printer.

Front Panel

For a more detailed explanation of the front panel keys and lights (as shown in Figure 10), refer to the instructions that begin on page 19.

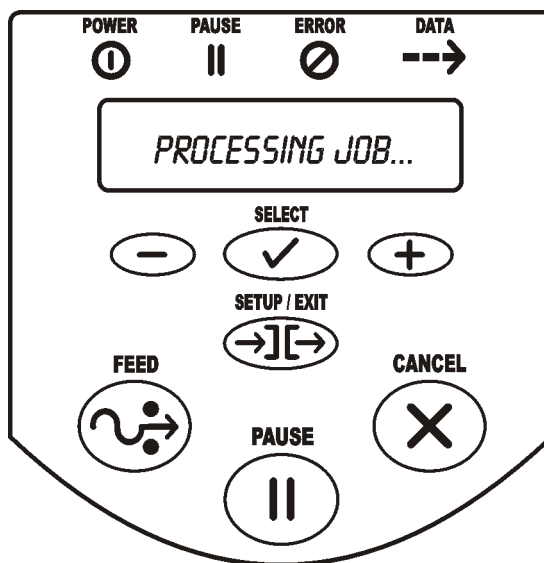


Figure 10

Configuring the Printer

The configuration procedure in Table 1 contains the information you need to get your printer up and running, *but it is not comprehensive*. Refer to page 37 for more information.

- Press the SETUP/EXIT key at the “PRINTER READY” display to enter the configuration mode.



NOTE: You need to press the INCREMENT (+) key more than once to advance to some of the displays.

- Press the INCREMENT (+) or DECREMENT (–) key to scroll to the setting you wish to change.
- Press the SELECT key to toggle the functionality of the INCREMENT (+) and DECREMENT (–) keys.
- Press the INCREMENT (+) or DECREMENT (–) keys to increase or decrease the value; answer “yes” or “no”; print a label; or select the digit you wish to change.
- Press the SELECT key again to use the INCREMENT (+) and DECREMENT (–) keys to scroll to the desired menu item.

Table 1

Parameter	Selections/Explanation
PRINTER READY	You are ready to configure the printer
DARKNESS	0 to 30 (default setting is “10”)
PRINT MODE	Tear-off, peel-off, liner take-up, cutter, rewind (default setting is “rewind”)
MEDIA TYPE	Non-continuous, continuous (default setting is “non-continuous”)
SENSOR TYPE	Web, mark (default setting is “web”)
PRINT METHOD	Thermal transfer, direct thermal (default setting is “thermal transfer”)

- After you have configured the print method, press the SETUP/EXIT key to save the changes and exit the configuration mode.

Configuring the Software of Printer Driver

Many printer settings may also be controlled by your printer's driver or label preparation software. Refer to the driver or software documentation for more information.

Printing a Test Label

To print a test label:

1. Turn off the printer.
2. Press and hold the CANCEL key while turning on the printer.
3. Release the key after the DATA light turns off (approximately five seconds).

A configuration label prints showing the printer's currently stored parameters (similar to the label shown in Figure 11).

If you encounter any problems while you are configuring the printer or printing a test label, refer to "Troubleshooting" beginning on page 67. Otherwise, refer to "Establishing Communication" beginning on page 17 to set up the communication parameters.

PRINTER CONFIGURATION	
Brady Corporation Bradyprinter MVP-Series	
+15.....	DARKNESS
+000.....	TEAR OFF
TEAR OFF.....	PRINT MODE
NON-CONTINUOUS.....	MEDIA TYPE
WEB.....	SENSOR TYPE
TRANSMISSIVE.....	SENSOR SELECT
THERMAL-TRANS.....	PRINT METHOD
105 08/12 MM.....	PRINT WIDTH
1661.....	LABEL LENGTH
R232.....	SERIAL COMM.
9600.....	BAUD
8 BITS.....	DATA BITS
NONE.....	PARITY
XON/XOFF.....	HOST HANDSHAKE
NONE.....	PROTOCOL
000.....	NETWORK ID
NORMAL MODE.....	COMMUNICATIONS
<~> 7EH.....	CONTROL PREFIX
<~> 5EH.....	FORMAT PREFIX
<~> 2CH.....	DELIMITER CHAR
ZPL 11.....	ZPL MODE
CALIBRATION.....	MEDIA POWER UP
DEFAULT.....	BACKFEED
-050.....	LABEL TOP
+0000.....	LEFT POSITION
042.....	WEB S.
094.....	MEDIA S.
073.....	RIBBON S.
024.....	TAKE LABEL
197.....	MEDIA LED
184.....	RIBBON LED
+10.....	LCD ADJUST
DPSWFXH.....	MODES ENABLED
1248 12MM FULL.....	MODES DISABLED
1248 12MM FULL.....	RESOLUTION
SP784 <-.....	FIRMWARE
V1.S.O.O.....	HARDWARE ID
CUSTOMIZED.....	CONFIGURATION
2048.....	RAM
NONE.....	MEMORY CARD
1024.....	ONBOARD FLASH
NONE.....	FORMAT CONVERT
NONE.....	OPTION
DYNAMIC.....	IP RESOLUTION
ALL.....	IP PROTOCOL
010.003.004.177.....	IP ADDRESS
255.255.255.000.....	SUBNET MASK
010.003.004.001.....	DEFAULT GATEWAY

FIRMWARE IN THIS PRINTER IS COPYRIGHTED

Figure 11

Establishing Communication

System Considerations

Interfaces

The method of interfacing this printer to a data source depends on the communication options installed in the printer. The standard interfaces are an RS-232/RS-422/RS-485 serial data port and a bi-directional parallel port. The optional ZebraNet[®] PrintServer II enables printers to be connected to 10Base-T Ethernet networks.

Data Specifications

When communicating via an asynchronous serial data port (refer to Figure 12), the baud rate, number of data and stop bits, parity, and handshaking are user selectable (default settings are 9600 baud, 8 data bits, 1 stop bit, no parity, and XON/XOFF). Parity only applies to data transmitted by the printer since the parity of received data is ignored. Refer to page 46 to configure the communication parameters for the printer. The values selected must be the same as those used by the host equipment connected to the printer.

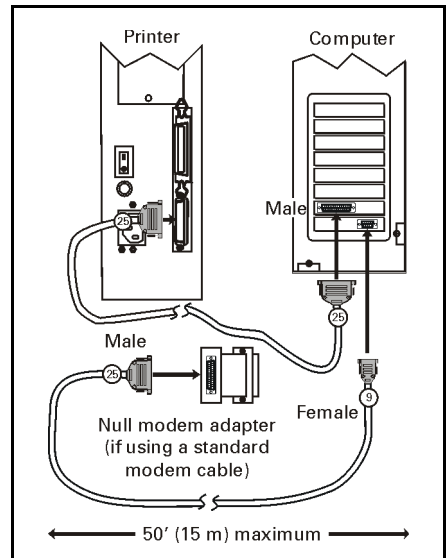


Figure 12

When communicating via the parallel port (refer to Figure 13), the previously mentioned parameters are not considered.

For serial and parallel pinout and technical information, refer to the “Appendix” beginning on page 91.

Cabling Requirements

Data cables must be fully shielded and fitted with metal or metalized connector shells. Shielded cables and connectors are required to prevent radiation and reception of electrical noise.

To minimize electrical noise pickup in the cable:

- Keep data cables as short as possible.
- Do not bundle the data cables tightly with the power cords.
- Do not tie the data cables to power wire conduits.



NOTE: Brady printers comply with FCC “Rules and Regulations,” Part 15, for Class B Equipment, using fully shielded data cables. Use of unshielded cables may increase radiated emission above the Class B limits.



NOTE: RS-422 and RS-485 applications should use twisted shielded pairs as recommended in the Appendix of the TIA/EIA.-485 Specification.



NOTE: Brady serial cable SCK-9 is recommended for use with the 200MVP or 300MVP printer.

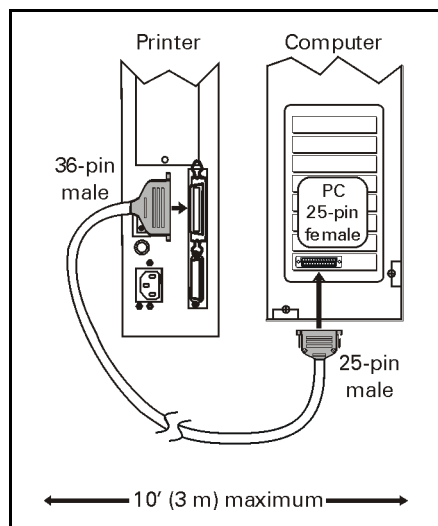


Figure 13

Printer Basics

Front Panel

This section discusses the functions of the various controls and indicators on the printer. Become familiar with each of these functions before operating the printer.

Front Panel Display

The front panel display (as shown in Figure 14) communicates operational status and programming modes and parameters.

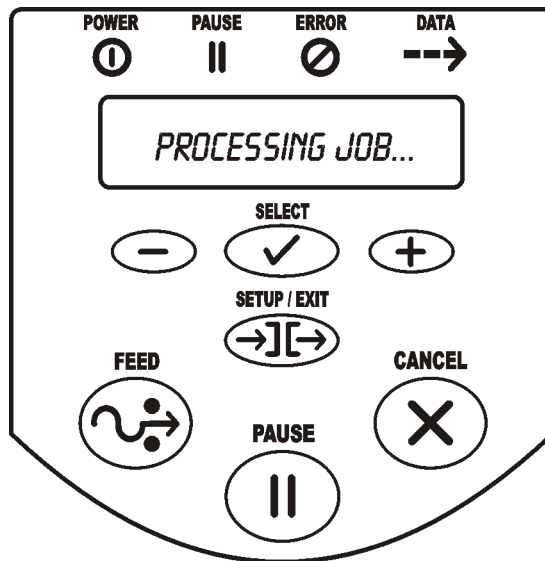


Figure 14

Front Panel Keys

Key	Function
FEED	Forces the printer to feed one blank label each time the key is pressed. <ul style="list-style-type: none"> • Printer not printing: one blank label immediately feeds. • Printing: one blank label feeds after the current batch of labels is complete.
PAUSE	Starts and stops the printing process: <ul style="list-style-type: none"> • Printer not printing: no printing occurs. (Press PAUSE again to resume printing.) • Printing: printing stops once the current batch is complete.
CANCEL	When in the pause mode, this key cancels print jobs. <ul style="list-style-type: none"> • Printer not printing: the next stored label format does not print. • Printing: the label format currently printing is cancelled. Press and hold for several seconds to cancel all print jobs in the printer's memory.
SETUP/EXIT	Enters and exits the configuration mode.
SELECT	Toggles the function of the INCREMENT (+) and DECREMENT (-) keys between the "scroll" and "change" modes. <ul style="list-style-type: none"> • Press once to use the INCREMENT (+) and DECREMENT (-) keys to change the values of the selection. • Press again to use the INCREMENT (+) and DECREMENT (-) keys to scroll through the menu items.
INCREMENT (+) ("scroll mode")	Scrolls to the next selection.
INCREMENT (+) ("change mode")	<ul style="list-style-type: none"> • Increases the value • Answers "yes" • Prints a label (when applicable)
DECREMENT (-) ("scroll mode")	Scrolls to the previous selection.
DECREMENT (-) ("change mode")	<ul style="list-style-type: none"> • Decreases the value • Selects the digit you wish to change • Answers "no"

Front Panel Lights

Light	Status	Indication
POWER	Off	The printer is off or no power is applied.
	On	The printer is on.
PAUSE	Off	Normal printer operation.
	On	The printer has stopped all printing operations.
	Flashing	In peel-off mode, the PAUSE light flashes when the label is available for removal, and when initializing FLASH or PCMCIA memory.
ERROR	Off	Normal printer operation (no errors).
	Slow flashing	"RIBBON IN" warning, "HEAD UNDER TEMP" warning, or "HEAD OVER TEMP" error.
	Fast flashing	"HEAD OPEN" error.
	On	"PAPER OUT", "RIBBON OUT", or "CUTTER JAM" errors.
DATA	Off	Normal printer operation (no data being received or processed).
	One flash	The CANCEL key is pressed and a format is successfully cancelled.
	Slow flashing	The printer is unable to accept more data from the host.
	Fast flashing	The printer is receiving data.
	On	A partial format has been received and there has been no subsequent data activity.

Roll Media Loading

Tear-off Mode

Refer to Figure 15.

1. Press the printhead open lever. The printhead assembly springs up.
2. Place the roll of media on the media supply spindle and push the roll back as far as it will go.
3. Feed the media under the dancer, through the slot in the adjustable transmissive sensor, under the ribbon sensor, and out the front of the printer.
4. Ensure that the media is against the back of the adjustable transmissive sensor. Slide in the media guide so that it just touches, but does not restrict, the edge of the media.
5. Close the printhead assembly.

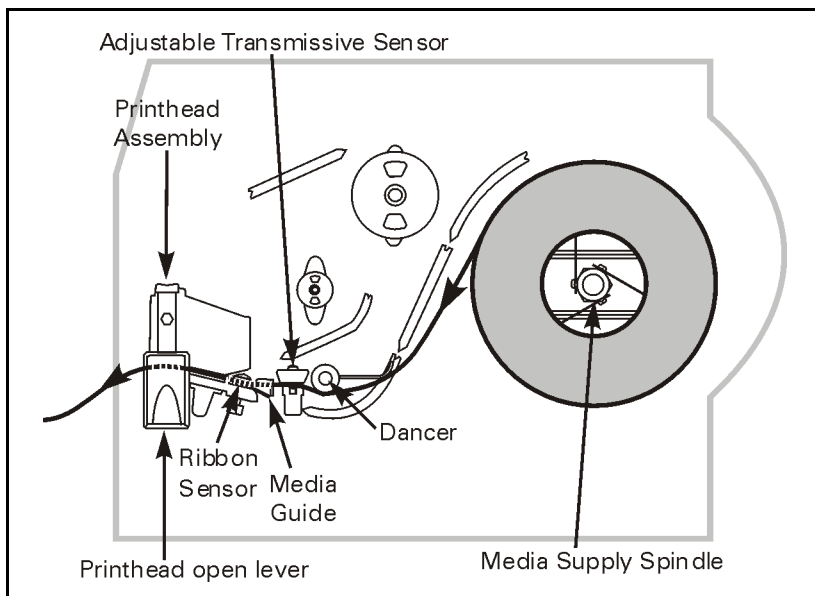


Figure 15

Cutter Mode

(Cutter option required)

Refer to Figure 16.

1. Press the printhead open lever. The printhead assembly springs up.
2. Place the roll of media on the media supply spindle and push the roll back as far as it will go.
3. Feed the media under the dancer, through the slot in the adjustable transmissive sensor, under the ribbon sensor, and through the cutter module.
4. Ensure that the media is against the back of the adjustable transmissive sensor. Then, slide in the media guide so that it just touches, but does not restrict, the edge of the media.
5. Close the printhead assembly.

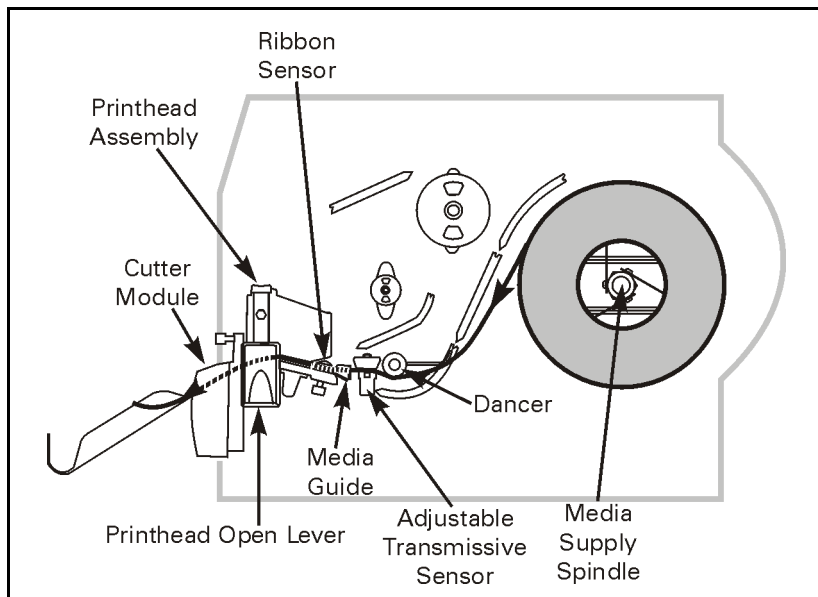


Figure 16

Value Peel-off Mode

(Value peel-off option required)

Refer to Figure 17.

1. Press the printhead open lever. The printhead assembly springs up.
2. Place the roll of media on the media supply spindle and push the roll back as far as it will go.
3. Feed the media under the dancer, through the slot in the adjustable transmissive sensor, under the ribbon sensor, and through the cutter module.
4. Pull approximately 12" (305 mm) of media through the front of the printer.
5. Ensure that the media is against the back of the adjustable transmissive sensor. Then, slide in the media guide so that it just touches, but does not restrict, the edge of the media.
6. Pull down the lever to open the pivot bracket assembly.
7. Feed the liner over the tear-off/peel-off bar and behind the pivot bracket assembly.
8. Close the printhead assembly.
9. Close the pivot bracket assembly.

Peeling automatically starts. Press the FEED key to test.

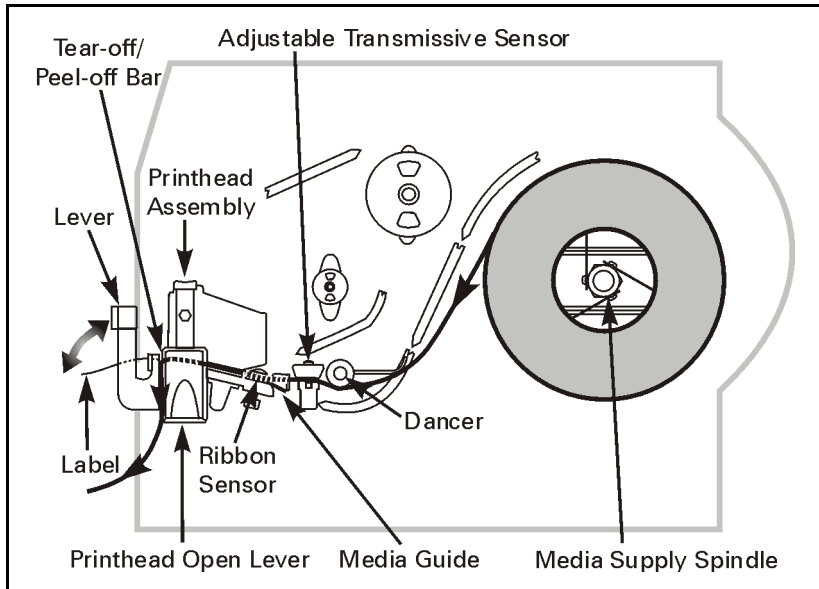


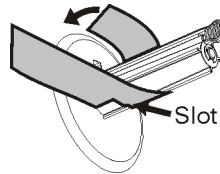
Figure 17

Liner Take-up Mode

(Liner take-up option required)

Refer to Figure 18.

1. Press the printhead open lever. The printhead assembly springs up.
2. Place the roll of media on the media supply spindle and push the roll back as far as it will go.
3. Feed the media under the dancer, through the slot in the adjustable transmissive sensor, and under the ribbon sensor.
4. Pull approximately 18" (500 mm) of media through the front of the printer.
5. Remove the labels from the 18" of media so that only the liner remains.
6. Ensure that the media is against the back of the adjustable transmissive sensor. Then, slide in the media guide so that it just touches, but does not restrict, the edge of the media.
7. Pull down the lever to open the pivot bracket assembly, on the peel assembly.
8. Feed the media over the tear-off/peel-off bar and behind the pivot bracket assembly.
9. Close the printhead assembly.
10. Close the pivot bracket assembly.
11. Slide the liner into the slot in the spindle (as shown). Make sure the liner is resting against the back plate of the spindle assembly.
12. Turn the spindle assembly counterclockwise a few times so that the liner is snug.



Peeling starts automatically. Press the FEED key to test.

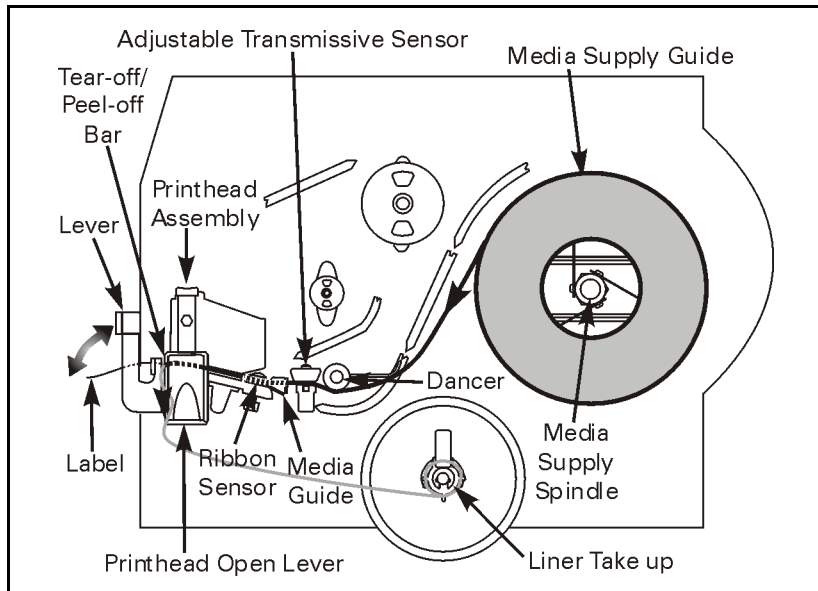
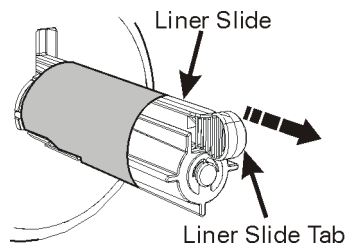


Figure 18

Liner Removal

1. Pull the liner slide tab towards you (as shown) until it stops (about a third of the way down the liner take-up spindle).
2. Slide the liner from the take-up spindle.



NOTE: The liner slide tab should slide smoothly back into place on the liner take-up spindle once the liner has been removed.

Power Peel-off Mode

(Power peel-off option required)

Refer to Figure 19.

1. Press the printhead open lever. The printhead assembly springs up.
2. Place the roll of media on the media supply spindle and push the roll back as far as it will go.
3. Feed the media under the dancer, through the slot in the adjustable transmissive sensor, and under the ribbon sensor.
4. Pull approximately 36" (915 mm) of media through the front of the printer.
5. Ensure that the media is against the back of the adjustable transmissive sensor. Then, slide in the media guide so that it just touches, but does not restrict, the edge of the media.
6. Open the front housing assembly by lifting the handles; then, pivot down the front housing assembly.
7. Remove at least 12" (305 mm) of labels from the backing material.
8. Feed the backing material over the tear-off/peel-off bar, through the rectangular cutout in the mounting bracket, and under the media alignment spindle.
9. Close the front housing assembly by slightly lifting and then hooking it onto the pins on the tear-off/peel-off bar.
10. Loosen the thumbscrew and slide out the rewind media guide to the end of the take-up spindle.
11. Wrap the backing around a core placed on the take-up spindle; then, turn the take-up spindle counterclockwise to wind up the excess backing material.
12. Slide the rewind media guide against the backing material and tighten the thumbscrew to lock it into position.
13. Close the front housing assembly.
14. Close the printhead assembly.

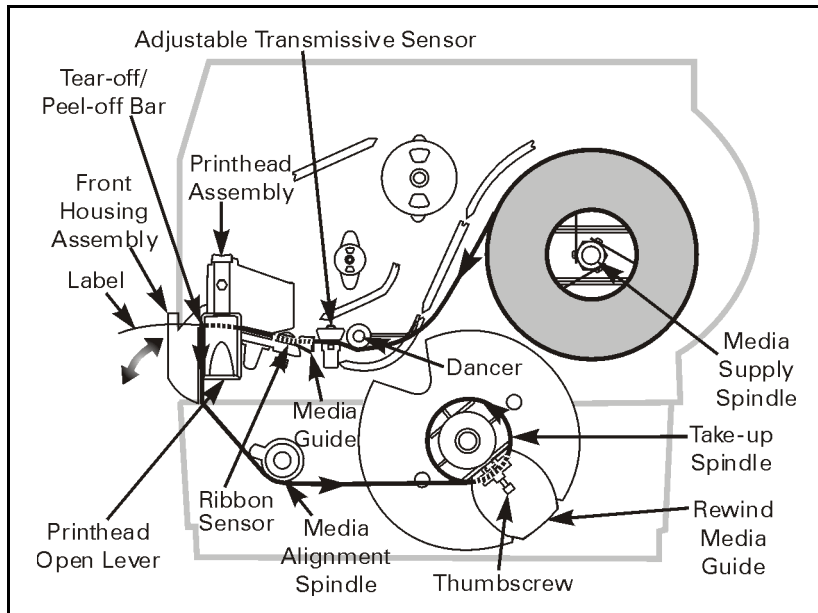


Figure 19

Backing Removal

1. Cut the backing material prior to where it winds onto the take-up spindle.
2. Rotate the take-up spindle until the rewind media guide is in the “12 o’clock” position.
3. Loosen the thumbscrew and slide out the rewind media guide to the end of the take-up spindle.
4. Slide the core and backing material from the take-up spindle.

Power Rewind Mode

(Power rewind option required)

Refer to Figure 20.

1. Press the printhead open lever. The printhead assembly springs up.
2. Place the roll of media on the media supply spindle and push the roll back as far as it will go.
3. Feed the media under the dancer, through the slot in the adjustable transmissive sensor, and under the ribbon sensor.
4. Pull approximately 36" (915 mm) of media through the front of the printer.
5. Ensure that the media is against the back of the adjustable transmissive sensor. Then, slide in the media guide so that it just touches, but does not restrict, the edge of the media.
6. Remove at least 12" (305 mm) of labels from the backing material.
7. Feed the backing material over the front housing assembly, through the rewind base, and under the media alignment spindle.
8. Loosen the thumbscrew and slide out the rewind media guide to the end of the take-up spindle.
9. Wrap the media around a core placed on the take-up spindle; then, turn the take-up spindle counterclockwise to wind up the excess material.
10. Slide the rewind media guide against the media, and tighten the thumbscrew to lock it into position.
11. Close the printhead assembly.

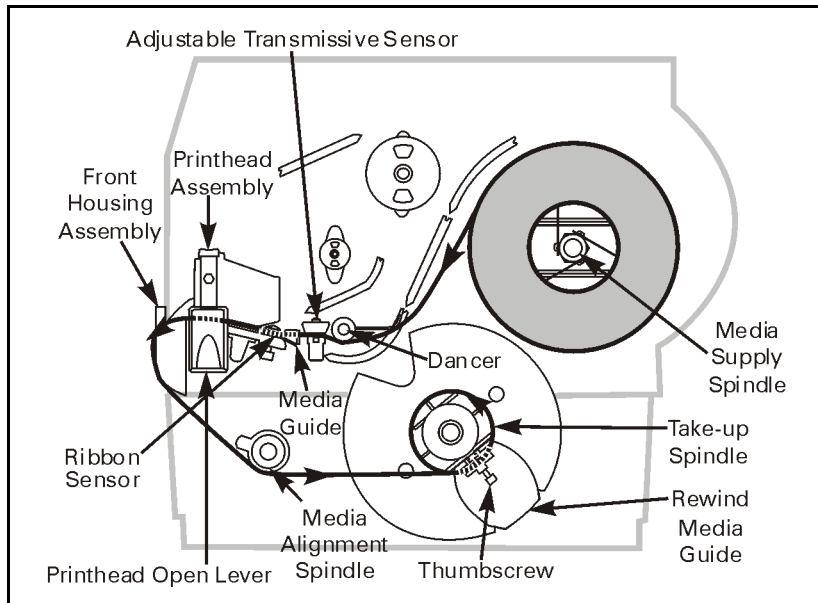


Figure 20

Media Removal

1. Cut the media prior to where it ends on the take-up spindle.
2. Rotate the take-up spindle until the rewind media guide is in the “12 o’clock” position.
3. Loosen the thumbscrew and slide out the rewind media guide to the end of the take-up spindle.
4. Slide the core and roll of media from the take-up spindle.

Fanfold Media Loading

Fanfold media feeds through either the bottom or rear access slot.

Refer to Figure 21.

1. Press the printhead open lever. The printhead assembly springs up.
2. Flip down the media supply guide.
3. Slide out the media supply guide as far from the printer frame as possible.
4. Pass the fanfold media over the media supply spindle.
5. Flip up the media supply guide. Slide in the media supply guide so that it just touches, but does not restrict, the edge of the media.
6. Thread the media under the dancer, through the slot in the adjustable transmissive sensor, under the ribbon sensor, and out the front of the printer.
7. Ensure that the media is against the back of the adjustable transmissive sensor. Then, slide in the media guide so that it just touches, but does not restrict, the edge of the media.
8. Close the printhead assembly.

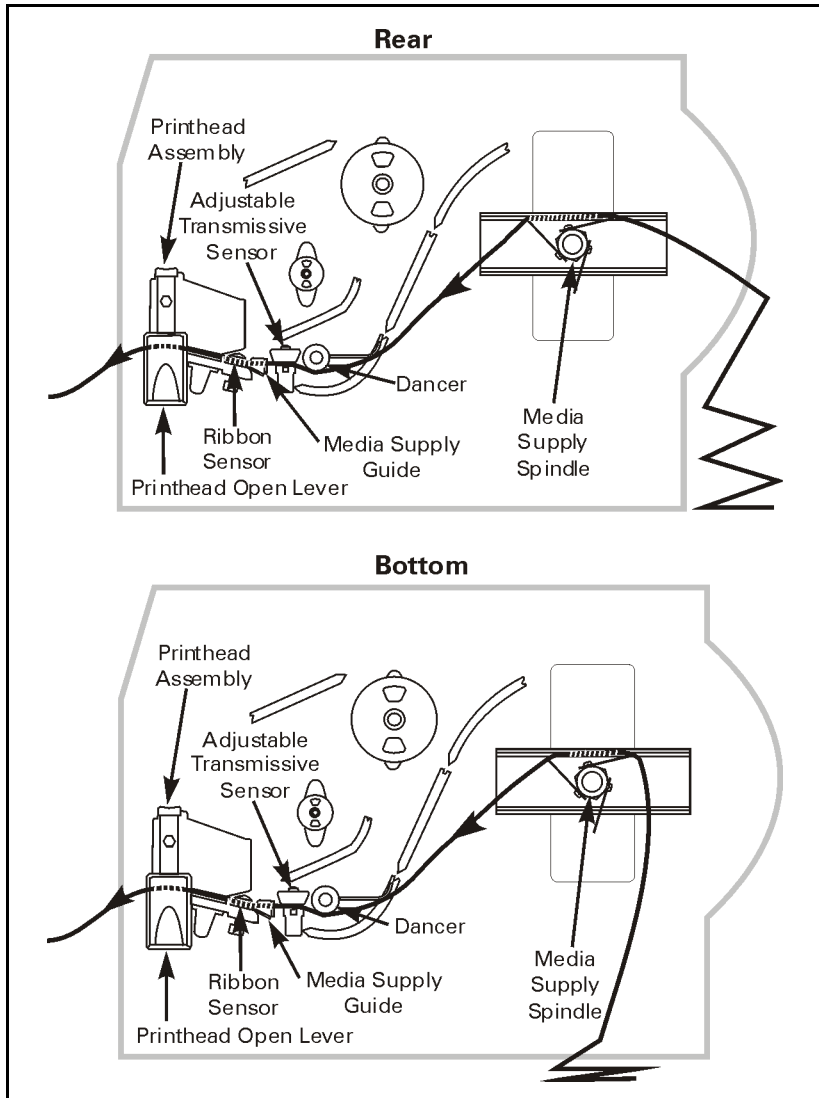


Figure 21

Ribbon Loading



NOTE: The ribbon supply spindle in your printer is a “dual tension” variety. Most applications require the spindle to be in the “normal” position. The “low tension” position is recommended only when wide ribbon is used and normal tension hampers the ribbon movement.

To place this spindle in the “normal” position, firmly pull out the spindle end cap until it clicks into place as shown in Figure 22. To place the spindle in the “low tension” position, firmly push in the end cap until it clicks into place.

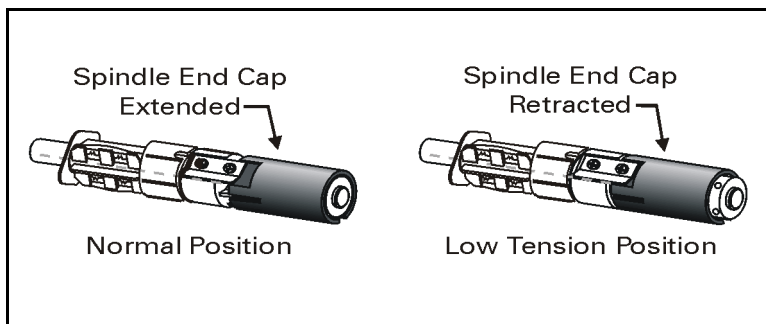


Figure 22

Loading the Ribbon



CAUTION: Always use ribbon that is wider than the media. The smooth backing of the ribbon protects the printhead from wear. (For direct thermal printing, do not load ribbon in the printer.)

Refer to Figure 23.

1. Press the printhead open lever. The printhead assembly springs up.
2. Push the ribbon roll completely onto the ribbon supply spindle.
3. Pull the end of the ribbon over the ribbon sensor, under the printhead assembly, and out the front of the printer.
4. Close the printhead assembly, keeping the ribbon snug and free of wrinkles and in line with the guide mark near the left edge of the ribbon guide plate.
5. Wind the ribbon clockwise onto the ribbon take-up spindle.

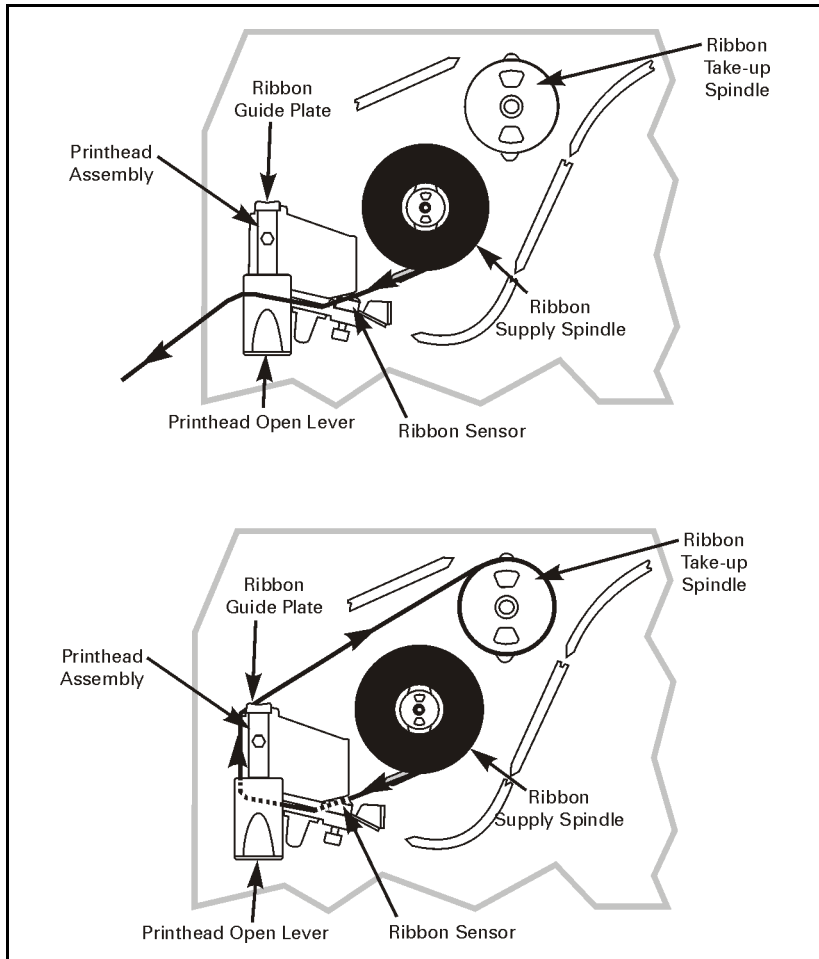


Figure 23

Ribbon Removal

To remove the ribbon:

1. Break the ribbon between the ribbon guide plate and the ribbon take-up spindle.
2. While turning the ribbon take-up spindle release knob counterclockwise, squeeze the ribbon against the ribbon take-up spindle tension blades.
3. When the tension blades collapse into the ribbon take-up spindle, hold the release knob and rotate the spent ribbon toward the rear of the printer. Then, slide off the ribbon.

Configuration

After you have installed the media and ribbon and the Power-On Self Test (POST) is complete, the front panel display shows “PRINTER READY.” (If the printer fails its POST, refer to page 73.) You may now set printer parameters for your application using the front panel display and the four keys directly below it.



NOTE: Printers that are operating on an IP network can be quickly configured via ZebraNet WebView™ (optional ZebraNet® PrintServer II required). For information, refer to *ZebraNet Networking: PrintServer II Installation and User's Guide*.



NOTE: Unless otherwise noted, all parameters are listed in the order they are displayed, starting with “DARKNESS.”

Entering the Setup Mode

To enter the programming mode, press the SETUP/EXIT key.

- Press the INCREMENT (+) or DECREMENT (–) key to scroll to the setting you wish to change.
- Press the SELECT key to toggle the functionality of the INCREMENT (+) and DECREMENT (–) keys.
- Press the INCREMENT (+) or DECREMENT (–) keys to increase or decrease the value; answer “yes” or “no”; print a label; or select the digit you wish to change.
- Press the SELECT key again to use the INCREMENT (+) and DECREMENT (–) keys to scroll to the desired menu item.



NOTE: An asterisk (*) in the upper left-hand corner of the display indicates that the value displayed is different than the currently stored value.

Changing Password-Protected Parameters

Certain parameters are password protected by factory default.



NOTE: You have the option of making ALL parameters password protected. See “PASSWORD LEVEL” on page 52 for details.



CAUTION: Do not change password-protected parameters unless you are sure you know what you are doing! If they are set incorrectly, these parameters could cause the printer to function in an unpredictable way.

The first attempt to change one of these parameters requires you to enter a four-digit password. This is done via the “ENTER PASSWORD” display. The DECREMENT (–) key changes the selected digit position. The INCREMENT (+) key increases the selected digit value. After entering the password, press the SELECT key. The parameter you wish to change is displayed. If the password was entered correctly, you can now change the value.

The default password value is 1234. The password can be changed using the ^KP (Define Password) ZPL II instruction.



NOTE: Once the password has been entered correctly, it does not have to be entered again unless you leave and re-enter the programming mode using the SETUP/EXIT key.



NOTE: You can disable the password protection feature so that it no longer prompts you for a password by setting the password to ØØØØ via the ^KPØ ZPL/ZPL II command. To re-enable the password-protection feature, send the ZPL/ZPL II command ^KPx, where “x” can be any number that is one to four digits in length, except Ø.

Leaving the Setup Mode

You can leave the program mode at any time by pressing the SETUP/EXIT key. The “SAVE CHANGES” display appears. There are five choices, which are described below. Pressing the INCREMENT (+) or DECREMENT (–) key displays other choices; pressing the SELECT key selects the displayed choice.

- **PERMANENT** — Permanently saves the changes. Values are stored in the printer even when power is turned off.
- **TEMPORARY** — Saves the changes until you change them again or until power is turned off.
- **CANCEL** — Cancels all changes from the time you pressed the SETUP/EXIT key except for darkness and tear-off settings (if they were changed).
- **LOAD DEFAULTS** — Loads factory defaults.
- **LOAD LAST SAVE** — Loads values from the last permanent save.

Configuration and Calibration Sequence

Display Shows	Action/Explanation
PRINTER READY	Normal printer operation.
Setting Print Parameters	
DARKNESS	<p>Adjusting Print Darkness: Press the INCREMENT (+) key to increase darkness. Press the DECREMENT (–) key to decrease darkness.</p> <p>Default: +10</p> <p>Range: 0 to +30</p> <p>Darkness settings are dependent upon a variety of factors, including ribbon type, media, and the condition of the printhead. You may adjust the darkness for consistent high-quality printing.</p> <p>If printing is too light, or if there are voids in printed areas, you should increase the darkness. If printing is too dark, or if there is spreading or bleeding of printed areas, you should decrease the darkness.</p> <p>The FEED Key Self Test on page 76 can also be used to determine the best darkness setting. Since the darkness setting takes effect immediately, you can see the results on labels that are currently printing.</p> <p>CAUTION: Set the darkness to the lowest setting that provides good print quality. Darkness set too high may cause ink smearing and/or it may burn through the ribbon.</p> <p>Darkness settings may also be changed by the driver or software settings.</p>
TEAR OFF	<p>Adjusting the Tear-Off Position: Press the INCREMENT (+) key to increase the value, press the DECREMENT (–) key to decrease the value. Each press of the key adjusts the tear-off position by four dot rows.</p> <p>Default: +0</p> <p>Range: –120 to +120</p> <p>This parameter establishes the position of the media over the tear-off/peel-off bar after printing. The label and backing can be torn off or cut between labels.</p>

Display Shows	Action/Explanation
PRINT MODE	<p>Selecting Print Mode: Press the INCREMENT (+) or DECREMENT (-) key to display other choices.</p> <p>Default: Tear-off</p> <p>Selections: Tear-off, cutter, peel-off, liner take-up, rewind</p> <p>Print mode settings tell the printer the method of media delivery that you wish to use. Be sure to select a print mode that your hardware configuration supports as some selections displayed are for optional printer features.</p>
MEDIA TYPE	<p>Setting Media Type: Press the INCREMENT (+) or DECREMENT (-) key to display other choices.</p> <p>Default: Continuous</p> <p>Selections: Continuous, non-continuous</p> <p>This parameter tells the printer the type of media you are using. Selecting continuous media requires that you include a label length instruction in your label format (^LLxxxx if you are using ZPL or ZPL II).</p> <p>When non-continuous media is selected, the printer feeds media to calculate label length (the distance between two detections of the inter-label gap, webbing, or alignment notch or hole).</p>
SENSOR TYPE	<p>Setting the Sensor Type: Press the INCREMENT (+) or DECREMENT (-) key to display other choices.</p> <p>Default: Web</p> <p>Selections: Web, mark</p> <p>This parameter tells the printer whether you are using media with a web (gap/space between labels, notch, or hole) to indicate the separation between labels or if you are using media with a black mark printed on the back. If your media does not have black marks on the back, leave your printer at the default setting (web).</p>
SENSOR SELECT	<p>Setting the Sensor Select: Press the INCREMENT (+) or DECREMENT (-) key to display other choices.</p> <p>Default: Transmissive</p> <p>Selections: Transmissive, reflective, auto select</p> <p>This parameter tells the printer the sensor you wish to use. "Auto select" may be compatible with the type of media being used. However, if you encounter difficulties with calibration, refer to "Types of Media" on page 6 to help you choose the appropriate sensor for your media. (Select the reflective sensor with either continuous or non-continuous black mark media; choose the transmissive sensor if you are using non-continuous web media.)</p>

Display Shows	Action/Explanation
PRINT METHOD	<p>Selecting Print Method: Press the INCREMENT (+) key for the next value; press the DECREMENT (–) key for the previous value.</p> <p>Default: Thermal transfer</p> <p>Selections: Thermal transfer, direct thermal</p> <p>The print method parameter tells the printer the method of printing you wish to use: direct thermal (no ribbon) or thermal transfer (using thermal transfer media and ribbon).</p> <p>NOTE: Selecting direct thermal when using thermal transfer media and ribbon creates a warning condition, but printing continues.</p>
PRINT WIDTH	<p>Setting Print Width: Press the INCREMENT (+) key to increase the value, press the DECREMENT (–) key to decrease the value. To change the unit of measurement, press the DECREMENT (–) key until the unit of measurement is active, then press the INCREMENT (+) key to toggle to a different unit of measure (inches, mm, or dots).</p> <p>Default; Range: The default and range of acceptable values may vary depending on what printer you have. Refer to “Printing Specifications” on page 80 for further information about the ranges available for your model. Print width determines the printable area across the width of the label.</p>

Listing Printer Information	
Display Shows	Action/Explanation
LIST FONTS	<p>List Fonts: Press the INCREMENT (+) key to print a label listing all of the available fonts.</p> <p>This selection is used to print a label that lists all of the fonts currently available in the printer, including standard printer fonts plus any optional fonts. Fonts may be stored in RAM, FLASH memory, font EPROMs, or font cards.</p>
LIST BAR CODES	<p>List Bar Codes: Press the INCREMENT (+) key to print a label listing all of the available bar codes.</p> <p>This selection is used to print a label that lists all of the bar codes currently available in the printer.</p>
LIST IMAGES	<p>List Images: Press the INCREMENT (+) key to print a label listing all of the available images.</p> <p>This selection is used to print a label that lists all of the images currently stored in the printer's RAM, FLASH memory, optional EPROM, or optional memory card.</p>
LIST FORMATS	<p>List Formats: Press the INCREMENT (+) key to print a label listing all of the available formats.</p> <p>This selection is used to print a label that lists all of the formats currently stored in the printer's RAM, FLASH memory, optional EPROM, or optional memory card.</p>
LIST SETUP	<p>List Setup: Press the INCREMENT (+) key to print a label listing the current printer configuration.</p> <p>This selection is used to print a label that lists the current printer configuration information. (Same as the CANCEL Key Self Test.)</p>
LIST ALL	<p>List All: Press the INCREMENT (+) key to print a label listing all of the available fonts, bar codes, images, formats, and the current printer configuration.</p> <p>This selection is used to print a label that lists the five previous selections, as described.</p>

Display Shows	Action/Explanation
INITIALIZE CARD	<p>Initialize Memory Card CAUTION: Perform this operation only when it is necessary to erase all previously stored information from the optional memory card. Press the SETUP/EXIT key to bypass this function.</p> <ol style="list-style-type: none"> 1. Press the INCREMENT (+) key to select "YES." If your printer is set to require a password, you are now prompted to enter the password. Enter the password and then press the SELECT key. 2. The display asks "INITIALIZE CARD?". Press the INCREMENT (+) key "YES." 3. The front panel LCD asks "ARE YOU SURE?". 4. Press the INCREMENT (+) key "YES" to begin initialization. <i>or</i> Press the DECREMENT (-) key "NO" to cancel the request and return to the "INITIALIZE CARD" prompt. 5. Press the SETUP/EXIT key followed by the SELECT key. If initialization is still in process, the front panel display flashes back and forth between the two phrases "CHECKING B: MEMORY" and "PRINTER IDLE." When initialization is complete, the printer automatically exits the configuration mode and the front panel displays "PRINTER READY." <p>NOTE: Depending on the amount of memory in the memory card, initialization may take up to five minutes to complete.</p>
INIT FLASH MEM	<p>Initialize Flash Memory CAUTION: Perform this operation only when it is necessary to erase all previously stored information from the FLASH memory. Press the SETUP/EXIT key to bypass this function.</p> <ol style="list-style-type: none"> 1. Press the INCREMENT (+) key to select "YES." If your printer is set to require a password, you are now prompted to enter the password. Enter the password and then press the SELECT key. 2. The display asks "INITIALIZE FLASH?". Press the INCREMENT (+) key "YES." 3. The front panel LCD asks "ARE YOU SURE?". 4. Press the INCREMENT (+) key "YES" to begin initialization. <i>or</i> Press the DECREMENT (-) key "NO" to cancel the request and return to the "INITIALIZE FLASH" prompt. 5. Press the SETUP/EXIT key followed by the SELECT key. If initialization is still in process, the front panel display flashes back and forth between the two phrases "CHECKING E: MEMORY" and "PRINTER IDLE." When initialization is complete, the printer automatically exits the configuration mode and the front panel displays "PRINTER READY." <p>NOTE: Depending on the amount of free FLASH memory, initialization may take up to one minute to complete.</p>

Media and Ribbon Sensor Calibration

Performing the manual calibration procedure first resets the sensitivity of the sensors to better detect the media and ribbon you are using. With the sensors at their new sensitivity, the printer then performs the manual calibration. Changing the type of ribbon and/or media may require resetting the sensitivity of the media and ribbon sensors.

Display Shows	Action/Explanation
SENSOR PROFILE	Sensor Profile: Press the INCREMENT (+) key to print a media sensor profile. See Figure 24. The media sensor profile may be used to troubleshoot registration problems that may be caused when the media sensor detects pre-printed areas on the media or experiences difficulty in determining web location. If the sensitivity of the media and/or ribbon sensors must be adjusted, use the manual calibration procedure.
MANUAL CALIBRATION	Manual Calibration: Press the INCREMENT (+) key to start the calibration procedure. This procedure is used to reset the sensitivity of the media and ribbon sensors. The manual calibration is then performed.

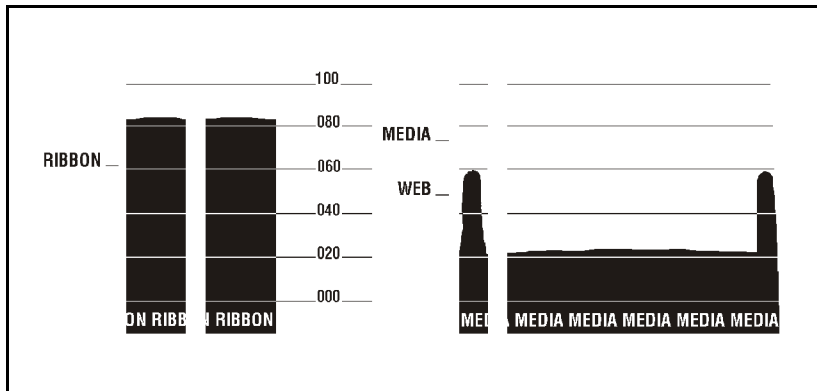


Figure 24

Setting Communication Parameters

Communication parameters must be set correctly for the printer to communicate with the host computer. These parameters make sure that the printer and host computer are "speaking the same language." All communication parameters are password protected.

Display Shows	Action/Explanation
SERIAL COMM	<p>Setting Serial Communications: Press the INCREMENT (+) or DECREMENT (-) key to display other choices. Default: RS-232 Selections: RS-232, RS-422/485, RS-485 multidrop Select the communications port that matches the one being used by the host computer.</p>
BAUD	<p>Setting Baud: Press the INCREMENT (+) or DECREMENT (-) key to display other choices. Default: 9600 Selections: 600, 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400 The baud setting of the printer must match the baud setting of the host computer for accurate communications to take place. Select the value that matches the one being used by the host computer.</p>
DATA BITS	<p>Setting Data Bits: Press the INCREMENT (+) or DECREMENT (-) key to display other choices. Default: 8-bits Selections: 7-bits, 8-bits The data bits of the printer must match the data bits of the host computer for accurate communications to take place. Set the data bits to match the setting being used by the host computer. NOTE: Must be set to 8 data bits to use Code Page 850.</p>

Display Shows	Action/Explanation
PARITY	<p>Setting Parity: Press the INCREMENT (+) or DECREMENT (-) key to display other choices.</p> <p>Default: None</p> <p>Selections: Even, odd, none</p> <p>The parity of the printer must match the parity of the host computer for accurate communications to take place. Select the parity that matches the one being used by the host computer.</p>
HOST HANDSHAKE	<p>Setting Host Handshake: Press the INCREMENT (+) or DECREMENT (-) key to display other choices.</p> <p>Default: XON/XOFF</p> <p>Selections: XON/XOFF, DTR/DSR</p> <p>The handshake protocol of the printer must match the handshake protocol of the host computer for communications to take place. Select the handshake protocol that matches the one being used by the host computer.</p>
PROTOCOL	<p>Setting Protocol: Press the INCREMENT (+) or DECREMENT (-) key to display other choices.</p> <p>Default: None</p> <p>Selections: None, Zebra, ACK_NACK</p> <p>Protocol is a type of error checking system. Depending on the selection, an indicator may be sent from the printer to the host computer signifying that data has been received. Select the protocol that is requested by the host computer. Further details on protocol can be found in the <i>ZPL II Programming Guide Volume I</i>.</p> <p>NOTE: Zebra is the same as ACK_NACK except that with Zebra the response messages are sequenced.</p> <p>NOTE: If Zebra is selected, printer must use DTR/DSR host handshake protocol.</p>

Display Shows	Action/Explanation
NETWORK ID	<p>Setting Network ID: Press the DECREMENT (-) key to move to the next digit position, press the INCREMENT (+) key to increase the value of the digit.</p> <p>Default: 000</p> <p>Range: 000 - 999</p> <p>Network ID is used to assign a unique number to a printer used in an RS-422/RS-485 network. This gives the host computer the means to address a specific printer. If the printer is used in a network, you must select a network ID number. This does not affect TCP/IP or IPX networks.</p>
COMMUNICATIONS	<p>Setting Communications Mode: Press the INCREMENT (+) or DECREMENT (-) key to display other choices.</p> <p>Default: Normal mode</p> <p>Selections: Normal mode, diagnostics</p> <p>The communication diagnostics mode is a troubleshooting tool for checking the interconnection between the printer and the host computer. When "diagnostics" is selected, all data sent from the host computer to the printer is printed as straight ASCII hex characters. The printer prints all characters received including control codes, like CR (carriage return). A sample printout is shown in Figure 34 on page 77.</p> <p>NOTES on diagnostic printouts:</p> <ul style="list-style-type: none"> • FE indicates a framing error. • OE indicates an overrun error. • PE indicates a parity error. • NE indicates noise. <p>For any errors, check that your communication parameters are correct. Set the print width equal to or less than the label width used for the test. See page 42 for more information.</p>

Selecting Prefix and Delimiter Characters

Prefix and delimiter characters are 2-digit hex values used within the ZPL/ZPL II formats sent to the printer. The printer uses the last prefix and delimiter characters sent to it, whether from a ZPL II instruction or from the front panel.

NOTE: DO NOT use the same hex value for the control, format, and delimiter character. The printer needs to see different characters to function properly.

Display Shows	Action/Explanation
CONTROL PREFIX	<p>Control Prefix Character: Press the DECREMENT (-) key to move to the next digit position, press the INCREMENT (+) key to increase the value of the digit. Default: 7E (tilde - displayed as a black square) Range: 00-FF The printer looks for this 2-digit hex character to indicate the start of a ZPL/ZPL II control instruction.</p>
FORMAT PREFIX	<p>Format Prefix Character: Press the DECREMENT (-) key to move to the next digit position, press the INCREMENT (+) key to increase the value of the digit. Default: 5E (caret) Range: 00 - FF The printer looks for this 2-digit hex character to indicate the start of a ZPL/ZPL II format instruction.</p>
DELIMITER CHAR	<p>Delimiter Character: Press the DECREMENT (-) key to move to the next digit position, press the INCREMENT (+) key to increase the value of the digit. Default: 2C (comma) Range: 00 - FF The delimiter character is a 2-digit hex value used as a parameter place marker in ZPL/ZPL II format instructions. Refer to the <i>ZPL II Programming Guide Volume I</i> for more information.</p>

Selecting ZPL Mode	
Display Shows	Action/Explanation
ZPL MODE	<p>Selecting ZPL Mode: Press the INCREMENT (+) or DECREMENT (-) key to display other choices.</p> <p>Default: ZPL II</p> <p>Selections: ZPL II, ZPL</p> <p>The printer remains in the selected mode until it is changed by this front panel instruction or by using a ZPL/ZPL II command. The printer accepts label formats written in either ZPL or ZPL II. This eliminates the need to rewrite any ZPL formats you already have. Refer to the <i>ZPL II Programming Guide Volume II</i> for more information on the differences between ZPL and ZPL II.</p>
Power-Up and Head Close Parameters	
MEDIA POWER UP	<p>Media Power Up: Press the INCREMENT (+) or DECREMENT (-) key to display other choices.</p> <p>Default: Feed</p> <p>Selections: Feed, calibration, length, and no motion</p> <p>This parameter establishes the action of the media when the printer is turned on.</p> <ul style="list-style-type: none"> • Calibration: Recalibrates the media and ribbon sensors. • Feed: Feeds the label to the first web. • Length: Determines the length of the label. • No Motion: Media does not move.
HEAD CLOSE	<p>Head Close: Press the INCREMENT (+) or DECREMENT (-) key to display other choices.</p> <p>Default: Feed</p> <p>Selections: Feed, calibration, length, no motion</p> <p>Determines the action of the media after the printhead has been opened and then closed.</p> <ul style="list-style-type: none"> • Calibration: Recalibrates the media and ribbon sensors. • Feed: Feeds the label to the first web. • Length: Determines the length of the label. • No Motion: Media does not move.

Label Positioning Parameters	
Display Shows	Action/Explanation
BACKFEED	<p>Backfeed Sequence: Press the INCREMENT (+) or DECREMENT (-) key to display other choices. Default: Default (90%) Selections: Default, after, before, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, off</p> <p>This parameter establishes when and how much label backfeed occurs after a label is removed or cut in the peel-off or cutter modes. It has no effect in rewind or tear-off modes. This parameter setting can be superseded by the ~JS instruction when received as part of a label format (refer to the <i>ZPL II Programming Guide Volume I</i>).</p> <p>NOTE: The difference between the value entered and 100% establishes how much backfeed occurs before the next label is printed. For example, a value of 40 means that 40% of the backfeed takes place after the label is removed or cut. The remaining 60% takes place before the next label is printed. A value of "before" means that all backfeed takes place before the next label is printed.</p>
LABEL TOP	<p>Adjusting Label Top Position: Press the INCREMENT (+) key to increase the value, press the DECREMENT (-) key to decrease the value. The displayed value represents dots. Default: +0 Range: -120 to +120 dot rows</p> <p>The label top position adjusts the print position vertically on the label. Positive numbers adjust the label top position further down the label (away from the printhead); negative numbers adjust the position up the label (toward the printhead).</p>
LEFT POSITION	<p>Adjusting Left Position: Press the DECREMENT (-) key to move to the next position, press the INCREMENT (+) key to change between + and - and to increase the value of the digit. The displayed value represents dots. Default: 0000 Range: -9999 to +9999</p> <p>NOTE: For a negative value, enter the value before changing to the minus sign.</p> <p>This parameter establishes how far from the left edge of a label the format begins to print by adjusting horizontal positioning on the label. Positive numbers adjust the printing to the left by the number of dots selected; negative numbers shift printing to the right.</p>

Display Shows	Action/Explanation
WEB S. MEDIA S. RIBBON S. TAKE LABEL S. MEDIA LED RIBBON LED	These parameters are automatically set during the calibration procedure and should only be changed by a qualified service technician. Refer to the maintenance manual for more information on these parameters. Press the SELECT key repeatedly to skip these parameters.
LCD ADJUST	LCD Display Adjustment: Press the DECREMENT (-) key to decrease the value (reduce brightness), press the INCREMENT (+) key to increase the value (increase brightness). Range: 00 to 19 This parameter allows you to adjust the brightness of your display if your display is difficult to read.
FORMAT CONVERT	Format Convert: Press the INCREMENT (+) or DECREMENT (-) key to display other choices. Default: None Selections: None, 150 V 300, 150 V 600, 200 V 600, 300 V 600 Selects the bitmap scaling factor. The first number is the original dots per inch (dpi) value; the second is the dpi to which you would like to scale.
PASSWORD LEVEL	Password Level: Press the INCREMENT (+) or DECREMENT (-) key to display other choices. Default: Selected items Selections: Selected items, all items This parameter allows you to select whether certain Brady-selected menu items ("selected items") or all menu items ("all items") are password protected.

Display Shows	Action/Explanation
IP RESOLUTION*	<p>IP Resolution: Press the INCREMENT (+) or DECREMENT (-) key to display other choices.</p> <p>Default: Dynamic</p> <p>Selections: Dynamic, permanent</p> <p>Depending on the selection, allows either the user ("permanent") or the server ("dynamic") to select the IP address. For more information, refer to <i>ZebraNet Networking: PrintServer II Installation and User's Guide</i>.</p>
IP PROTOCOLS*	<p>IP Protocols: Press the INCREMENT (+) or DECREMENT (-) key to display other choices.</p> <p>Default: All</p> <p>Selections: All, gleaning only, RARP, BOOTP, DHCP, DHCP/BOOTP</p> <p>If "dynamic" was chosen in the previous parameter, this selection determines the method(s) by which the PrintServer II receives the IP address from the server. For more information, refer to <i>ZebraNet Networking: PrintServer II Installation and User's Guide</i>.</p>
IP ADDRESS*	<p>IP Address: Press the DECREMENT (-) key to move to the next digit position, press the INCREMENT (+) key to increase the value of the digit.</p> <p>This parameter allows you to select the IP address if "permanent" was chosen in "IP RESOLUTION." (If "dynamic" was chosen, the user cannot select the address.) For more information, refer to <i>ZebraNet Networking: PrintServer II Installation and User's Guide</i>.</p>
SUBNET MASK*	<p>Subnet Mask: Press the INCREMENT (+) or DECREMENT (-) key to display other choices.</p> <p>Default: Permanent (user <i>must</i> set)</p> <p>Selections: Dynamic (user <i>may</i> set, but server can assign), permanent</p> <p>This parameter selects the part of the IP address that is considered to be part of the local network. It can be reached without going through the default gateway.</p>
DEFAULT GATEWAY*	<p>Default Gateway: Press the DECREMENT (-) key to move to the next digit position, press the INCREMENT (+) key to increase the value of the digit.</p> <p>This parameter allows you to select the IP address that the network traffic is routed through if the destination address is not part of the local network.</p>

* ZebraNet[®] PrintServer II option required

Display Shows	Action/Explanation
LANGUAGE	<p>Selecting the Display Language: Press the INCREMENT (+) or DECREMENT (-) key to display other choices.</p> <p>Default: English</p> <p>Selections: English, Spanish, French, German, Italian, Norwegian, Portuguese, Swedish, Danish, Spanish 2, Dutch, Finnish, Japanese</p> <p>This parameter allows you to change the language used on the front panel display.</p>
<p>You have now completed the entire configuration and calibration sequence. You may either press the SELECT key or the SETUP/EXIT key.</p>	
DARKNESS	<p>You are now back at the first parameter in the configuration sequence.</p> <p>NOTE: If you pressed the SELECT key but are through programming the printer configuration, you may press the SETUP/EXIT key and continue with the "SAVE SETTINGS" function.</p>
SAVE SETTINGS	<p>Save Settings: Press the INCREMENT (+) or DECREMENT (-) key to display other choices.</p> <p>Default: Permanent</p> <p>Selections: Permanent, temporary, cancel, load defaults, load last save</p> <p>This display appears when you attempt to exit the configuration mode.</p> <ul style="list-style-type: none"> • Permanent: Permanently saves the changes, even when printer power is turned off. • Temporary: Saves the changes until you change the values again or until power is turned off. • Cancel: Cancels all changes from the time you entered the configuration mode except for darkness and tear-off position (if they were changed). • Load defaults: Loads factory defaults. • Load last save: Loads the values from the last permanent save.
PRINTER READY	<p>Press the SETUP/EXIT key to activate the displayed choice.</p> <p>You have exited the configuration and calibration sequence and are now ready for normal printer operation.</p>

Routine Care and Adjustments

Cleaning

Table 2 provides a recommended cleaning schedule. Specific cleaning procedures are provided on the following pages.

Table 2

Area		Method	Interval
Printhead		Solvent*	After every roll of media (or 500 feet of fanfold media) when printing in the direct thermal mode.
Platen roller		Solvent*	
Media sensors		Air blow	After every roll of ribbon or three rolls of media when printing in the thermal transfer mode.
Ribbon sensor		Air blow	
Media path		Solvent*	<i>These intervals are intended as guidelines only. You may have to clean more often, depending upon your application and media.</i>
Ribbon path		Solvent*	
Pinch roller. (Optional value peel-off option required. See Figure 27.)		Solvent*	
Cutter Module	If cutting continuous, pressure-sensitive media	Citrus-based adhesive remover	After every roll of media (or more often, depending upon your application and media).
	If cutting tag stock or label backing material	Solvent* and air blow	After every two or three rolls of media.
Tear-off/peel-off bar		Solvent*	Once a month.
Take label sensor		Air blow	Once every six months.



CAUTION: Use only the cleaning agents indicated. Brady Corporation will not be responsible for damage caused by any other cleaning fluids used on the 200MVP or 300MVP printer.

Cleaning the Exterior

The exterior surfaces of the printer may be cleaned with a lint-free cloth. Do not use harsh or abrasive cleaning agents or solvents. If necessary, a mild detergent or desktop cleaner may be used sparingly.

Cleaning the Interior

Remove any accumulated dirt and lint from the interior of the printer using a soft bristle brush and/or vacuum cleaner.

Cleaning the Printhead and Platen Roller

Inconsistent print quality, such as voids in the bar code or graphics, may indicate a dirty printhead. For best results, perform the following cleaning procedure after every roll of ribbon.



NOTE: The printer can remain on while you are cleaning the printhead. In this way all label formats, images, and all temporary parameter settings stored in the printer's internal memory are saved.

To clean the printhead, refer to Figure 25 and follow these steps:

1. Open the printhead assembly.
2. Remove the media and ribbon (if loaded).
3. Using a swab soaked in solvent, wipe along the print elements from end to end. (The print elements are on the brown strip just behind the chrome strip on the printhead.) Allow sufficient time for the solvent to evaporate.
4. Manually rotate the platen roller and clean thoroughly with solvent and a swab.
5. Brush/vacuum any accumulated paper lint and dust away from the media and ribbon paths.
6. Reload media and/or ribbon, and close the printhead assembly.

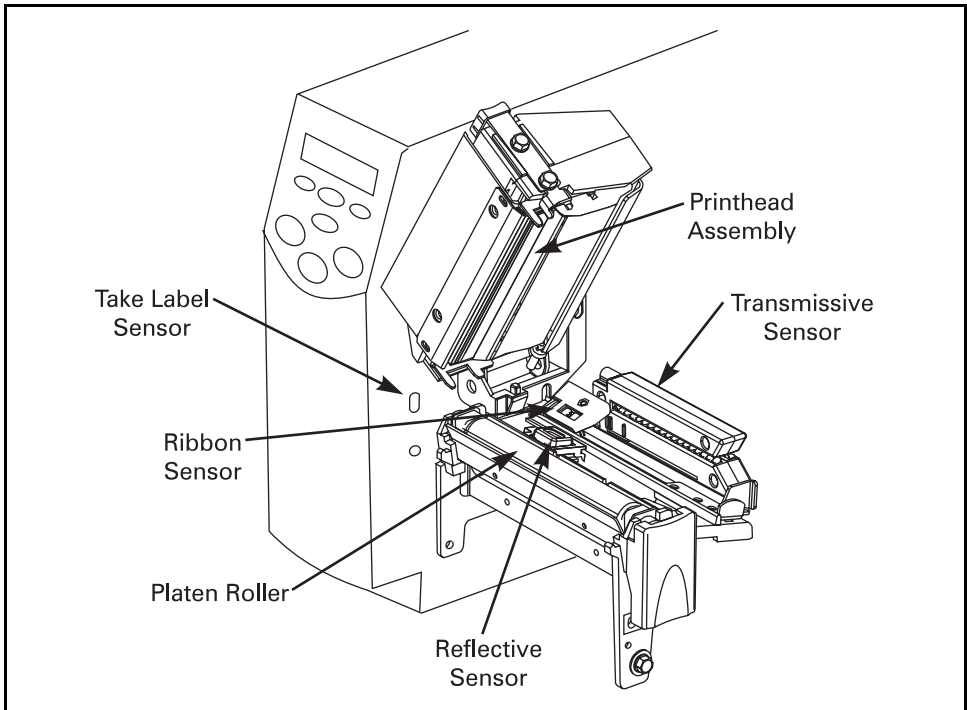


Figure 25

Cleaning the Sensors

Brush or vacuum any accumulated paper lint and dust away from the printer sensors. Refer to Figure 25. The reflective sensor, adjustable transmissive sensor, and ribbon sensor should be cleaned on a regular basis to ensure proper operation of the printer. For printers with the value peel-off, power peel-off, liner take-up, and/or power rewind option(s) installed, clean the take label sensor.

Cleaning the Power Peel-Off Module

(Power peel-off option required)

Perform the following procedure if adhesive buildup begins to affect peel performance.

Refer to Figure 26.

1. Open the printhead assembly.
2. Open the front housing assembly by lifting the two handles; then, pivot down the front housing assembly.
3. Remove the accumulated adhesive by rolling the sticky side of a blank label against the peel rollers and lifting it away. (Do this step repeatedly until a majority of the adhesive is gone.)
4. Use a swab soaked with solvent to remove adhesive from the tear-off/peel-off bar and reflective surface.
5. Close the front housing assembly.
6. Close the printhead assembly.

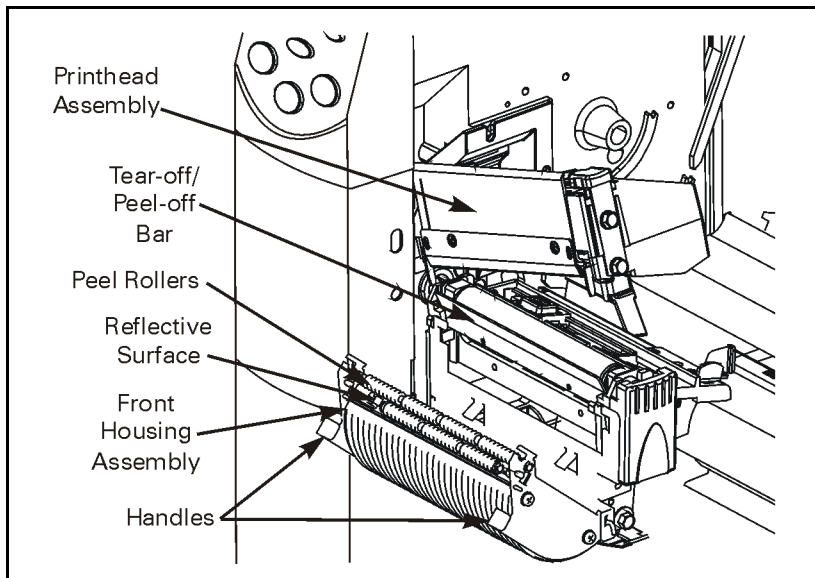


Figure 26

Cleaning the Value Peel-Off Module

(Value peel-off option required)

Perform the following procedure if adhesive buildup begins to affect peel-off performance.

Refer to Figure 27.

1. Open the printhead assembly.
2. Open the pivot bracket assembly by pivoting the module toward you.
3. Use a swab soaked with solvent to remove adhesive from the tear-off/peel-off bar.
4. Manually rotate the pinch roller and clean thoroughly with solvent and a swab.
5. Close the pivot bracket assembly.
6. Close the printhead assembly.

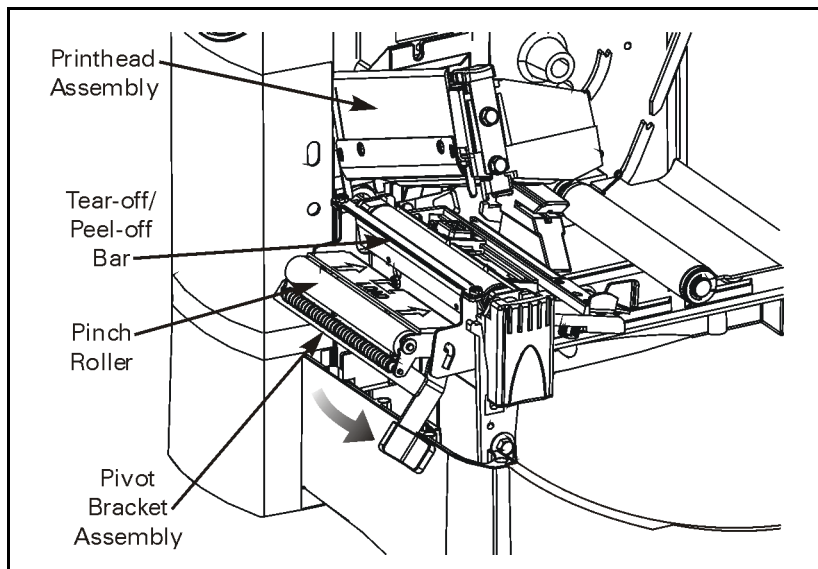


Figure 27

Cleaning the Cutter Module

(Cutter option required)



WARNING: For personnel safety, **ALWAYS** turn off and unplug the printer before performing this procedure.

Refer to Figure 28.

To clean adhesive off of the upper and lower cutter blades:

1. Remove the cutter shield by removing the thumbscrew and lock washer.
2. Use a swab moistened with solvent to wipe along the upper cutter blade.
3. To expose the lower cutter blade, turn the cutter motor thumbnut counterclockwise until you see the “V”-shaped lower cutter blade.
4. Clean the lower blade, following the instructions in step 2.
5. Replace the cutter shield.
6. When you have finished cleaning the cutter module, plug in and turn on the printer. The lower cutter blade returns to its correct operating position.



NOTE: If the cutter continues to perform unsatisfactorily, contact Brady Technical Support Service at **1-800-643-8766** or via our web site: **<http://www.bradyid.com>**.

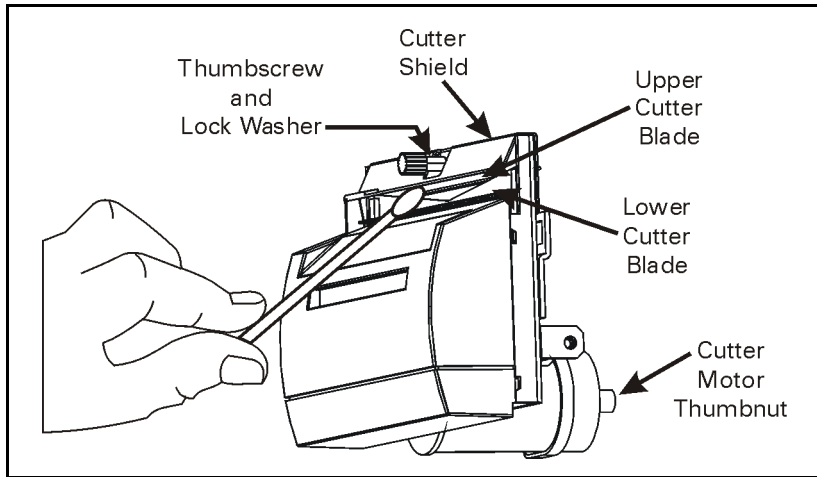


Figure 28

Lubrication



CAUTION: No lubricating agents of any kind should be used on this printer! Some commercially available lubricants will damage the finish and the mechanical parts if used.

Printhead Pressure Adjustment

This adjustment may be necessary if printing is too light on one side or if thick media is used.

Refer to Figure 29.

The pressure adjustment dials each have four possible settings designated by blocks of increasing size embossed on the print mechanism. The smallest block (fully counterclockwise) is considered “position 1” and the largest block (fully clockwise) is considered “position 4.”

Table 3 helps you select the initial dial settings for your media.

Table 3

200MVP and 300MVP		
Media Width	Left Dial	Right Dial
1" (25.4 mm)	3	1
2" (51 mm)	4	1
3" (76 mm)	3	2
3.5" and up (89 mm and up)	3	3



NOTE: Some media types require higher pressure to print well. For these media, increase both dials one position. If the media tends to shift to the left while printing, increase the right dial setting one position or decrease the left dial setting one position. If the media tends to shift to the right while printing, increase the left dial setting one position or decrease the right dial setting one position.

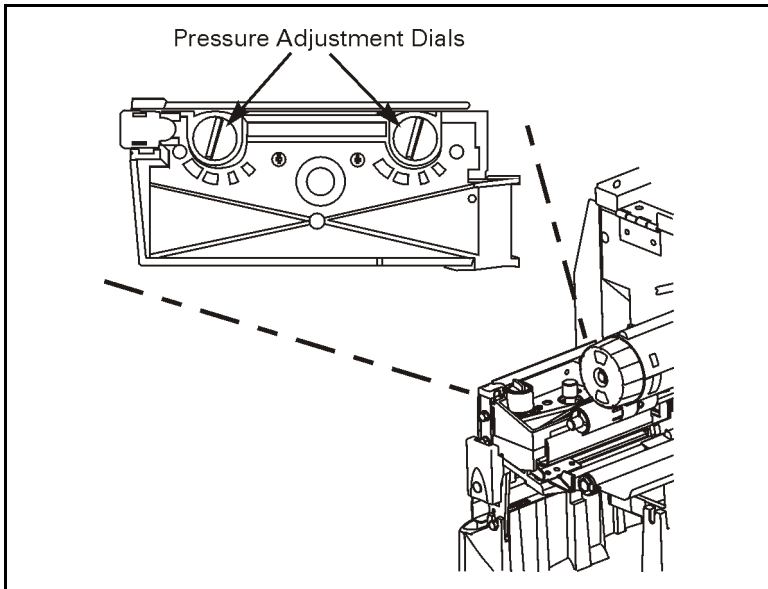


Figure 29

Power Rewind Media Alignment

(Power rewind option required)



NOTE: Under normal operating conditions, media alignment should not be necessary if the media/backing was initially installed tightly against the backplate of the take-up spindle.

Perform the following adjustment if the media does not track properly onto the take-up spindle.

Refer to Figure 30.

1. With media and backing material loaded, open the printhead assembly.
2. Turn the adjustment dial clockwise to align the media/backing material more to the right. (The image moves to the left.)

or

Turn the dial counterclockwise to align the media/backing material more to the left. (The image moves to the right.)

3. Manually rotate the take-up spindle and ensure the media/backing tracks properly.
4. Close the printhead assembly.

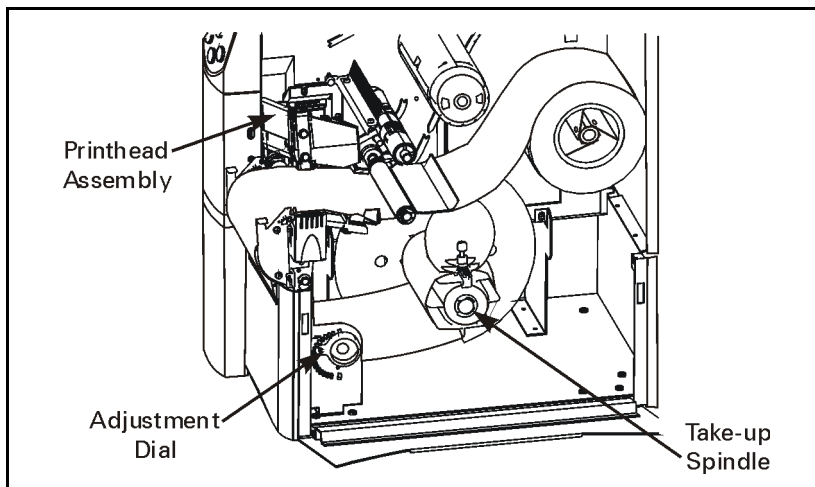


Figure 30

Fuse Replacement

A user-replaceable AC power fuse is located just below the AC power switch at the rear of the printer. The replacement fuse is a 3AG fast blow style rated at 5 Amp/250 VAC.



NOTE: Before replacing the fuse, turn off the AC power switch and unplug the AC power cord.

1. To replace the fuse, insert the tip of a flat blade screwdriver into the slot in the end of the fuse holder end cap.
2. Press in slightly on the end cap and turn the screwdriver slightly counterclockwise. This disengages the end cap from the fuse holder and permits removal of the fuse.
3. To install a new fuse, remove the old fuse and insert the new fuse into the fuse holder.
4. Push the end cap in slightly, then insert the tip of a flat blade screwdriver into the slot in the end cap and turn clockwise to engage it.



Troubleshooting

LCD Error Conditions and Warnings

Error condition — RIBBON OUT

Problem	Solution
In thermal transfer mode, the ribbon is not loaded <i>or</i> loaded incorrectly.	Load the ribbon correctly. See “Ribbon Loading” on page 34.
In thermal transfer mode, the ribbon sensor is not sensing correctly loaded ribbon.	Perform the media and ribbon sensor calibration (see page 45).
In direct thermal mode, when ribbon is not used:	Put the printer in direct thermal mode via the front panel and remove ribbon (if loaded).
	Ensure that the printer driver or software settings are correctly set (if applicable).

Error condition — PAPER OUT

Problem	Solution
The media is not loaded <i>or</i> loaded incorrectly.	Reload the media. Refer to “Roll Media Loading” on page 22.
The media sensor is not positioned properly.	Check the position of the reflective sensor. See “Positioning the Media Sensor” on page 9.
The printer is set for non-continuous media, but continuous media is loaded.	Either load the correct media or set the printer for the correct media type via the front panel.
	Ensure that the printer driver or software settings are correctly set (if applicable).
	Calibrate the printer (see page 45).
The incorrect media sensor is being used.	Via the front panel, locate the “SENSOR SELECT” menu item (page 41) and manually select the correct sensing method.

Error condition — HEAD OPEN

Problem	Solution
The printhead is not fully closed.	Close the printhead.
The ribbon is loaded incorrectly; it is covering the head open sensor.	Correctly align the ribbon with the guide mark on the ribbon guide plate before closing the printhead assembly. See "Ribbon Loading" on page 34.

Error condition — RIBBON IN

Problem	Solution
Print method is incorrectly set.	Via the front panel, locate the "PRINT METHOD" menu item (page 42) and select thermal transfer mode.
	Ensure that the printer driver and/or software settings are correctly set (if applicable).
The ribbon is loaded.	Remove the ribbon and set the printer to direct thermal mode. (See "PRINT METHOD" on page 42.)
	Ensure that the printer driver and/or software settings are correctly set (if applicable).

Warning — HEAD OVER TEMP

Problem	Solution
The printhead is over temperature.	Allow the printer to cool. Printing automatically resumes when the printhead elements cool to an acceptable operating temperature.

Warning — HEAD UNDER TEMP

Problem	Solution
The printhead is under temperature.	Continue printing while the printhead reaches the correct operating temperature.
	The environment may be too cold for proper printing. Relocate the printer to a warmer area.

Warning — CUTTER JAM

Problem	Solution
Cutter blade is in the media path.	Turn off the printer power and unplug the printer. Inspect the cutter module for debris and clean as needed following the cleaning instructions on page 60.

OUT OF MEMORY*

Problem	Solution
*There is not enough memory to perform the function shown on the second line of the error message.	Insufficient DRAM for the label length, downloaded fonts/graphics, and images.
	Ensure that the device, such as FLASH memory or PCMCIA card, is installed and not write protected or full.
	Ensure that the data is not directed to a device that is not installed or available.

Print Quality Problems

General print quality issues

Problem	Solution
You are using an incorrect media and ribbon combination for your application.	Consult your authorized Brady distributor or Brady Technical Support Service for information and advice.
The printer is set at the incorrect print speed.	For optimal print quality, set the print speed to the lowest possible setting via ZPL II, the driver, or the software.
The printer is set at the incorrect darkness level.	For optimal print quality, set the darkness to the lowest possible setting via the front panel, the driver, or the software.
The printhead is dirty.	Clean the printhead according to the instructions on page 56.
There is light printing (or no printing) on the left or right side of the label or the printed image is not sharp.	The pressure adjustment dials need to be adjusted. Follow the printhead pressure adjustment instructions on page 62.

Gray lines on blank labels with no consistent pattern

Problem	Solution
The printhead is dirty.	Clean the printhead according to the instructions on page 56.

Light, consistent vertical lines running through all of the labels

Problem	Solution
The printhead or platen roller is dirty.	Clean the printhead, platen roller, or both according to the instructions on page 56.

Intermittent creases on the left and right edges of the label

Problem	Solution
There is too much pressure on the printhead.	Reduce the printhead pressure. Refer to the printhead pressure adjustment on page 62.

Wrinkled ribbon

Problem	Solution
The ribbon is not loaded correctly.	Load the ribbon correctly. See "Ribbon Loading" on page 34.
The darkness setting is incorrect.	Set the darkness to the lowest possible setting for good print quality. See "DARKNESS" on page 40.
Incorrect printhead pressure or balance.	Set the pressure to the minimum required for good print quality. See "Printhead Pressure Adjustment" on page 62.
The media is not feeding correctly. It is "walking" from side to side.	Make sure that the media guide and media supply guide touch the edge of the media.

Calibration

Problem	Solution
Loss of printing registration on labels. Excessive vertical drift in top-of-form registration.	Adjust the reflective sensor position. See page 11.
	Set the printer for the correct media type. See page 41.
	Ensure that the media guides are properly positioned.
	Via the front panel, locate the "SENSOR SELECT" menu item (page 41) and manually select the correct sensing method.
	Reload the media. Check the reflective sensor position (see page 11).
	Clean the platen roller according to the instructions on page 56.
"Auto Calibrate" failed.	Perform a manual calibration (see page 45).
	Load the media. Ensure that the reflective sensor is properly positioned (see page 11).

Communication Problems

A label format was sent to the printer but not recognized. The DATA light does not flash.

Problem	Solution
The printer does not respond to label requests.	Check the printer driver or software communications settings (if applicable).
	Verify the prefix and delimiter characters. See page 49.
	Confirm you are using the correct communication cable. See page 18 for the requirements.
	Via the front panel, check the protocol setting. It should be set to "none." See page 47.
	Ensure that the correct driver is being used (if applicable).

A label format was sent to the printer. Several labels print, then the printer skips, misplaces, misses, or distorts the image on the label.

Problem	Solution
The host is set to EPP parallel communications.	Change the settings on the computer host to standard parallel communications.
The serial communication settings are incorrect.	Check the communication cable length. See page 18 for requirements.
	Check the printer driver or software communications settings (if applicable).

A label format was sent to the printer but not recognized. The DATA light flashes but no printing occurs.

Problem	Solution
The prefix and delimiter characters set in the printer do not match the ones in the label format.	Verify the prefix and delimiter characters. See page 49.
Incorrect data is being sent to the printer.	Check the communication settings on the computer. Ensure that they match the printer settings.

Printer Diagnostics

Power-On Self Test

A Power-On Self Test (POST) is performed automatically each time the printer is turned on. During this test sequence, the front panel lights and liquid crystal display (LCD) monitor the progress of the POST. If the printer fails any of these tests, the word “FAILED” is added to the display. If this occurs, notify an authorized Brady distributor or Brady Technical Support Service at **1-800-643-8766** or via our web site: <http://www.bradyid.com>.

Additional Printer Self Tests

These self tests produce sample printouts and provide specific information that help determine the operating conditions for the printer.

Each self test is enabled by pressing a specific front panel key or combination of keys while turning the POWER switch on. Keep the key(s) depressed until the DATA light turns off (approximately five seconds). When the Power-On Self Test is complete, the selected self test starts automatically.



NOTE: When performing self tests, avoid sending a label format to the printer. In the case of a remote host, disconnect all data interface cables from the printer.



NOTE: When canceling a self test prior to its actual completion, always turn the printer power off and then back on to reset the printer.



NOTE: When performing these self tests while in the peel-off mode, you must remove the labels as they become available.



NOTE: If your media is not wide enough or long enough, unexpected and/or undesired results may occur. Make sure that your print width is set correctly for the media you are using before you run any self tests, otherwise the test may print out on the platen roller. See page 42 for information on setting the print width.

CANCEL Key Self Test

This self test prints a listing of the configuration parameters currently stored in the printer's memory. See Figure 31. (Depending on the options ordered, your label may look different.)

1. Turn off the printer.
2. Press and hold the CANCEL key while turning on the power.
3. Release the key after the DATA light turns off (approximately five seconds).

The configuration may be changed either temporarily (for specific label formats or ribbon and label stock) or permanently (by saving the new parameters in memory). Refer to page 15 for further information about the configuration procedure.

PRINTER CONFIGURATION	
Brady Corporation	
Bradyprinter MVP-Series	
+15.....	DARKNESS
+000.....	TEAR OFF
TEAR OFF.....	PRINT MODE
NON-CONTINUOUS.....	MEDIA TYPE
WEB.....	SENSOR TYPE
TRANSMISSIVE.....	SENSOR SELECT
THERMAL-TRANS.....	PRINT METHOD
105 08/12 MM.....	PRINT WIDTH
1851.....	LABEL LENGTH
RS232.....	SERIAL COMM.
9600.....	BAUD
8 BITS.....	DATA BITS
NONE.....	PARITY
XON/XOFF.....	HOST HANDSHAKE
NONE.....	PROTOCOL
000.....	NETWORK ID
NORMAL MODE.....	COMMUNICATIONS
<*> 7EH.....	CONTROL PREFIX
<*> 5EH.....	FORMAT PREFIX
<*> 2CH.....	DELIMITER CHAR
ZPL II.....	ZPL MODE
CALIBRATION.....	MEDIA POWER UP
CALIBRATION.....	HEAD CLOSE
DEFAULT.....	BACKFEED
-050.....	LABEL TOP
+0000.....	LEFT POSITION
042.....	WEB S
094.....	MEDIA S
073.....	RIBBON S
024.....	TAKE LABEL
197.....	MEDIA LED
184.....	RIBBON LED
+10.....	LCD ADJUST
DPSWFXM.....	MODES ENABLED
.....	MODES DISABLED
1248 12/MM FULL.....	RESOLUTION
SP784 <-.....	FIRMWARE
V1.S 0.0.....	HARDWARE ID
CUSTOMIZED.....	CONFIGURATION
2048.....	RAM
NONE.....	B: MEMORY CARD
1024.....	E: ONBOARD FLASH
NONE.....	FORMAT CONVERT
NONE.....	OPTION
DYNAMIC.....	IP RESOLUTION
ALL.....	IP PROTOCOL
010.003.004.177.....	IP ADDRESS
255.255.255.000.....	SUBNET MASK
010.003.004.001.....	DEFAULT GATEWAY

FIRMWARE IN THIS PRINTER IS COPYRIGHTED

Figure 31

PAUSE Key Self Test

This self test can be used to provide the test labels required when making adjustments to the printer's mechanical assemblies. See the sample printout in Figure 32.

1. Turn off the printer.
 2. Press and hold the PAUSE key while turning on the power.
 3. Release the key after the DATA light turns off (approximately five seconds).
- The initial self test prints 15 labels at 2"/51 mm per second, then automatically pauses the printer. When the PAUSE key is pressed, an additional 15 labels print.
 - Pressing the CANCEL key while the printer is paused alters the self test. When the PAUSE key is pressed, the printer prints 15 labels at 6"/152 mm per second.
 - Pressing the CANCEL key again while the printer is paused alters the self test again. When the PAUSE key is pressed, the printer prints 50 labels at 2"/51 mm per second.
 - Pressing the CANCEL key again while the printer is paused alters the self test a third time. When the PAUSE key is pressed, the printer prints 50 labels at 6"/152 mm per second.
 - Pressing the CANCEL key again while the printer is paused alters the self test a fourth time. When the PAUSE key is pressed, the printer prints 15 labels at the printer's maximum speed.
 - To exit this self test at any time, press and hold the CANCEL key.



Figure 32

FEED Key Self Test

See Figure 33.

1. Turn off the printer.
2. Press and hold the FEED key while turning on the power.
3. Release the key after the DATA light turns off (approximately five seconds).

The FEED Key Self Test prints out at various darkness settings above and below that of the darkness value shown on the configuration label. Look at these labels and determine which one has the best darkness setting for your application. This value can be entered into the printer by setting the darkness during the configuration procedure. Refer to page 40 for more information.

The value printed on that label is added to (+) or subtracted from (–) the darkness value specified on the configuration label. The resulting numeric value (0 to 30) is the best darkness value for that specific media/ribbon combination.



Figure 33

Communications Diagnostics Test

This test is controlled via the front panel display. Refer to page 48. A typical printout from this test is shown in Figure 34. Turn off the power to exit this self test.



NOTE: This label is inverted when printed.

```
^FS^F0394,25^AA
5E 46 53 5E 46 4F 33 39 34 2C 32 35 5E 41 41
N,18,10^FDC0000
4E 2C 31 38 2C 31 30 5E 46 44 28 30 30 30 30
)999-9999^FS
29 39 39 39 2D 39 39 39 39 5E 46 53 0D 0A
^F00,50^AAN,18,
5E 46 4F 30 2C 35 30 5E 41 41 4E 2C 31 38 2C
10^FDCENTER STA
31 30 5E 46 44 43 45 4E 54 45 52 20 53 54 41
```

Figure 34

Loading Factory Defaults

1. Press the SETUP/EXIT key two times.
2. Use the INCREMENT (+) or DECREMENT (-) key to scroll through the “SAVE CHANGES” choices.
3. When “LOAD DEFAULTS” displays, press the SETUP/EXIT key.



Specifications



NOTE: Printer specifications are subject to change without notice.

General Specifications

General Specifications		Brady 200MVP and 300MVP	
Height		13.3"	338 mm
Width		10.9"	277 mm
Depth		18.7"	475 mm
Weight (without options)		32.4 lbs.	14.7 kg
Electrical		90-265 VAC, 48-62 Hz, 5 Amps (fused)	
Agency Approvals		CISPR 22B, IEC 950, 801-2, -3, and -4 standard. Complies with FCC Class B and Canadian Doc Class A rules. Carries the CE mark of compliance.	
Temperature	Operating	40° to 104° F	5° to 40° C
	Storage	-40° to 140° F	-40° to 60° C
Relative Humidity	Operating	20% to 85%, non-condensing	
	Storage	5% to 85%, non-condensing	
Communication Interface		<ul style="list-style-type: none"> • RS-232/CCITT V.24 and RS-485 serial data interface; 600 to 38400 baud, parity, bits/character, and XON-XOFF or DTR/DSR handshake protocol required. • RS-485 serial data interface; 600 to 38400 baud, parity, bits/character (all selectable). XON/XOFF handshake protocol required. • 8-bit parallel data interface; supports IEEE 1284 bi-directional parallel communication in "nibble mode." • Error detection CRC protocol. 	

Printing Specifications

Printing Specifications		Brady 200MVP and 300MVP	
Print resolution		203 dots/inch	8 dots/mm
		300 dots/inch	12 dots/mm
Dot size (width x length)	203 dots/inch	0.00492" x 0.00492"	0.125 mm x 0.125 mm
	300 dots/inch	0.0033" x 0.0039"	0.084 mm x 0.099 mm
Maximum print width		4.1"	104 mm
Minimum print length		1 dot row	
Maximum print length	203 dots/inch	105"	2667 mm
	300 dots/inch	45"	1143 mm
Bar code modulus ("X") dimension	203 dots/inch	5 mil to 50 mil	
	300 dots/inch	3.3 mil to 33 mil	
Programmable constant print speeds	203 dots/inch	Per second: 7", 8", 9", 10"	Per second: 178 mm, 203 mm, 229 mm, 254 mm
	300 dots/inch	Per second: 2", 3", 4", 5", 6"	Per second: 51 mm, 76 mm, 102 mm, 127 mm, 152 mm
Thin film printhead with energy control			

Ribbon Specifications

Ribbon Specifications		Brady 200MVP and 300MVP	
Ribbon must be wound with the coated side out			
Ribbon width <i>(Brady Corporation recommends using ribbon at least as wide as the media to protect the printhead from wear.)</i>	Minimum	>1"	25.4 mm
	Maximum	4.3"	109 mm
Standard lengths	2:1 media to ribbon roll ratio	984'	300 m
	3:1 media to ribbon roll ratio	1476'	450 m
Ribbon core inside diameter		1"	25.4 mm

Media Specifications

Media Specifications		Brady 300MVP		
Label length	Minimum	Tear-off	0.125"	3 mm
		Peel-off	1"	25.4 mm
		Rewind	0.125"	3 mm
		Cutter	1"	25.4 mm
	Maximum		39"	991 mm
Label width (maximum)			4.5"	114 mm
Total thickness (includes liner, if any)		Minimum	0.0023"	0.058 mm
		Maximum	0.010"	0.25 mm
Core size			3"	76 mm
Maximum roll diameter			8"	203 mm
Inter-label gap		Minimum	0.079"	2 mm
		Preferred	0.118"	3 mm
		Maximum	0.157"	4 mm
Ticket/tag notch size (width x length)			0.236" x 0.12"	6 mm x 3 mm

Options

Brady 200MVP and 300MVP
• Cutter
• Value peel-off
• Liner take-up
• PCMCIA card
• 1 MB or 2 MB FLASH

Zebra Programming Language (ZPL II)

Brady 200MVP and 300MVP ZPL II Features	
• Downloadable graphics (with data compression)	• Programmable quantity with print pause
• Bit image data transfer and printing, mixed text/graphics	• Communicates in printable ASCII characters
• Format inversion	• Controlled via mainframe, mini, PC, portable data terminal
• Mirror image printing	• In-Spec OCR-A and OCR-B
• Four-position field rotation (0°, 90°, 180°, 270°)	• UPC/EAN (nominal 100% magnification [6 dots/mm printheads only])
• Slew command	• Serialized fields

Bar Codes

Brady 200MVP and 300MVP Bar Code Features	
• Code 11	• LOGMARS
• Code 39 (supports ratios of 2:1 to 3:1)	• Plessey
• Code 49 (2-dimensional bar code)	• EAN-8, EAN-13, EAN EXTENSIONS
• Code 93	• UPC-A, UPC-E, UPC EXTENSIONS
• Code 128 (supports serialization in all subsets and UCC case codes)	• MSI
• Codabar (supports ratios of 2:1 to 3:1)	• PDF-417 (2-dimensional bar code)
• Codablock	• Micro-PDF-417
• Interleaved 2 of 5 (supports ratios of 2:1 to 3:1; modulus 10 check digit)	• POSTNET
• Industrial 2 of 5	• MaxiCode
• Standard 2 of 5	• Datamatrix
• QR Code	• Check digit calculation where applicable

AC Power Cord

Since many areas of the world have specific power requirements, an AC power cord may not be included with your printer. The power cord *must* meet your local electrical requirements.



WARNING: For personnel and equipment safety, always use a three-prong plug with an earth ground connection to the AC power source.

Power Line Cord Specifications

- The overall length must be less than 9.8' (3.0 m).
- It must be rated for at least 5A, 250 VAC.
- The chassis ground (earth) **MUST** be connected to ensure safety and reduce electromagnetic interference. The ground connection is handled by the third wire (earth) in the power cord (see Figure 35).

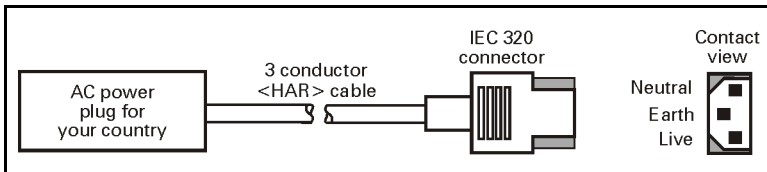


Figure 35

- The AC power plug and IEC 320 connector must bear the certification mark of at least one of the known international safety organizations shown in Figure 36.

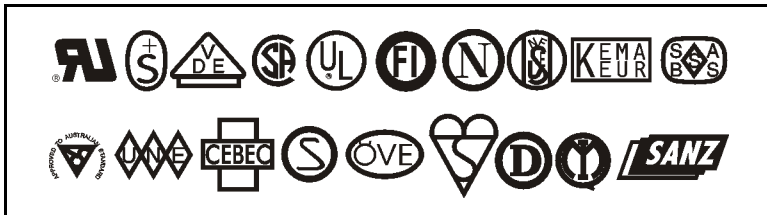


Figure 36



Warranty Information

1. Printer Warranty

BRADY printers, excluding thermal printheads which are warranted separately below, are warranted against defects in material or workmanship for six (6) months from the date of original shipment by Brady Corporation. This warranty does not cover normal wear and tear and shall be null and void if the equipment is modified, improperly installed or used, damaged by accident or neglect, or in the event any parts are improperly installed or replaced by the user.

Since printhead wear is part of normal operations, the original printhead and replacement printheads are covered by a limited warranty of six (6) months from the date of original shipment by Brady Corporation. To qualify for this warranty, the printer must be returned to the factory or other authorized service center. Although the user is not required to purchase BRADY brand supplies (media and/or ribbons), to the extent it is determined that the use of other supplies (media and/or ribbons) shall have caused any defect in the thermal printhead for which a warranty claim is made, the user shall be responsible for Brady Corporation's customary charges for labor and materials to repair such defect. To the extent that it is determined that failure to follow the preventive maintenance schedule and procedures listed in the User's Guide shall have caused any defect in the thermal printhead for which a warranty claim is made, this limited warranty shall be void.

BRADY CORPORATION'S SOLE OBLIGATION UNDER THIS WARRANTY SHALL BE TO FURNISH PARTS AND LABOR FOR THE REPAIR OR REPLACEMENT OF PRODUCTS FOUND TO BE DEFECTIVE IN MATERIAL OR WORKMANSHIP DURING THE WARRANTY PERIOD.

As a condition of this warranty, the user must: (a) obtain a BRADY Return Authorization for the printer, or subassembly(s); (b) ship the printer or subassembly(s), transportation prepaid to the authorized service location; and (c) include with the Product or subassembly(s) a written description of the claimed defect. Unless Brady Corporation authorizes return of the entire Product, the user shall return only the subassembly(s). Products returned shall be packaged in the original packing and shipping container or comparable container. In the event equipment is not so packaged or if shipping damage is evident, it will not be accepted for service under warranty. Surface transportation charges for the return of the printer to the customer shall be paid by Brady Corporation within the 48 contiguous states and the District of Columbia. Customer shall pay shipping costs, customs clearance, and other related charges outside the designated area.

If Brady Corporation determines that the Product returned to it for warranty service or replacement is not defective as herein defined, BUYER shall pay all costs of handling and transportation.

2. Warranty Exclusions and Conditions

The above warranties are in lieu of all other warranties, expressed or implied, oral or written, statutory or otherwise, including any implied warranty of merchant-ability or fitness for a particular purpose.

Brady Corporation shall not be responsible for the specific application to which any Products are applied, including but not limited to compatibility with other equipment.

All statements, technical information and recommendations relating to BRADY Products are based upon tests believed to be reliable but do not constitute a guarantee or warranty.

BRADY CORPORATION SHALL NOT, UNDER ANY CIRCUMSTANCES WHATSOEVER, BE LIABLE TO BUYER OR ANY OTHER PARTY FOR LOST PROFITS, DIMINUTION OF GOOD WILL OR ANY OTHER SPECIAL OR CONSEQUENTIAL DAMAGES WHATSOEVER WITH RESPECT TO ANY CLAIM HEREUNDER. IN ADDITION, BRADY CORPORATION'S LIABILITY FOR WARRANTY CLAIMS SHALL NOT, IN ANY EVENT, EXCEED THE INVOICE PRICE OF THE PRODUCT CLAIMED DEFECTIVE, NOR SHALL BRADY CORPORATION BE LIABLE FOR DELAYS IN REPLACEMENT OR REPAIR OF PRODUCTS.

No salesperson, representative or agent of Brady Corporation is authorized to make any guarantee, warranty, or representation in addition to the foregoing warranty.

NO WAIVER, ALTERATION, ADDITION, OR MODIFICATION OF THE FOREGOING WARRANTIES SHALL BE VALID UNLESS MADE IN WRITING AND SIGNED BY AN EXECUTIVE OFFICER OF BRADY CORPORATION.

BradyConnect License Agreement

Printer Software and Firmware License Agreement

YOU SHOULD CAREFULLY READ THE FOLLOWING TERMS AND CONDITIONS OF THIS BRADY CORPORATION PRINTER SOFTWARE AND FIRMWARE LICENSE AGREEMENT ("PSFLA") BEFORE USING THE PRINTER WHICH IS ENCLOSED OR OTHERWISE ASSOCIATED WITH THIS AGREEMENT. IF YOU DO NOT AGREE WITH THESE TERMS AND CONDITIONS, DO NOT OPERATE THE PRINTER AND PLEASE PROMPTLY RETURN THE PRINTER, ENCLOSURES AND ALL PACKAGING FOR A FULL REFUND.

Brady Corporation ("BRADY") hereby grants you a non-exclusive, non-transferable license to use the SOFTWARE and FIRMWARE embedded in the printer and the accompanying documentation according to the following terms:

1. The printer enclosed with or otherwise associated with this Agreement has or includes certain SOFTWARE and FIRMWARE therein which is protected by copyright laws and international copyright treaties, as well as other intellectual property laws and treaties. The SOFTWARE and FIRMWARE is licensed, not sold. Such SOFTWARE and/or FIRMWARE may include, but is not limited to, SOFTWARE and/or FIRMWARE that is licensed under one or more of the following trademarks: ZPL (Zebra Programming Language), ZebraLink, Web View, Web Alert, ZBI (Zebra Basic Interpreter), BarOne, ZTools, Utilities, ZebraNet View for IP, ZebraNet Alert, PC Management Program, ZebraNet View for Networks and ZebraNet Connect.
2. GRANT OF LICENSE. This License grants you the following rights:
 - SOFTWARE and FIRMWARE. You may use, access, display, run, or otherwise interact with ("RUN") the SOFTWARE and FIRMWARE in connection with operating the printer which is enclosed with or otherwise associated with this PSFLA ("PRINTER"). The primary user of the PRINTER may make a second copy for his or her exclusive use on a portable computer/printer.
 - Storage/Network Use. You may also store or install a copy of the SOFTWARE and FIRMWARE on a storage device, such as a network server, used only to RUN the SOFTWARE and FIRMWARE on your other PRINTERS over an internal network; however, you must acquire and dedicate a license for each separate PRINTER on which the SOFTWARE and FIRMWARE is RUN from the storage device. A license for the SOFTWARE and FIRMWARE may not be shared or used concurrently on different PRINTERS.
 - Reservation of Rights. All rights not expressly granted are reserved by BRADY.
 - Accessing Services Using the SOFTWARE and FIRMWARE. Your use of any service accessible using the SOFTWARE and FIRMWARE is not covered by this PSFLA and may be governed by separate terms of use, conditions or notices.

3. RESTRICTIONS.

- You must maintain all copyright notices on all copies of the SOFTWARE and FIRMWARE.
 - Limitations on modification. You may not modify, adapt, translate, or create derivative works based on this SOFTWARE OR FIRMWARE or the accompanying documentation.
 - Limitations of Reverse Engineering, Decompilation and Disassembly. You may not reverse engineer, decompile, or disassemble the SOFTWARE or the FIRMWARE, except and only to the extent that such activity is permitted by applicable law notwithstanding this limitation.
 - Rental. You may not rent or lease or lend the SOFTWARE or FIRMWARE.
 - Support Services. BRADY may provide you with support services related to the SOFTWARE and/or FIRMWARE ("SUPPORT SERVICES"), in its discretion. Use of SUPPORT SERVICES, if any, is governed by the BRADY policies and programs described in the user manual, in "online" documentation, and/or other BRADY provided materials. Any supplemental SOFTWARE or FIRMWARE code provided to you as a part of SUPPORT SERVICES shall be considered part of the SOFTWARE and/or FIRMWARE and is subject to the terms of this PSFLA. With respect to technical information you provide to BRADY as part of the SUPPORT SERVICES, BRADY may use such information for its business purposes, including for product support and development. BRADY will not utilize such technical information in a form that personally identifies you except to the extent necessary to provide you with support.
 - Replacement, Modification and Upgrade of the SOFTWARE and/or FIRMWARE. BRADY reserves the right to replace, modify or upgrade the SOFTWARE and/or FIRMWARE at any time by offering you a replacement or modified version of the SOFTWARE and/or FIRMWARE or such upgrade and to charge for such replacement, modification or upgrade. Any such replacement or modified SOFTWARE and/or FIRMWARE code or upgrade to the SOFTWARE and/or FIRMWARE offered to you by BRADY shall be considered part of the SOFTWARE and/or FIRMWARE and subject to the terms of this PSFLA (unless this PSFLA is superseded by a further PSFLA accompanying such replacement or modified version of or upgrade to the SOFTWARE and/or FIRMWARE). In the event that BRADY offers a replacement or modified version of or any upgrade to the SOFTWARE and/or FIRMWARE, (a) your continued use of the SOFTWARE and/or FIRMWARE is conditioned on your acceptance of such replacement or modified version of or upgrade to the SOFTWARE and/or FIRMWARE and any accompanying superseding PSFLA and (b) in the case of the replacement or modified SOFTWARE and/or FIRMWARE, your use of all prior versions of the SOFTWARE and/or FIRMWARE is terminated.
4. **TERMINATION.** Without prejudice to any other rights, BRADY may terminate this PSFLA if you fail to comply with the terms and conditions of this PSFLA. BRADY may terminate this PSFLA by offering you a superseding PSFLA for the SOFTWARE and/or FIRMWARE or any replacement or modified version of or upgrade to the SOFTWARE and/or FIRMWARE and conditioning your continued use of the SOFTWARE and/or FIRMWARE or such replacement, modified or upgraded version on your acceptance of such superseding PSFLA. In addition, BRADY may terminate this PSFLA by notifying you that your continued use of the SOFTWARE and/or FIRMWARE is prohibited. In the event that BRADY terminates this PSFLA, you must immediately stop using the SOFTWARE and/or FIRMWARE and destroy all copies of the SOFTWARE and/or FIRMWARE and all of its component parts.
5. **COPYRIGHT.** All title and copyrights in and to the SOFTWARE and FIRMWARE, the accompanying printed materials, and any copies of the SOFTWARE and FIRMWARE, are owned by BRADY or its suppliers. All title and intellectual property rights in and to the content which may be accessed through use of the SOFTWARE and/or FIRMWARE is the property of the respective content owner and may be protected by applicable copyright or other intellectual property laws and treaties. This PSFLA grants you no rights to use such content. If this SOFTWARE and/or FIRMWARE contains documentation which is provided only in electronic form, you may print one copy of such electronic documentation. You may not copy the printed materials accompanying the SOFTWARE and/or FIRMWARE.

6. U.S. GOVERNMENT RESTRICTED RIGHTS. All SOFTWARE and/or FIRMWARE provided to the U.S. Government pursuant to solicitations issued on or after December 1, 1995 is provided with the commercial rights and restrictions described elsewhere herein. All SOFTWARE and/or FIRMWARE provided to the U.S. Government pursuant to solicitations issued prior to December 1, 1995 is provided with RESTRICTED RIGHTS as provided for in FAR, 48 CFR 52.227-14 (JUNE 1987) or DFAR, 48 CFR 252.227-7013 (OCT 1988), as applicable.
7. EXPORT RESTRICTIONS. You agree that you will not export or re-export the SOFTWARE and/or FIRMWARE, any part thereof, or any process or service that is the direct product of the SOFTWARE and/or FIRMWARE (the foregoing collectively referred to as the "RESTRICTED COMPONENTS"), to any country, person or entity subject to U.S. export restrictions. You specifically agree not to export or re-export any of the RESTRICTED COMPONENTS (i) to any country to which the U.S. has embargoed or restricted the export of goods or services, which currently include, but are not necessarily limited to Cuba, Iran, Iraq, Libya, North Korea, Sudan and Syria, or to any national of any such country, wherever located, who intends to transmit or transport the RESTRICTED COMPONENTS back to such country; (ii) to any person or entity who you know or have reason to know will utilize the RESTRICTED COMPONENTS in the design, development or production of nuclear, chemical or biological weapons; or (iii) to any person or entity who has been prohibited from participating in U.S. export transactions by any federal agency of the U.S. government. You warrant and represent that neither the U.S. Commerce Department, Bureau of Export Administration nor any other U.S. federal agency has suspended, revoked or denied your export privileges.
8. DISCLAIMER OF WARRANTIES. BRADY AND ITS SUPPLIERS PROVIDE THE SOFTWARE AND/OR FIRMWARE "AS IS" AND WITH ALL FAULTS, AND HEREBY DISCLAIM ALL OTHER WARRANTIES AND CONDITIONS, EITHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING BUT NOT LIMITED TO ANY (IF ANY) IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, OF FITNESS FOR A PARTICULAR PURPOSE, OF LACK OF VIRUSES, AND OF LACK OF NEGLIGENCE OR LACK OF WORKMANLIKE EFFORT. ALSO, THERE IS NO WARRANTY OR CONDITION OF TITLE, OF QUIET ENJOYMENT, OR OF NONINFRINGEMENT. THE ENTIRE RISK ARISING OUT OF THE USE OR PERFORMANCE OF THE SOFTWARE AND FIRMWARE IS WITH YOU. BRADY DOES NOT WARRANT THAT THE OPERATION OF THE SOFTWARE OR FIRMWARE WILL BE UNINTERRUPTED OR ERROR FREE.
9. EXCLUSION OF ALL DAMAGES. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, IN NO EVENT SHALL BRADY OR ITS SUPPLIERS BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, DIRECT, INDIRECT, SPECIAL, PUNITIVE, OR OTHER DAMAGES WHATSOEVER (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR ANY INJURY TO PERSON OR PROPERTY, DAMAGES FOR LOSS OF PROFITS, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION, FOR LOSS OF PRIVACY FOR FAILURE TO MEET ANY DUTY INCLUDING OF GOOD FAITH OR OF REASONABLE CARE, FOR NEGLIGENCE, AND FOR ANY PECUNIARY OR OTHER LOSS WHATSOEVER) ARISING OUT OF OR IN ANY WAY RELATED TO THE USE OF OR INABILITY TO USE THE SOFTWARE OR FIRMWARE, WHETHER BASED ON CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE, EVEN IF BRADY OR ANY SUPPLIER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THIS EXCLUSION OF DAMAGES SHALL BE EFFECTIVE EVEN IF ANY REMEDY FAILS OF ITS ESSENTIAL PURPOSE.

10. LIMITATIONS AND RELEASE OF LIABILITY.

- To the extent that the SOFTWARE and/or FIRMWARE covered by this PSFLA includes emulation libraries, emulation libraries are offered "as is". BRADY does not provide any warranty associated with the emulation libraries.
- The emulation library does not work 100% correctly or cover 100% of the functionality of the printer language being emulated. Modifications may be required for each target application. If such modification is necessary, prior to making any such modification, you are required to contact BRADY to obtain express written consent to make such modification.
- If the emulation library is sold separately by an authorized party other than BRADY ("RESELLER" -- A party other than BRADY which is authorized by BRADY to distribute the SOFTWARE and/or FIRMWARE with its application so long as the SOFTWARE and/or FIRMWARE is used with a BRADY printer) or is sold bundled with a printer to an end-user by a RESELLER, and if claims are made by the RESELLER that the emulation library performs as a 100% emulation solution, BRADY is not responsible if the emulation library does not work as advertised by the RESELLER. Furthermore, BRADY is not liable for any damages directly or indirectly relating to such emulation library which is sold separately by the RESELLER or which is sold bundled with a printer to an end-user by the RESELLER.
- The SOFTWARE and FIRMWARE was provided to you at no additional charge and BRADY has included in this PSFLA terms that disclaim all warranties and liability for the SOFTWARE and FIRMWARE. To the full extent allowed by law, YOU HEREBY RELEASE BRADY AND ITS SUPPLIERS FROM ANY AND ALL LIABILITY ARISING FROM OR RELATED TO ALL CLAIMS CONCERNING THE SOFTWARE AND/OR FIRMWARE OR ITS USE. If you do not wish to accept the SOFTWARE OR FIRMWARE under the terms of this PSFLA, do not use the PRINTER enclosed with or otherwise associated with this PSFLA.

11. GOVERNING LAW. If you acquired the SOFTWARE and/or FIRMWARE in the United States of America, the laws of the State of Illinois, U.S.A. will apply to this contract. If you acquired this SOFTWARE and/or FIRMWARE outside of the United States of America, then local law may apply. If any provision of this PSFLA is held invalid, the remainder of this PSFLA shall continue in full force and effect.

12. QUESTIONS. Should you have any questions, or if you desire to contact BRADY for any reason, please contact the BRADY subsidiary serving your country, or write:

Brady Corporation
6555 West Good Hope Road
P.O. Box 2131
Milwaukee, WI 53201-2131

Appendix

Printer Interface Technical Information

Serial Data Communications

Table 4 illustrates the pin connections on the DB-25 connector at the rear of the printer.

Table 4

Pin No.	Description
1	Chassis ground
2	TXD (transmit data) output from the printer
3	RXD (receive data) input to the printer
4	RTS (request to send) output from the printer
5	Not used
6	DSR (data set ready) input to the printer
7	RS-232 signal ground
8	Not used
9	+5v @ 1A source
10	Not used
11	RS-485 signal ground
12	Not used
13	RS-485 input A(-)
14	RS-485 output A(-)
15	Not used
16	RS-485 input B(+)
17 and 18	Not used
19	RS-485 output B(+)
20	DTR (data terminal ready) output from the printer
21-25	Not used

RS-232 Interface

This printer is configured as Data Terminal Equipment (DTE). The serial data cable used to connect the printer to the host computer is one of two styles:

- **9-pin to 25-pin cable** – (null modem cable) must have a 9-pin “D” type (DB-9S) connector on the end that is plugged into the serial port at the computer and a 25-pin “D” type (DB-25P) connector on the other end that is plugged into the connector at the rear of the printer. Figure 37 shows the required cable connections.

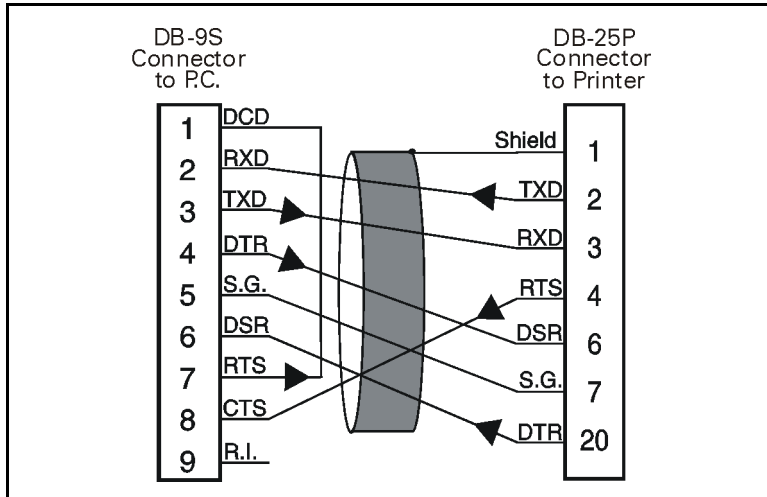


Figure 37

- **25-pin to 25-pin cable** – (null modem cable) must have a 25-pin “D” type (DB-25S) connector on the end that is plugged into the serial port at the computer and a 25-pin “D” type (DB-25P) connector on the other end that is plugged into the connector at the rear of the printer. Figure 38 shows the required cable connections.

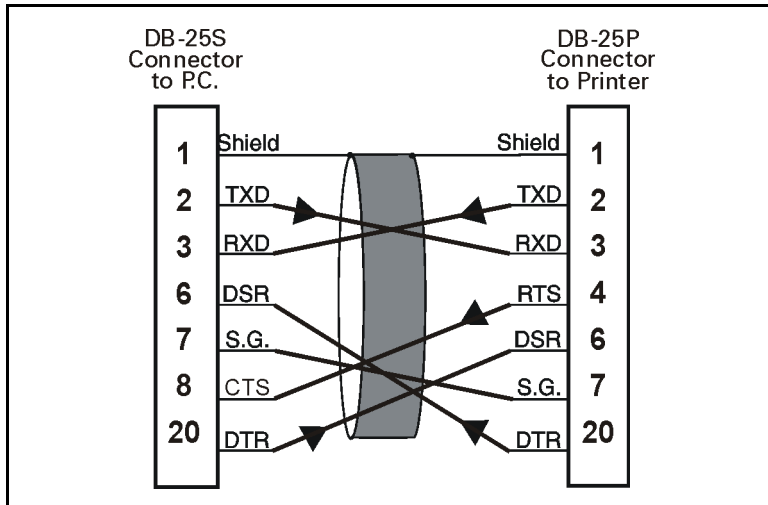


Figure 38

Hardware Control Signal Descriptions

For all RS-232 input and output signals, the Brady 200MVP or 300MVP printer follows both the Electronics Industries Association (EIA) RS-232 and the Consultative Committee for International Telegraph and Telephone (CCITT) V.24 standard signal level specifications.

When DTR/DSR handshaking is selected, the Data Terminal Ready (DTR) control signal output from the printer controls when the host computer may send data. DTR ACTIVE (positive voltage) permits the host to send data. When the printer places DTR in the INACTIVE (negative voltage) state, the host must not send data.



NOTE: When XON/XOFF handshaking is selected, data flow is controlled by the ASCII Control Codes DC1 (XON) and DC3 (XOFF). The DTR Control lead has no effect.


Request to send (RTS) is a control signal from the printer that is connected to the clear to send (CTS) input at the host computer. RTS is always ACTIVE (positive voltage) when the printer is on.



CAUTION: This printer complies with FCC “Rules and Regulations”, Part 15 for Class B Equipment, using fully shielded six-foot data cables. Use of longer cables or unshielded cables may increase radiated emissions above the Class B limits.

RS-485 Interface

Figure 39 illustrates the pin connections on the DB-25P connector at the rear of the printer that are used for the RS-485 communication protocol.

 **NOTE:** XON/XOFF handshaking must be used for RS-485 communications.

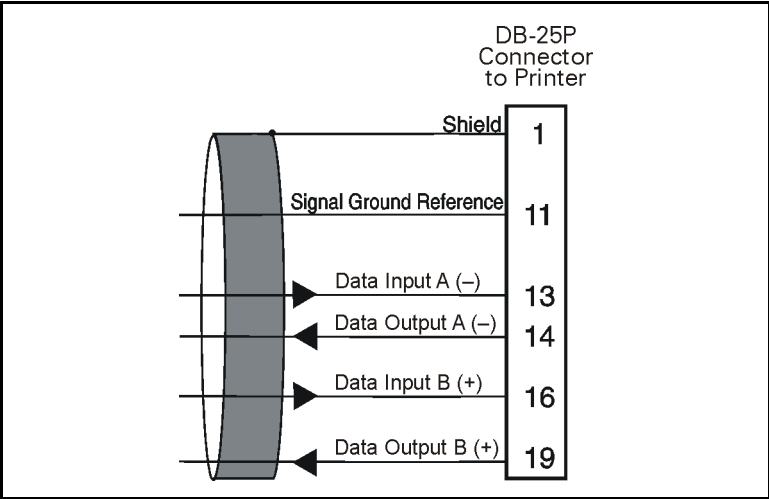


Figure 39

Parallel Data Communications

Table 5 illustrates the pin connections on the bi-directional parallel connector at the rear of the printer.

Table 5

Pin No.	Description
1	nStrobe/HostClk
2-9	Data Bits 1-8
10	nAck/PtrClk
11	Busy/PtrBusy
12	PError/AckDataReq
13	Select/Xflag
14	nAutoFd/HostBusy
15	Not used
16 and 17	Ground
18	+5v @1A
19-30	Ground
31	ninit
32	nFault/nDataAvail
33 and 34	Not used
35	+5v through a 3.3 KW resistor
36	nSelectin/1284 active

Parallel Interface

The 8-bit parallel data interface supports IEEE 1284 bi-directional parallel communications in “nibble mode.” The parallel interface provides a means of communication that is typically faster than the previously mentioned serial interface methods. In this method, the bits of data that make up a character are sent all at one time over several wires in the cable, one bit per wire.

Parallel Cabling Requirements

An IEEE-1284 compatible bi-directional parallel data cable is required when this communication method is used. The required cable must have a standard 36-pin parallel connector on one end that is plugged into the mating connector located at the rear of the printer. The other end of the cable connects to the printer connector at the host computer.

Index

A

- AC Power Cord Specifications, 83
- Adjustments
 - Printhead Pressure, 62
 - Reflective Sensor, 11
 - Transmissive Sensor, 9
- Auto Calibration, 13

B

- Bar Code Specifications, 82
- BradyConnect License Agreement, 87

C

- Cabling Requirements, 18
- Calibrating the Printer, 5
- CANCEL Key Self Test, 74
- Cleaning
 - Cutter Module, 60
 - Exterior, 56
 - Interior, 56
 - Power Peel-Off Module, 58
 - Printhead and Platen Roller, 56
 - Sensors, 57
 - Value Peel-off Module, 59
- Communications Diagnostics Test, 77
- Configuration
 - Changing Password-Protected Parameters, 38
 - Configuration and Calibration Sequence, 40
 - Entering the Setup Mode, 37
 - Leaving the Setup Mode, 39
 - Printer Driver Software, 16
 - Printer, 15
- Continuous Media, 7
- Cutter Loading Mode, 23

D

- Damage, 2
- Data Communications
 - Parallel, 96
 - Serial, 91
- Data Specifications, 17

F

- Fanfold Media Loading, 32
- FEED Key Self Test, 76
- Front Panel
 - Display, 19
 - Keys, 20
 - Lights, 21
- Fuse Replacement, 65

G

- General Specifications, 79

H

- Hardware Control Signal Descriptions, 94

I

- Inspection, 1
- Interfaces
 - Parallel, 96
 - RS-232, 17, 92–94
 - RS-422, 17
 - RS-485, 17, 95

L

- LCD Error Conditions and Warnings, 67
- Liner Take-up Loading Mode, 26
- Loading
 - Factory Defaults, 77
 - Media, 8
 - Ribbon, 12
- Lubrication, 61

M

- Media Loading
 - Cutter Mode, 23
 - Liner Take-up Mode, 26
 - Power Peel-off Mode, 28
 - Power Rewind Mode, 30
 - Tear-off Mode, 22
 - Value Peel-off Mode, 24
- Media Requirements, 2
- Media Sensor Positioning, 9–11
- Media Specifications, 81
- Media Types
 - Continuous, 7
 - Non-Continuous Web, 6

N

- Non-Continuous Web Media, 6

O

- Operator Controls
 - Front Panel, 14
 - POWER Switch, 14
- Options, 81

P

- Parallel Data Communications, 96
- Parallel Interface, 96
- Password-Protected Parameters, 38
- PAUSE Key Self Test, 75
- Positioning the Media Sensor
 - Reflective Sensor, 10
 - Transmissive Sensor, 9

- Power Cord Specifications, 83
- Power Peel-off Loading Mode, 28
- Power Rewind
 - Loading Mode, 30
 - Media Alignment, 64
- POWER Switch, 14
- Print Mode, 8
- Printer Calibration, 5
- Printer Configuration, 15
- Printer Overview, 4
- Printer Power, 3
- Printhead Pressure Adjustment, 62
- Printing a Test Label, 16
- Printing Specifications, 80

R

- Reflective Sensor
 - Adjustment, 11
 - Positioning, 11
- Reporting Damage, 2
- Ribbon
 - Removal, 36
 - Requirements, 2
 - Specifications, 80
- RS-232 Interface, 92–94
- RS-485 Interface, 95

S

- Self Tests
 - CANCEL Key, 74
 - Communications Diagnostics, 77
 - FEED Key, 76
 - PAUSE Key, 75
- Serial Data Communications, 91
- Setup Mode (Configuration), 37–39
- Specifications
 - AC Power Cord, 83
 - Bar Codes, 82
 - General, 79
 - Media, 81
 - Options, 81
 - Printing, 80
 - Ribbon, 80
 - Zebra Programming Language (ZPL II), 82
- Storage, 2

T

- Tear-off Loading Mode, 22
- Technical Support Service, v
- Transmissive Sensor
 - Adjustment, 9
 - Positioning, 9
- Types of Media
 - Continuous Media, 7
 - Non-Continuous Black Mark Media, 7
 - Non-Continuous Web Media, 6

U

- Unpacking, 1

V

- Value Peel-off Loading Mode, 24

W

- Warranty Information, 85

Z

- Zebra Programming Language Specifications, 82

