110*Xi*III*Plus*
Maintenance Manual

Zebra®

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Maintenance Manual

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Printed on chlorine-free recycled paper.

Part Number: 13185L-002 Rev. A

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Description

The Zebra 110*Xi*III*Plus*™-Series thermal transfer demand printers are versatile label and ticket printers designed to print high-quality bar codes, various sizes and styles of alphanumeric characters, and graphics in either Thermal Transfer or Direct Thermal Mode. The 110*Xi*III*Plus*-Series printers have the flexibility to meet a variety of applications. The Zebra Programming Language II (ZPL II) allows the programmer to format the printed material. ZPL II is transparent to protocol converters and allows the 110*Xi*III*Plus*-Series printers to be integrated easily with most systems and host mainframes.

Scope

This manual contains the information necessary for the proper maintenance of the Zebra 110*Xi*III*Plus*-Series of printers. Information presented applies to all models unless otherwise indicated.

Section 1 System Description provides an overview of the contents of this maintenance manual, as well as overall description and specifications of the printers.

Section 2 Operation Overview details the printer operator controls, power and data cable hookup, loading supplies in all modes, setting up software, calibration, and configuration.

Section 3 Troubleshooting presents the diagnostic tests that are built into the printers. Examples of the labels that print for most of these diagnostic tests are illustrated. Troubleshooting tables showing symptoms, diagnosis, and action assist the service technician in quickly locating and repairing a printer fault. Example labels illustrate several common misalignment conditions and the best methods of adjustment.

Section 4 Maintenance discusses recommended cleaning procedures for the printer and printhead. Recommended cleaning agents and a preventive maintenance schedule are specified. Disassembly, replacement, and reassembly instructions for the printers are provided. Required tools and test equipment are specified. Adjustment procedures are provided along with the required tensions, torque, and tolerances. Instructions on AC power fuse replacement are also contained in this section.

Option Kits provides disassembly, installation, and reassembly instructions for the option kits. Required tools and test equipment are specified. Adjustment procedures are provided along with the required tensions, torque, and tolerances.

Section 5 Maintenance and Assembly Drawings provides the assembly drawing and parts lists.

This manual is intended to supplement the printer's Users Guide by providing additional information to aid the service technician in troubleshooting and maintaining the printer.

Related Manuals

A further description of the printer may be found in the *110XiIIIPlus-Series Users Guide* (Zebra part Number 13164L). More information on ZPL II programming language can be found in the *ZPL II Programming Guide Volume 1: Command Reference* (Zebra part number 45541L), *ZPL II Programming Guide Volume 2*: (Zebra part number 45542L) and the *ZebraNet Networking: Print Server II Operations Guide* (Zebra Part Number 45537L).

Options

Cutter	IBM® twinax interface
Rewind	IBM coax interface
ZebraDesigner/ZebraDesigner Pro Windows™-based WYSIWYG on-screen label design and print application software	ZebraNet® PrintServer II™, including Ethernet interface (10Base-T), WebView graphical setup and printer control, and Alert unsolicited error notification
Cutter tray	RS-485 interface
Cutter-rewind	Downloadable fonts
Media supply spindle (1.6 inch/40 mm core)	Linear PCMCIA cards 8 MB and 32 MB available
Media supply spindle (3 inch/76 mm core)	Font cards
Double-hinged media door with clear panel	ATA-style PCMCIA Memory cards 16, 32, 64, and 128 MB available
Applicator interface	Wireless Card Socket
Printer drivers for Windows operating systems (excluding Windows XP)	

Printer Specifications

Zebra Programming Language II (ZPL II)

Downloadable graphics, scalable and bitmap fonts, label template, and formats	Controlled via main frame, mini-computer, PC, portable data terminal
Object copying between memory areas (RAM, and memory card)	Programmable quantity with print, pause, and cut control
Code Page 850 character set	Communicates in printable ASCII characters
Adjustable print cache	Error-checking protocol
Data compression	Slew command
Automatic virtual input buffer management	Automatic serialization of fields
Automatic memory allocation	In-spec OCR-A and OCR-B
Format inversion	UPC/EAN
Mirror image printing	User-programmable password
Four-position field rotation (0°, 90°, 180°, and 270°)	Status message to host upon request

BAR CODES

Bar code ratios—2:1, 7:3, 5:2, and 3:1

Two-dimension bar codes

- CODABLOCK
- PDF-417 (2-dimensional bar code)
- Code 49 (2-dimensional bar code)
- Data Matrix (except rectangular)
- QR-Code
- TLC 39
- MaxiCode
- Rss Barcode

Linear bar codes

- LOGMARS
- Planet Code
- EAN-8, EAN-13, EAN 2- extensions
- Code 39
- MSI
- Code 11
- POSTNET
- Code 93
- Standard 2 of 5
- UPC-A, UPC-E, UPC extensions
- Plessey
- Industrial 2 of 5
- ISBT-128
- Codabar (supports ratios of 2:1 up to 3:1)
- Code 128 (with subsets A, B, and C and UCC case codes)
- Interleaved 2 of 5 (supports ratios of 2:1 up to 3:1, Modulus 10 Check Digit)

Note • Check digit calculation where applicable

Standard Printer Fonts

Fonts A, B, C, D, E, F, G, H, and GS are expandable up to 10 times, height and width independently. Fonts E and H (OCR-A and OCR-B) are not considered “in-spec” when expanded.

The scalable smooth font 0 (CG Triumvirate™ Bold Condensed) is expandable on a dot-by-dot basis, height and width independent, while maintaining smooth edges. Maximum character size depends on available memory.

IBM Code Page 850 international character sets are available in the fonts A, B, C, D, E, F, G, and 0 through software control.

Table 1-1. Font Matrix for 8 dot/mm (203 dpi) Printheads

Font	Matrix					Type*	Character Size					
							Inches			Millimeters		
	Height	Width	Baseline Dots	Intercharacter Gap	Cell Width	Font Matrix	Height	Width	Char/ Inch	Height	Width	Char/ mm
A	9	5	7	1	6	U-L-D	0.044	0.030	33.87	1.13	0.75	1.33
B	11	7	11	2	9	U	0.054	0.044	22.58	1.38	1.13	0.89
C, D	18	10	14	2	12	U-L-D	0.089	0.059	16.93	2.25	1.50	0.67
E	28	15	23	5	20	OCR-B	0.138	0.098	10.16	3.50	2.50	0.40
F	26	13	21	3	16	U-L-D	0.128	0.079	12.70	3.25	2.00	0.50
G	60	40	48	8	48	U-L-D	0.295	0.236	4.23	7.50	6.00	0.17
H	21	13	21	6	19	OCR-A	0.103	0.094	10.69	2.63	2.38	0.42
GS	24	24	24	2	26	Symbol	0.118	0.128	7.82	3.00	3.25	0.31
P	20	18	N/A	N/A	N/A	U-L-D	0.098	0.089	N/A	2.50	2.25	N/A
Q	28	24	N/A	N/A	N/A	U-L-D	0.138	0.118	N/A	3.50	3.00	N/A
R	35	31	N/A	N/A	N/A	U-L-D	0.172	0.153	N/A	4.38	3.88	N/A
S	40	35	N/A	N/A	N/A	U-L-D	0.197	0.172	N/A	5.00	4.38	N/A
T	48	42	N/A	N/A	N/A	U-L-D	0.236	0.207	N/A	6.00	5.25	N/A
U	59	53	N/A	N/A	N/A	U-L-D	0.290	0.261	N/A	7.38	6.63	N/A
V	80	71	N/A	N/A	N/A	U-L-D	0.394	0.349	N/A	10.00	8.88	N/A

*U = Uppercase, L = Lowercase, D = Descenders

Table 1-2. Font Matrix for 12 dot/mm (300 dpi) Printheads

Font	Matrix					Type*	Character Size					
							Inches			Millimeters		
	Height	Width	Baseline Dots	Intercharacter Gap	Cell Width	Font Matrix	Height	Width	Char/ Inch	Height	Width	Char/ mm
A	9	5	7	1	6	U-L-D	0.030	0.020	50.00	0.76	0.51	1.97
B	11	7	11	2	9	U	0.037	0.030	33.33	0.93	0.76	1.31
C, D	18	10	14	2	12	U-L-D	0.060	0.040	25.00	1.52	1.02	0.98
E	41	20	32	6	26	OCR-B	0.137	0.087	11.54	3.47	2.20	0.45
F	26	13	21	3	16	U-L-D	0.087	0.053	18.75	2.20	1.35	0.74
G	60	40	48	8	48	U-L-D	0.200	0.160	6.25	5.08	4.06	0.25
H	30	19	30	9	28	OCR-A	0.100	0.093	10.71	2.54	2.37	0.42
GS	24	24	24	2	26	Symbol	0.080	0.087	11.54	2.03	2.20	0.45
P	20	18	N/A	N/A	N/A	U-L-D	0.067	0.060	N/A	1.69	1.52	N/A
Q	28	24	N/A	N/A	N/A	U-L-D	0.093	0.080	N/A	2.37	2.03	N/A
R	35	31	N/A	N/A	N/A	U-L-D	0.117	0.103	N/A	2.96	2.62	N/A
S	40	35	N/A	N/A	N/A	U-L-D	0.133	0.117	N/A	3.39	2.96	N/A
T	48	42	N/A	N/A	N/A	U-L-D	0.160	0.140	N/A	4.06	3.56	N/A
U	59	53	N/A	N/A	N/A	U-L-D	0.197	0.177	N/A	5.00	4.49	N/A
V	80	71	N/A	N/A	N/A	U-L-D	0.267	0.237	N/A	6.77	6.01	N/A

*U = Uppercase, L = Lowercase, D = Descenders

Table 1-3. Font Matrix for 24 dot/mm (600 dpi) Printheads

Font	Matrix					Type*	Character Size					
							Inches			Millimeters		
	Height	Width	Baseline Dots	Inter-Character Gap	Cell Width	Font Matrix	Height	Width	Char/ Inch	Height	Width	Char/ mm
A	9	5	7	1	6	U-L-D	0.015	0.010	100.00	0.38	0.25	3.94
B	11	7	11	2	9	U	0.018	0.015	66.70	0.45	0.38	2.62
C, D	18	10	14	2	12	U-L-D	0.030	0.020	50.00	0.76	0.51	1.96
E	82	40	64	6	26	OCR-B	0.137	0.087	11.54	3.47	2.20	0.45
F	26	13	21	3	16	U-L-D	0.043	0.027	37.50	1.10	0.69	1.48
G	60	40	48	8	48	U-L-D	0.100	0.080	12.50	1.25	1.10	0.50
H	60	38	30	9	28	OCR-A	0.100	0.093	10.71	2.50	2.40	0.42
GS	24	24	24	2	26	Symbol	0.040	0.040	25.00	1.00	2.10	0.90
P	20	18	N/A	N/A	N/A	U-L-D	0.067	0.060	N/A	1.69	1.52	N/A
Q	28	24	N/A	N/A	N/A	U-L-D	0.093	0.080	N/A	2.37	2.03	N/A
R	35	31	N/A	N/A	N/A	U-L-D	0.117	0.103	N/A	2.96	2.62	N/A
S	40	35	N/A	N/A	N/A	U-L-D	0.133	0.117	N/A	3.39	2.96	N/A
T	48	42	N/A	N/A	N/A	U-L-D	0.160	0.140	N/A	4.06	3.56	N/A
U	59	53	N/A	N/A	N/A	U-L-D	0.197	0.177	N/A	5.00	4.49	N/A
V	80	71	N/A	N/A	N/A	U-L-D	0.267	0.237	N/A	6.77	6.01	N/A

*U = Uppercase, L = Lowercase, D = Descenders

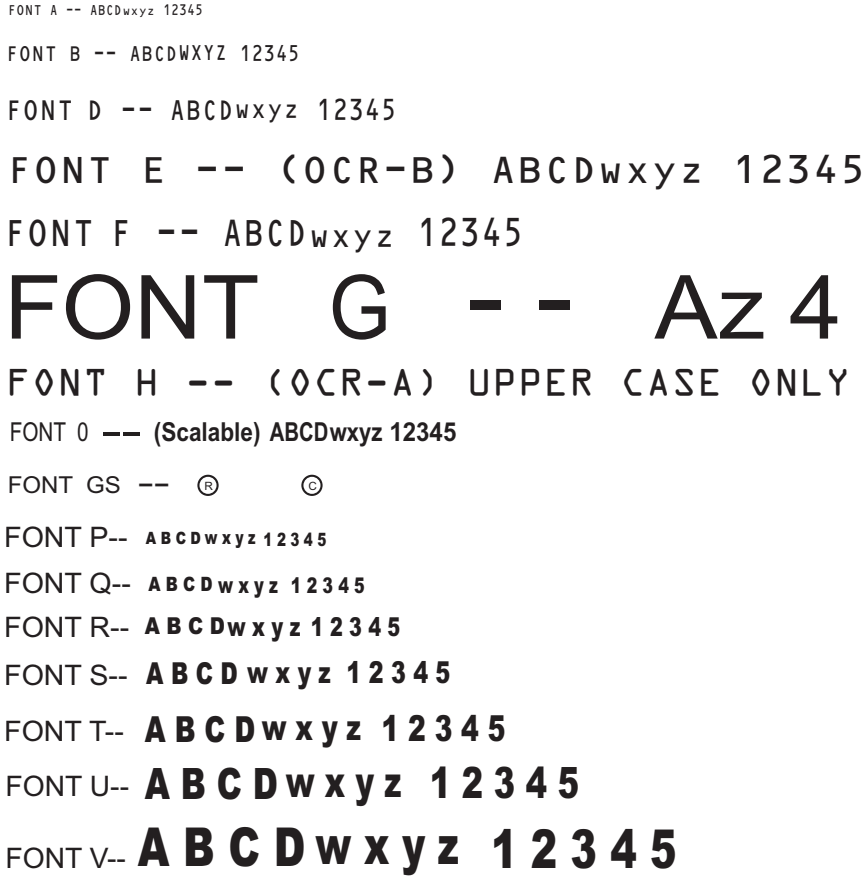


Figure 1-1. Default Font Examples

Media Considerations

Media Specifications			In inches (mm)
Minimum label length		Tear-off	0.7 (18)
		Peel-off	0.5 (13)
		Cutter	1.5 (38)
		Rewind	0.25 (6)
Total media width (includes liner)		Minimum	0.79 (20)
		Maximum	4.5 (114)
Total thickness (includes liner)		Minimum	0.003 (0.076)
		Maximum	0.012 (0.305)
Cutter maximum full-width media thickness			0.009 (0.23)
Roll media core diameter			3 (76)
Maximum roll diameter			8 (203)
Interlabel gap		Minimum	0.079 (2)
		Preferred	0.118 (3)
		Maximum	0.157 (4)
Maximum internal fanfold media pack size (label + liner) L × W × H			8.0 × 3.54 × 4.5 (203 × 140 × 114)
Ticket/tag sensing notch L × W			0.12 × 0.25 (3 × 6)
Ticket/tag sensing hole diameter			0.125 (3)
Effective leading edge registration accuracy*		Vertical	±0.060 (±1.5)
		Horizontal	±0.060 (±1.5)
Additional specs for black mark sensing	Mark length (measuring parallel to label/tag edge)	Minimum	0.12 (3)
		Maximum	0.43 (11)
	Mark width (measuring perpendicular to label/tag edge)	Minimum	0.43 (11)
		Maximum	Full media width
	Mark location		Marks must be located within 0.040 (1) of inside media edge.
	Mark density		> 1.0 ODU (Optical Density Unit)
	Maximum density of liner on which black mark is printed		0.5 ODU

* Media registration and minimum label length are affected by media type and width, ribbon type, print speed, and printer mode of operation. Performance improves as these factors are optimized. Zebra recommends always qualifying any application with thorough testing.

Ribbon Considerations

Ribbon Specifications			110*Xi*III*Plus*-Series	
Ribbon width (To protect the printheads from wear, Zebra recommends using ribbon at least as wide as the media you are using.)		Maximum	Inches ′= feet	mm m= meter
			4.33	110
		Minimum	0.79	20
Standard lengths	2:1 media to ribbon roll ratio		984′	300 m
	3:1 media to ribbon roll ratio		1476′	450 m
Roll size	Inner diameter of core		1.0	25.4
	Outside diameter of full ribbon roll		3.2	81.3
Ribbon wound coatedside out				

Printer Considerations

Printing Specifications			203 dpi	300 dpi	600 dpi
Resolution			203 dots/inch (8 dots/mm)	300 dots/inch (12 dots/mm)	600 dots/inch (23.5 dots/mm)
Dot size (square)			0.0049 × 0.0049 (0.125 × 0.125)	0.0033 × 0.0039 (0.084 × 0.100)	0.0016 × 0.0016 (0.042 × 0.042)
First dot location			0.10 ±0.035 (2.5 ±0.9)	0.023 ±0.035 (0.6 ±0.9)	0.023 ±0.035 (0.6 ±0.9
Max print width			4.09 (104)	3.4 (86)	3.2 (81)
Print length (max)	Non-continuous printing	Memory 16 MB standard	39 (991)	39 (991)	20 (508)
		32 MB optional max.	39 (991)	39 (991)	39 (991)
	Continuous printing	16 MB standard	150(3810)	80 (2032)	20 (508)
		32 MB optional max>	150 (3810)	100 (2540)	52 (1321)
Bar code modulus (“×”) dimension		Ladder (rotated) orientation	4.9 mil to 49 mil	3.9 mil to 39 mil	1.6 mil to 16 mil
		Picket fence (nonrotated)	4.9 mil to 49 mil	3.33 mil to 33 mil	1.6 mil to 16 mil
Thin film printhead with Element Energy Equalizer (E^3)®			Yes	Yes	Yes

General Specifications

Physical Characteristics		
Height	15.5 in.	393.7 mm
Width	10.37 in.	263.5 mm
Depth	19.5 in.	495.3 mm
Weight (without options)	50.0 lbs.	22.7 kg

Electrical Requirements

- Auto-ranging 90–264 VAC; 48–62 Hz
- 5 Amps for entire AC voltage range
- 25 Watts standby power consumption
- 200 Watts maximum power consumption for 110*Xi*III*Plus*-Series (printing 100% black at 6 ips)
- Bi-National UL 60950 3rd edition; Certified to CAN/CSA-C22.2 No. 60950-00 Third edition; IEC 950/EN60950:1992 with amendments 1 through 4 (CB Scheme); EN55022: 1998 Class B; EN55024: 1998; EN61000-3-2, 3 with amendment A12; Canadian ICES-003, Class B; Argentina 92/98 Phase 3; Australia AS/NZS 3548; R.O.C. CNS 13438
- CISPR22B-FCC and Canadian DOC class A-Compliant
- CE-mark compliant

Power Cord Specifications

- The overall length must be less than 9.8′ (3.0 m).
- It must be rated for at least 5 A, 250 V.
- Refer to Figure 1-2. 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.
- The AC power plug and IEC 320 connector must bear the certification mark of at least one of the international safety organizations shown in Figure 1-3.

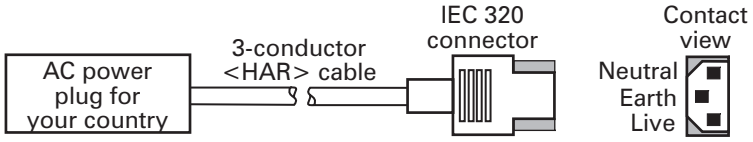


Figure 1-2. AC Power Cord

Figure 1-3. International Safety Organizations Symbols

Environmental Operating Ranges

Temperature	Operating	Thermal Transfer: +41°F to +104°F (+5°C to +40°C) Direct Thermal: +32°F to +104°F (0°C to +40°C)
	Storage	–40°F to +140°F (–40°C to +60°C)
Noncondensing relative humidity	Operating	20% to 85%
	Storage	5% to 85%

Communication Specifications

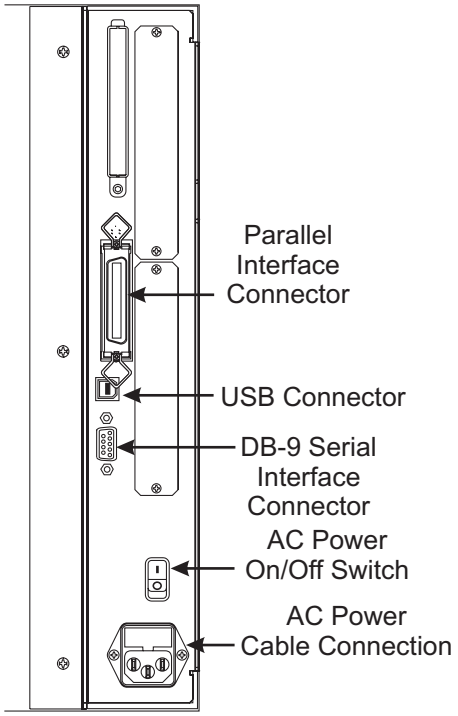


Figure 1-4. Interface Connections

System Considerations

Interfaces

The method of interfacing this printer to a data source depends on the communication options installed in the printer.

Standard interfaces are an RS-232 serial data port with a DB-9 connector, an IEEE 1284-compliant bidirectional parallel port, and a USB 2.0 port.

For all RS-232 input and output signals, the printer follows the specifications of the Electronics Industries Association (EIA) RS-232 and the Consultative Committee for International Telegraph and Telephone (CCITT) V.24.

The optional ZebraNet PrintServer II enables the printer to be connected to 10Base-T Ethernet networks, and a Wireless Card Socket option is available as well. In addition, the IBM Twinax or IBM Coax option is available for those applications that require them.

Cabling Requirements

Data cables must be fully shielded and fitted with metal or metallized 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 • Zebra printers comply with FCC "Rules and Regulations," Part 15, Subpart J, for Class A Equipment, using fully shielded 6′ (2 m) data cables. Use of longer cables or unshielded cables may increase radiated emissions above the Class A limits.

RS-422 and RS-485 applications should use twisted shielded pairs as recommended in the TIA/EIA-485 specifications.

Cable Connections

Parallel Data Port

Refer to Figure 1-5.

When communicating via the parallel port, refer to page 1-14 to configure the communication parameters for the printer.

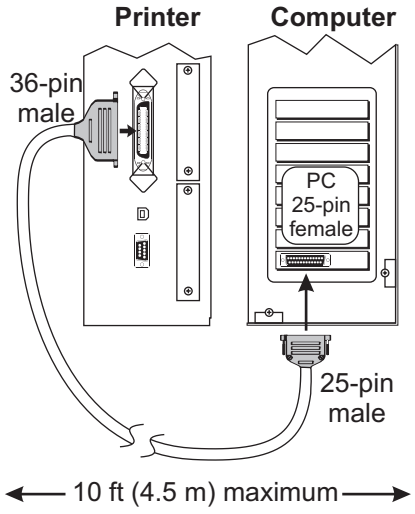


Figure 1-5. Parallel Data Port

Serial Data Port

Refer to Figure 1-6.

When communicating via an asynchronous serial data port, the baud rate, number of data, parity, and handshaking are user-selectable. Parity applies only to data transmitted by the printer because the parity of received data is ignored. The values selected must be the same as those used by the host equipment connected to the printer.

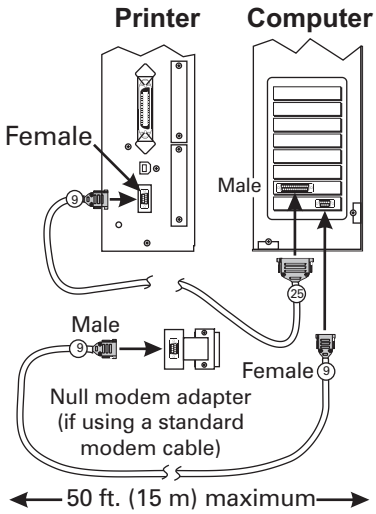


Figure 1-6. Serial Data Port

USB 2.0 Port

In addition to serial and parallel data ports, a USB 2.0 port (which is USB 1.1- and 1.0-compatible) is available to connect your printer to the host equipment. The industry standard USB cable has an A-male connector on one end and a B-male connector on the other end (see Figure 1-7). Zebra recommends using a USB 2.0-certified compliant cable that is a maximum of 15 ft. (5 m) in length (Zebra part number 33011).

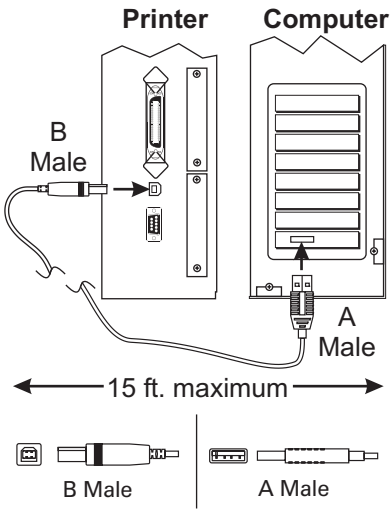


Figure 1-7. USB Port

Communication Buffer

The size of the buffer is 5000 characters. As data is received by the processor monitors the number of characters in the buffer. If the buffer is filled beyond 4744 characters, the Data Terminal Ready (DTR) control leads to the off condition (negative voltage) or transmits an XOFF (DC-3) control character to the host. When the buffer empties below 4250 characters, DTR turns on (positive voltage) or transmits an XON (DC-1) control character to the host.

Serial Data Communication Interface Overview

The connection for this standard interface is made through the female DB-9 connector on the rear panel. A DB-9 to DB-25 interface module is available for all RS-232 connections through a DB-25 cable.

For all RS-232 input and output signals, the printer follows the specifications of the (EIA) RS-232 and (CCITT) V.24.

The table below shows the pin configuration and function of the rear panel serial data connector on the printer.

Pin No.	Name	Description
1	—	Not connected
2	RXD	Receive data—data input to printer
3	TXD	Transmit data—data output from printer
4	DTR	Data terminal ready—output from printer
5	SG	Signal ground
6	DSR	Data set ready—input to printer
7	RTS	Request to send—output from printer
8	CTS	Clear to send—input to printer
9	+5 VDC	+5 VDC signal output

Notes • Pin 9 is also available as a +5 VDC power source at 750 mA. The maximum current draw may be limited by option configuration. To enable this capability, a jumper on the computer's main logic board needs to be installed on JP1, pins 2 and 3.

An interface module is required for RS-422/RS-485 interface support.

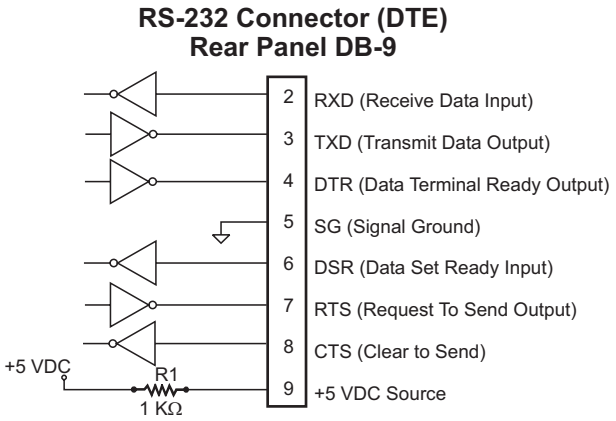


Figure 1-8. DB-9 RS-232 Connector

Notes • Pin 1 is unused and not terminated.

The cable used to connect the printer to a computer must be a null modem (crossover) cable. To connect the printer to any other DTE devices, a null modem cable must also be used.

Serial Communication Signal Levels

Refer to Figure 1-9. RS-232 data signals are defined as either Mark or Space, while control signals are On (**I**) (Active-Positive Voltage) or Off (**O**) (Inactive-Negative Voltage). Although the permitted voltage levels can range from ±3 VDC to ±25 VDC, the levels for the printer are as follows:

RS-232 Transmit and Receive Data

Mark or Off (**O**) = –7 to –10 VDC

Space or On (**I**) = +7 to +10 VDC

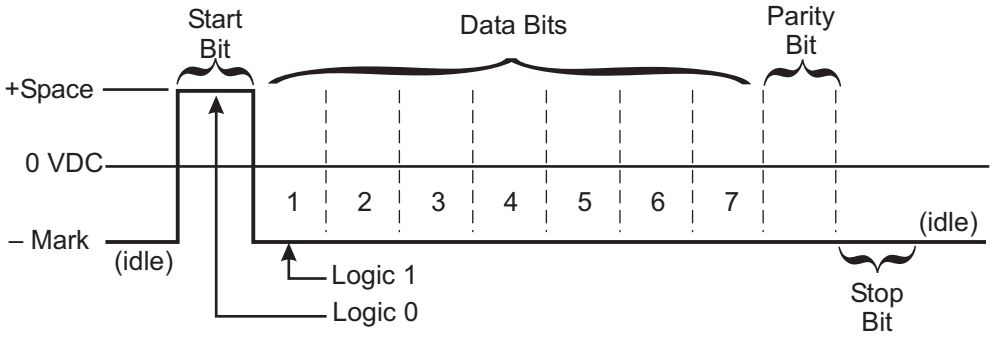


Figure 1-9. RS-232 Signaling

Refer to Figure 1-10. RS-422 and RS-485 data signals are also either Mark or Space. The voltage levels are +5 VDC and 0 VDC when monitored from a specified reference point. The levels for the printer, when referenced to signal ground, are:

RS-422 and RS-485 Transmit and Receive Data

Mark Output/Input A = +5 V and Output/Input B = 0 V

Space Output/Input A = 0 V and Output/Input B = +5 V

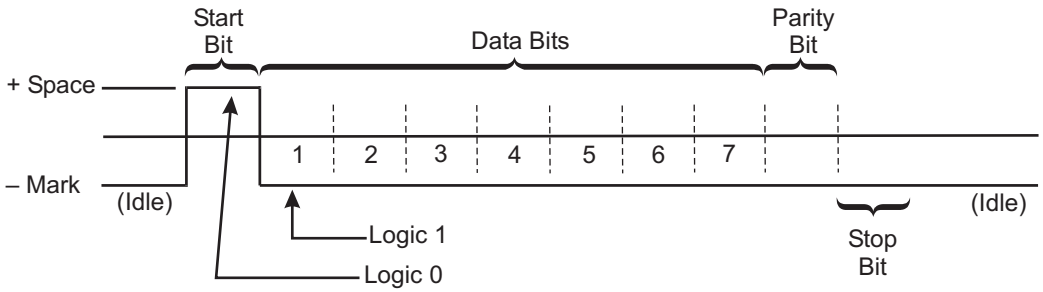


Figure 1-10. RS-422 and RS-485 Signaling

Communication Code

The printer sends and receives ASCII (American Standard Code for Information Interchange) characters in one of two formats, Serial Data or Parallel Data.

Note • When using the serial data format, the baud rate, number of data and stop bits per character, and parity are selectable. Parity applies only to data transmitted by the printer. For received data, the parity bit is ignored.

Parallel Data Communications Interface Overview

A standard 36-pin parallel connector is available at the rear of the printer for connection to the data source. Under normal circumstances, data sent from the printer to the host in response to a Printer Status Request command is sent through the RS-232 serial port. However, if the host has a properly configured IEEE-1284 parallel port that is recognized by the printer, status information is returned through the parallel port. Port selection for status information is determined each time the printer is turned On (**I**).

Parallel Port Connector

The following table shows the pin configuration and function of a standard PC-to-printer Centronics parallel cable.

36-Pin Connector	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	+5 V @ 1A (110*Xi*III*Plus* = 750 mA)
19–30	Signal Grounds
31	ninit
32	nFault/NDataAvail
33 and 34	Not Used
35	+5 V through a 4.7 KΩ Resistor
36	NSelectIn/1284 active

Note • Optional Ethernet networking communications is available with ZebraNet PrintServer II. Refer to the *ZebraNet Networking: PrintServer II Operating Guide* (Zebra part number 45537L) when using this communications option.

Optional Interface Boards

For information about the IBM plug-compatible Twinax Interface, the IBM plug-compatible Coax Interface, or the RS-485 network interface, refer to the instructions that accompany the interface option.

NOTES:

Section 2
Operations Overview

Introduction

Thank you for purchasing this high-quality Zebra 110*Xi*III*Plus* printer. This manual provides all of the information you need to operate your printer.

- The *ZPL II Programming Guide Volume I and Volume II* (Zebra part number 45540L) shows you how to create the perfect label format for your application. The books contain information about your printer's enhanced operating system features. There are two ways to obtain these books: on the user CD-ROM (supplied with the printer), on Zebra's Web site (www.zebra.com).
- The *ZebraNet Networking: PrintServer II Installation and Users Guide* (Zebra part number 45537L) explains how you can quickly set up your printer on an IP network and experience ZebraLink, the revolutionary real-time connectivity and control solution for Zebra printers (optional ZebraNet PrintServer II required).
- The *ZebraNet Wireless Card Socket Installation and Users Guide* (Zebra Part Number 48622L) provides detailed information on Zebra's wireless Ethernet solution for the 110*Xi*III*Plus* printer.
- The *Maintenance Manual* (Zebra part number 13185L-001) contains the information you need to maintain your printer.

Unpack and Inspect

Carefully unpack and inspect the printer for possible damage incurred during shipment.

- 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. Contact your authorized Zebra reseller for instructions.

Report Damage

If you discover shipping damage:

- Immediately notify the shipping company and file a damage report with them. Zebra Technologies is not responsible for any damage incurred during shipment of the equipment and will not repair this damage under warranty.
- Keep the carton and all packing material for inspection.
- Notify your authorized Zebra reseller.

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

Media and Ribbon Requirements

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

We strongly recommend using Zebra Technologies-brand supplies for continuous high-quality printing. A wide range of paper, polypropylene, polyester, and vinyl stock has been specifically engineered to enhance the printing capabilities of the printer and to ensure against premature printhead wear.

- 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.
- In Thermal Transfer Mode, use ribbon that is as wide as or wider than your media. 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.)

Power Cord

Caution:

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

Note • Depending on how your printer was ordered, a power cord may or may not be included. If one is not included, or if the one included is not suitable for your requirements, refer to Power Cord Specifications below.

The power cord connector must be plugged into the mating connector on the rear of the printer before it is connected to a live power source.

Ensure the power switch (at the back of the printer) is in the Off (**O**) position before connecting the power cable to an electrical outlet.

Power Cord Specifications

- The overall length must be less than 9.8 ft. (3.0 m).
- It must be rated for at least 5 A, 250 V.
- Refer to Figure 2-1. 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.
- 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 2-2.

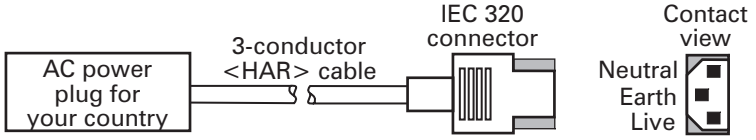


Figure 2-1. AC Power Cord

Figure 2-2. International Safety Organizations Symbols

Printer Media Loading Overview

Figure 2-3 outlines the basic components of your printer. Depending on the options you have selected, your printer may look slightly different.

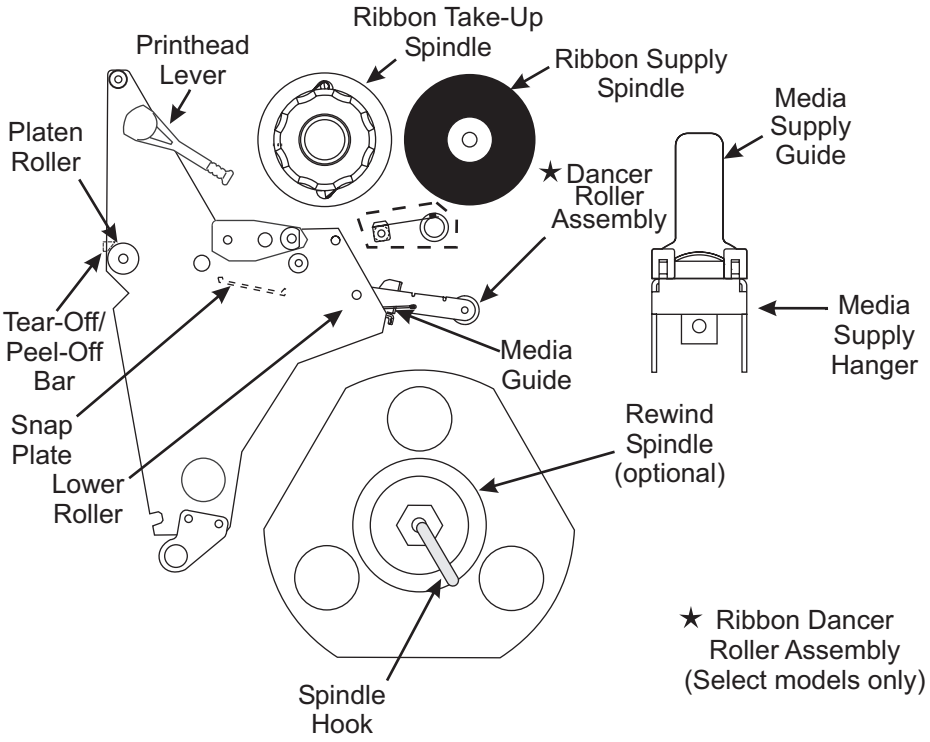


Figure 2-3. 110*Xi*III*Plus* Overview

Operator Controls

This section discusses the functions of the various controls and indicators on the printer. The technician should become familiar with each of these functions.

Front Panel Display

The Front Panel Display communicates operational and programming modes and parameters.

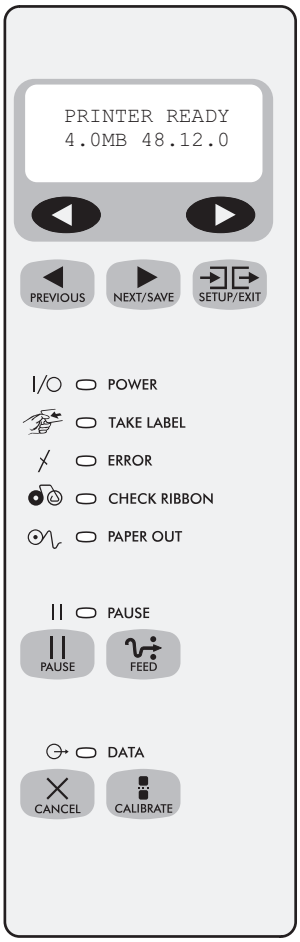


Figure 2-4. Front Panel

Front Panel Keys

Refer to Figure 2-4.

Table 2-1. Front Panel Keys

Key	Function
	Starts and stops the printing process. • If the printer is not printing: no printing can occur. • If the printer is printing: printing stops once the current label is complete. • Press to remove error messages from the display.
	**Note** • Pause Mode can also be activated via ZPL II (`~PP`, `^PP`).
	Forces the printer to feed one blank label each time the key is pressed. • Printer not printing: one blank label immediately feeds. • Printing: one blank label feeds after the current batch of labels is complete.
	**Note** • Equivalent to the Slew to Home Position (`~PH`, `^PH`) ZPL II instruction.
	When in Pause Mode, this key cancels print jobs. • Print job in queue: press once for each print job to be deleted. • Press and hold for several seconds to cancel all print jobs in the printer's memory. The DATA light turns off.
	When in Pause Mode, this key calibrates the printer for: • Media length. • Media type (continuous or non-continuous). • Print mode (Direct Thermal or Thermal Transfer). • Sensor values.
	**Note** • The following keys are used only when configuring the printer. Specific uses of these keys are explained in the Configuration section of the *Users Guide*.
	• Scrolls back to previous parameter. • Press and hold to go backward quickly through parameter sets.
	• Scrolls forward to the next parameter. Saves any changes made in the configuration and calibration sequence. • Press and hold to advance quickly through parameter sets.

Table 2-1. Front Panel Keys (Continued)

Key	Function
	Enters and exits Configuration Mode.
	These keys change the parameter values. They are used in different ways depending on the parameter displayed. Common uses are to increase/ decrease a value, answer “yes” or “no,” indicate “On (**I**)” or “Off (**O**),” scroll through several choices, enter the password, or set up the printer for a firmware download.

Front Panel Lights

Refer to Figure 2-5.

Note • If two operating conditions occur simultaneously (for example, one that causes a light to be on constantly and one that causes the same light to flash), the light flashes.

Table 2-2. Front Panel Lights

Light	Status	Indication
Power	Off	The printer is Off (**O**) or power is not applied.
	On	The printer is On (**I**).
Take Label	Off	Normal operation.
	Flashing	(Peel-Off Mode only.) The label is available. Printing is paused until the label is removed.
Error	Off	Normal operation — no printer errors.
	Flashing	A printer error exists. Check the display screen for more information.
Check Ribbon	Off	Normal operation — ribbon (if used) is properly loaded.
	On	Printing is paused, the front panel displays a warning message, and the Pause light is On. If the printer is in Direct Thermal Mode: Ribbon is loaded. If the printer is in Thermal Transfer Mode: No ribbon is loaded.
Paper Out	Off	Normal operation — media is properly loaded.
	On	No media is under the media sensor. Printing is paused, the display shows an error message, and the Pause light is On.
Pause	Off	Normal operation.
	On	The printer has stopped all printing operations. **PAUSE** was pressed, a pause command was included in the label format, the online verifier detected an error, or a printer error was detected. Refer to the display screen for more information.
Data	Off	Normal operation. No data is being received or processed.
	On	Data processing or printing is taking place. No data is being received.
	Flashing	The printer is receiving data from or sending status information to the host computer. Flashing slows when the printer cannot accept more data, but returns to normal once data is again being received.

Load Media

Note • A calibration must be performed when media and ribbon are first installed in the printer, or when there is a change to a different type of media or ribbon.

Tear-Off Mode

Refer to Figure 2-5.

1. Open the printhead.
2. Slide the media guide and media supply guide as far from the printer frame as possible. Flip down the media supply guide.
3. Load media as shown.
4. Flip up the media supply guide. Slide in the media guide and media supply guide so they just touch, but do not restrict, the edge of the roll.
5. Close the printhead.

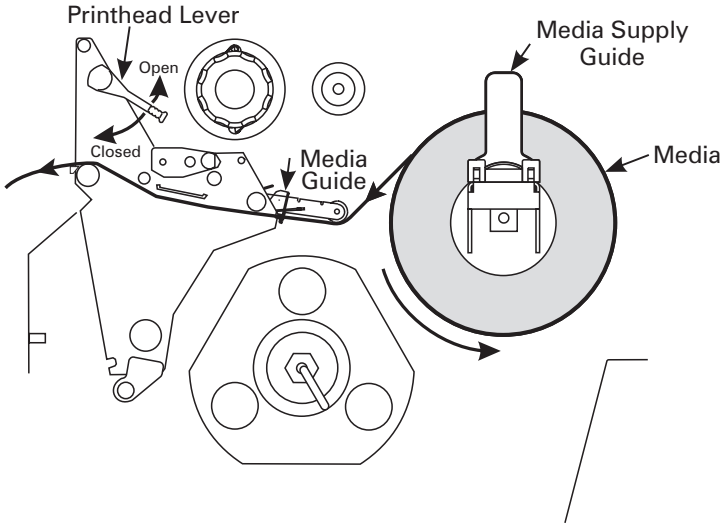


Figure 2-5. Roll Media Loading Tear-Off Mode

Peel-Off Mode

Note • Rewind option required.

Refer to Figure 2-6.

1. Remove the rewind plate from the front of the printer. Store it on the two mounting screws on the inside of the front panel.
2. Open the printhead.
3. Slide the media guide and media supply guide as far away from the printer frame as possible. Flip down the media supply guide.
4. Load media as shown.

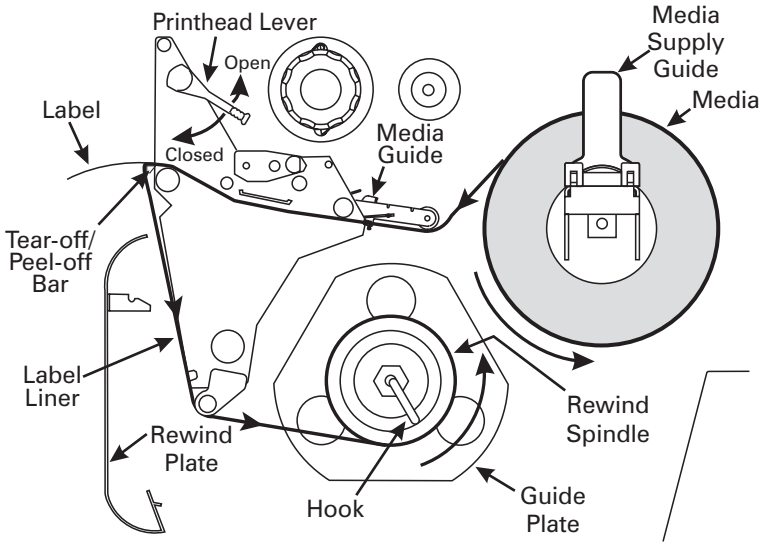


Figure 2-6. Peel-Off Mode Loading

5. When loading media, allow approximately 36 in. (900 mm) of media to extend past the tear-off/peel-off bar. Remove all labels from this portion to create a leader.
6. Remove the hook from the rewind spindle. If you are using a core, slide it onto the rewind spindle until it is flush against the guide plate.
7. Wind the label liner around either the 3 in. (76 mm) core or the rewind spindle, and reinstall the hook.
8. Flip up the media supply guide. Slide in the media guide and media supply guide so they just touch, but do not restrict, the edge of the roll.

Before closing the printhead, ensure that:

- The media is positioned against the inside guides.
- The media is taut and parallel with itself and the pathway when wound onto the rewind spindle/core.

9. Close the printhead.

To remove the used liner, refer to Remove Liner on page 2-14.

Rewind Mode (without cutter option)

Note • Rewind option required.

Refer to Figure 2-7.

1. Remove the rewind plate from its storage location in front of the print mechanism inside the media compartment.
2. Invert the rewind plate so the lip on the attached hook plate points down.
3. Insert the hook plate lip approximately 1/2 in. (13 mm) into the lower opening in the side plate.
4. Align the upper end of the rewind plate with the corresponding opening in the side plate. Slide in the rewind plate so it stops against the printer's main frame.
5. Open the printhead.
6. Slide the media guide and media supply guide as far away from the printer frame as possible. Flip down the media supply guide.
7. Load media as shown.
8. When loading media, allow approximately 36 in. (91 cm) of media to extend past the printhead.
9. Remove the hook from the rewind spindle. If you are using a core, slide it onto the rewind spindle until it is flush against the guide plate.
10. Wind the liner around either the 3 in. (76 mm) core or the rewind spindle and reinstall the hook.
11. Flip up the media supply guide. Slide in the media guide and media supply guide so they just touch, but do not restrict, the edge of the roll.

Before closing the printhead, ensure that:

- The media is positioned against the inside guides.
- The media is taut and parallel with itself and the pathway when wound onto the rewind spindle/core.

12. Close the printhead.

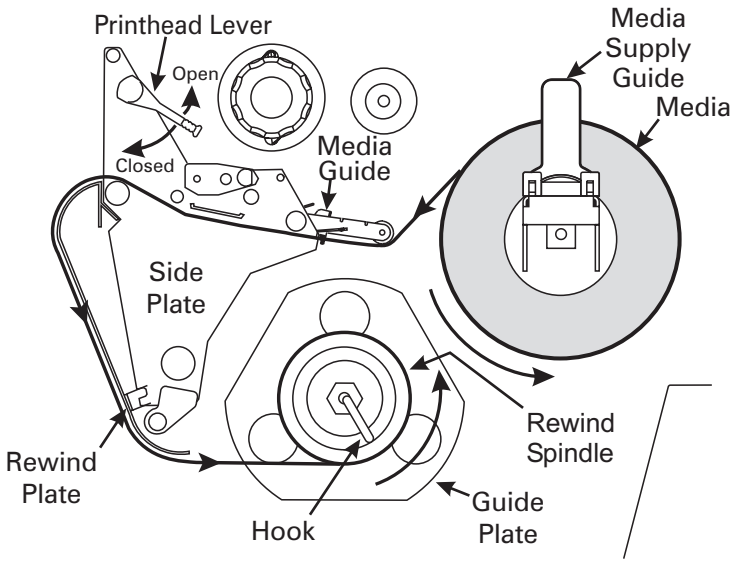


Figure 2-7. Rewind Mode without Cutter Option

Cutter Mode

Refer to Figure 2-8.

1. Open the printhead.
2. Slide the media guide and media supply guide as far away from the printer frame as possible. Flip down the media supply guide.
3. Load media as shown.
4. Flip up the media supply guide. Slide in the media guide and media supply guide so they just touch, but do not restrict, the edge of the roll.
5. Close the printhead.
6. The printer automatically feeds out and cuts one label when the printer is turned On (**I**).

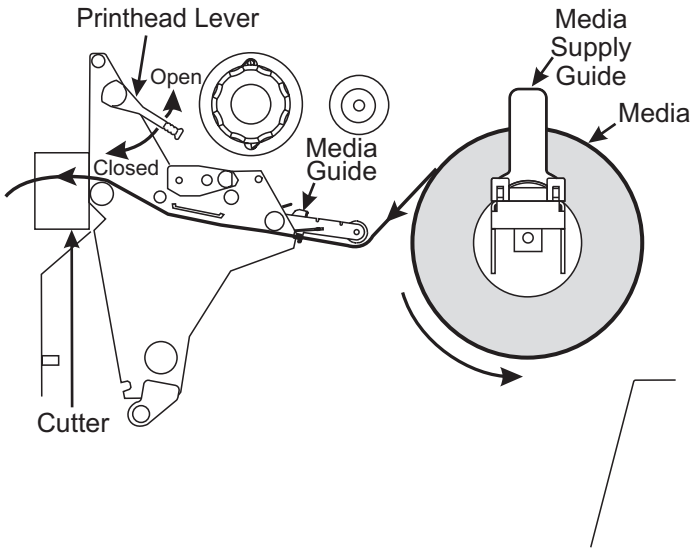


Figure 2-8. Cutter Mode

Rewind Mode (for Printers with Cutter Option)

Refer to Figure 2-9.

1. Remove the rewind plate from its storage location in front of the print mechanism inside the media compartment.
2. Invert the rewind plate so the lip on the attached hook plate points down.
3. Insert the hook plate lip approximately 1/2 in. (13 mm) into the lower opening in the side plate. Slide in the rewind plate so it stops against the printer's main frame.
4. Insert the two small tabs on the rewind plate into the corresponding slots in the cutter support bracket. (The rewind plate should spring into the proper position.)
5. Open the printhead.
6. Slide the media guide and media supply guide as far away from the printer frame as possible. Flip down the media supply guide.
7. Load media as shown.

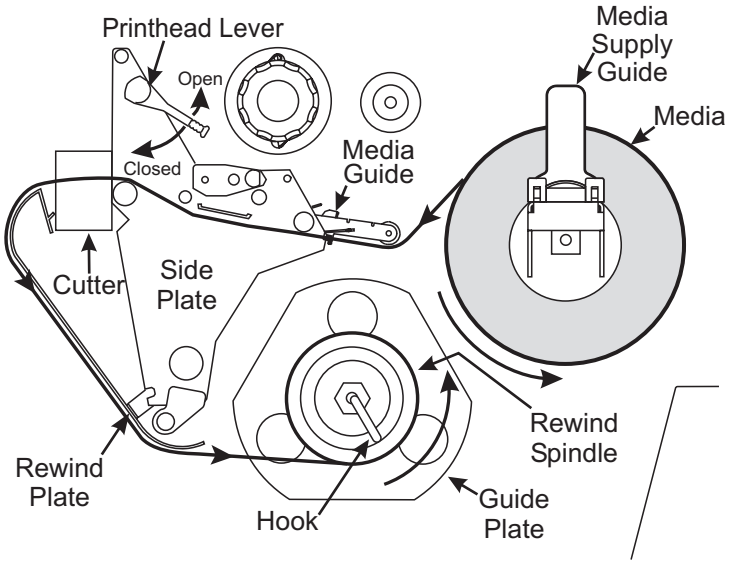


Figure 2-9. Rewind Mode w/Cutter Loading

8. When loading media, allow approximately 36 in. (900 mm) of media to extend past the printhead.
9. Remove the hook from the rewind spindle. If you are using a core, slide it onto the rewind spindle until it is flush against the guide plate.
10. Wind the label liner around either the 3 in. (76 mm) core or the rewind spindle, and reinstall the hook.
11. Flip up the media supply guide. Slide in the media guide and media supply guide so they just touch, but do not restrict, the edge of the roll.

Before closing the printhead, ensure that:

- The media is positioned against the inside guides.
- The media is taut and parallel with itself and the pathway when wound onto the rewind spindle/core.

12. Close the printhead.

Remove Liner

Because the capacity of the rewind spindle is a standard-size media roll, Zebra recommends performing this procedure whenever you change the media.

Note • You do not need to turn the printer Off (**O**) for this procedure.

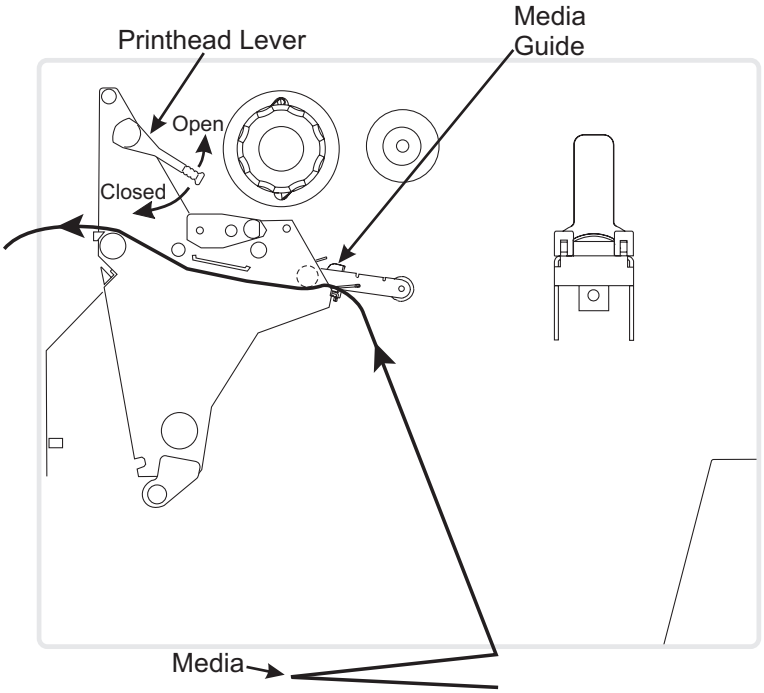
1. Unwind approximately 36 in. (900 mm) of liner from the rewind spindle. Cut it off at the spindle.
2. Pull out the hook. Slide the liner off the rewind spindle and discard.

Load Fanfold Media

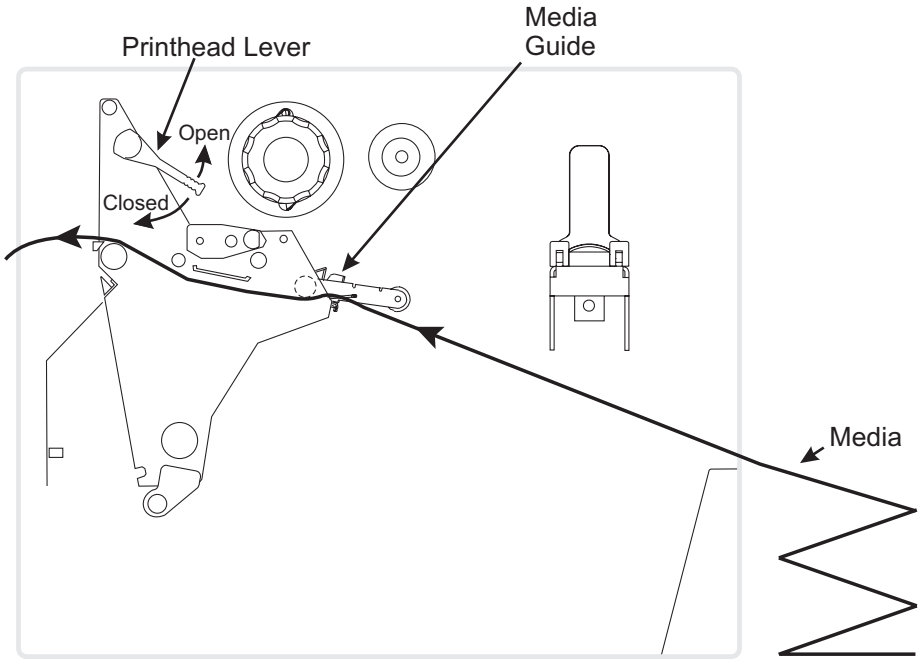
Refer to Figure 2-10.

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

1. Open the printhead.
2. Slide the media guide as far away from the printer frame as possible.
3. Load media as shown. If in Cutter Mode, route media through the cutter.
4. Slide in the media guide so it just touches, but does not restrict, the edge of the roll.
5. Close the printhead.



Bottom Supply



Rear Supply

Figure 2-10. Fanfold Media

Load Ribbon

To load ribbon, refer to Figure 2-13 and follow the procedure below.

Note • Use ribbon that is at least as wide as the media. The smooth liner of the ribbon protects the printhead from wear and premature failure due to excessive abrasion. When printing in Direct Thermal Mode, ribbon is not used and should not be loaded in the printer.

1. Align the segments of the ribbon supply spindle as shown.
2. Place the ribbon roll on the ribbon supply spindle.

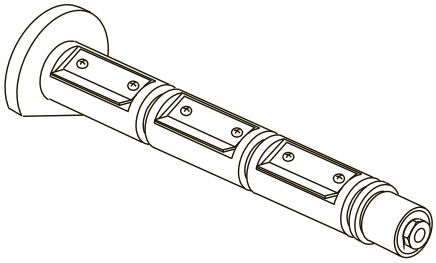


Figure 2-11. Ribbon Supply Spindle

Note • Ensure that the core is pushed up against the stop on the ribbon supply spindle and that the ribbon is aligned squarely with its core. If this is not done, the ribbon may not cover the printhead entirely on the inside, exposing print elements to potentially damaging contact with the media.

3. Open the printhead.

Note • (Optional) To make ribbon loading and unloading easier, make a leader for your ribbon roll if it doesn't already have one.

4. Tear off a strip of media (labels and liner) about 6–12 in. (15–31 cm) long from the roll. Peel off a label from this strip. Apply half of this label to the end of the strip and the other half to the end of the ribbon. This half acts as a ribbon leader.

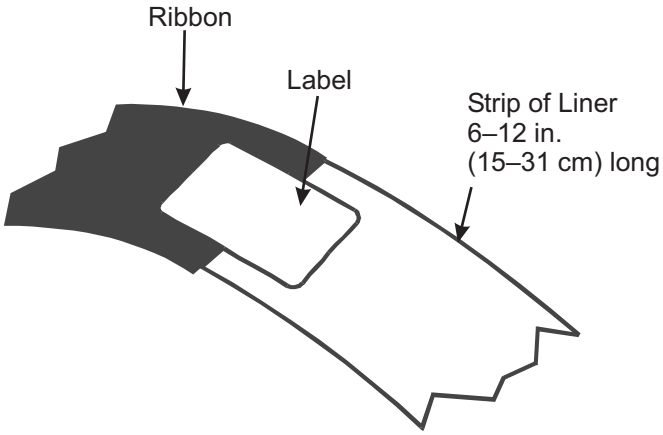


Figure 2-12. Ribbon Leader

5. Thread the ribbon (with leader, if used) as shown in Figure 2-13 without creasing or wrinkling it.
6. Place the ribbon with leader around the ribbon take-up spindle and wind counterclockwise for several turns.

7. Close the printhead.

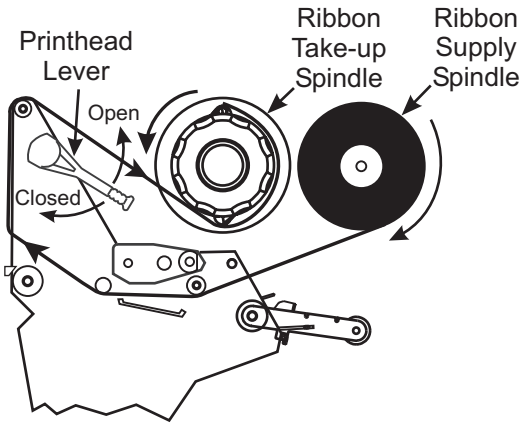


Figure 2-13. Load Ribbon

Ribbon Removal

8. If the ribbon has not run out, break the ribbon as close to the ribbon take-up spindle as possible.
9. Refer to Figure 2-14. While holding the ribbon take-up spindle, turn the knob (**1**) clockwise until it stops. This causes the ribbon release bars (**2**) to pivot down, easing the spindle's grip on the wound ribbon.
10. Slide the ribbon off the ribbon take-up spindle. Once the spent ribbon has been removed, ensure that the arrow on the knob aligns with the indented notch in the ribbon take-up spindle.
11. Remove the core from the ribbon supply spindle.
12. Follow the ribbon loading procedure on page 2-16 to load the new ribbon.

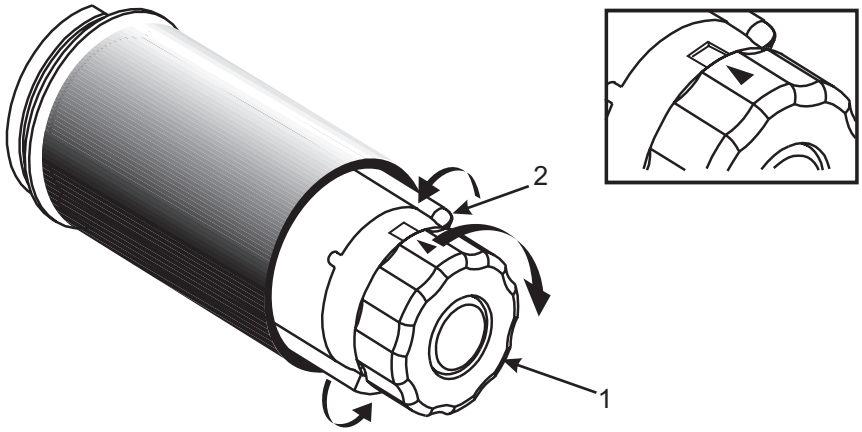


Figure 2-14. Remove Ribbon

Position Media Sensors

Transmissive Sensor

The web or gap sensor, better known as the transmissive sensor, detects the gap or hole/notch between labels.

The transmissive sensor consists of two parts: a light source (the lower media sensor) and a light sensor (the upper media sensor). The media passes between the two.

The upper media sensor must be positioned:

- Directly over the hole or notch, or
- Anywhere along the width of the media if there is a gap between labels.

Note • If you are using continuous media, position the upper media sensor over the media to detect an out-of-paper condition.

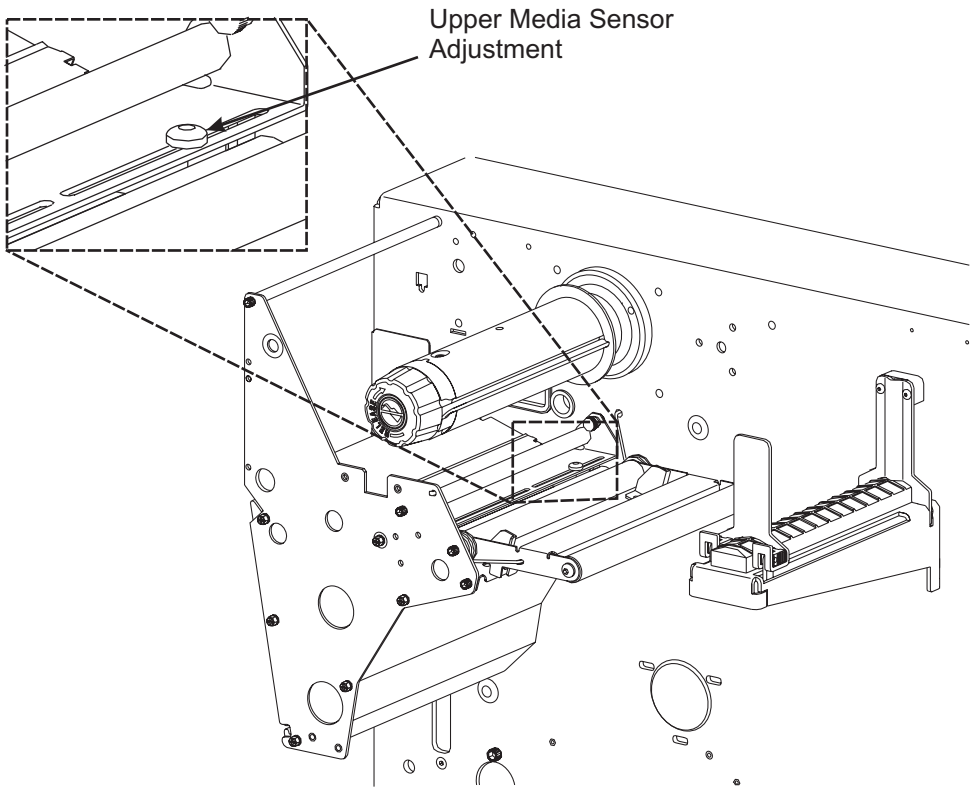


Figure 2-15. Upper Media Sensor

Adjust Upper Media Sensor

Refer to Figure 2-15. (For clarity, not all printer parts are shown.)

1. Remove the ribbon (if it is installed).
2. Locate the upper media sensor. The upper media sensor “eye” is directly below the adjustment screw head.
3. Slightly loosen the upper media sensor adjustment screw, one half to one full turn maximum.
4. Using the tip of the screwdriver, slide the upper sensor along the slot to the desired position.
5. Secure the upper media sensor by tightening the screw.

Adjust Lower Media Sensor

Refer to Figure 2-16 and position the lower media sensor by sliding it in its slot until it is positioned under the upper media sensor.

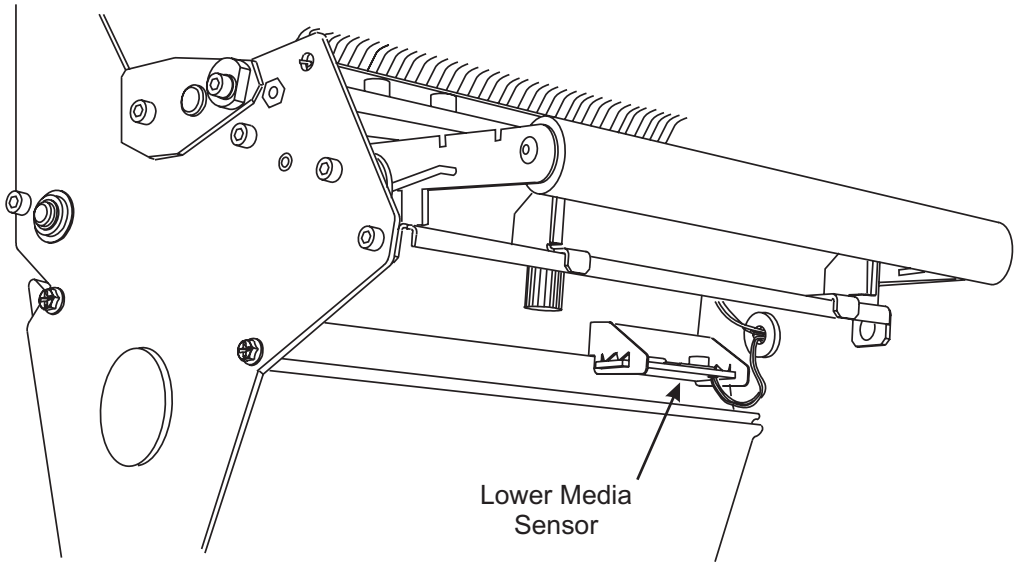


Figure 2-16. Lower Media Sensor

Black Mark Sensor

The black mark sensor is in a fixed position and enabled via the front panel (details in Configuring the Printer in the *Users Guide*).

Set up the Software

Download Software from the Internet

If you have access to a PC and the Internet, go to www.zebra.com for firmware downloads and instructions.

Zebra Printer Driver Installation

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

Zebra drivers allow developers and end users to use and build Windows applications that operate Zebra printers at their highest level of efficiency. Zebra has drivers for:

- Windows 98/95/3.1 (Version 2.5)
- Windows NT and Windows 2000 (Version 2.3)

Initial Power Up

After you have correctly installed the media and ribbon, turn the printer On (**I**). The printer performs a Power On Self-Test (POST). When this is complete, the display shows Printer Ready.

Calibrate

Note • This procedure must be performed when the printer is first installed or if it does not properly detect the top of the label.

To calibrate the printer, you must do the following:

- Determine the type of media or labels being used.
- Choose the print method.
- Position the media sensors, if necessary.
- Configure the printer and software or driver based on the label being used.
- Perform a media and ribbon calibration.
- Print a test label.

Two types of calibrations can be performed by the 110*Xi*III*Plus* printer:

Type 1 — Auto-Calibration: The 110*Xi*III*Plus*-Series printers auto-calibrate on power up. Turning the printer On (**I**) causes the printer to feed media and ribbon and set the values it detects. This includes media, liner (the spaces between labels), media out, and ribbon in and out status. This form of calibration also occurs as part of the Media and Ribbon Calibration procedures.

Type 2 — Manual Calibration (using non-continuous media): Performing the Media and Ribbon Calibration procedure below first resets the sensitivity of the sensors to detect the media and ribbon you are using. With the sensors at their new sensitivity levels, the printer then performs the standard calibration described above. Changing the type of ribbon or media may require this calibration process to reset the sensitivity of the media and ribbon sensors. Indications that the sensitivity may need to be reset include a CHECK RIBBON light with the ribbon properly installed or noncontinuous media being treated as continuous media.

Calibrate Media and Ribbon (Manual) Procedure

Note • The following procedure adjusts the sensitivity of the media and ribbon sensors. It must be followed exactly as presented. All steps must be performed even if only one of the sensors requires adjustment.

1. Press **NEXT/SAVE** until the LCD shows;

```
MEDIA AND RIBBON
      CALIBRATE
```

2. Press the right oval key to start the calibration procedure. The front panel LCD shows:

```
LOAD BACKING
CANCEL   CONTINUE
```

3. Press the left oval key to cancel the operation, or open the printhead and remove as many labels as needed to load a section of blank liner material under the media sensor. If you are unsure of the media sensor location, refer to Figure 2-15 and Figure 2-16.
4. Press the right oval key to continue. The front panel LCD shows:

```
REMOVE RIBBON
CANCEL   CONTINUE
```

5. Press the left oval key to cancel the operation.
   or
   Remove the ribbon (sliding it as far to the right as possible has the same effect as removing it), and close the printhead.
6. Press the right oval key to continue. The front panel LCD shows:

```
  CALIBRATING
  PLEASE WAIT
```

7. The printer automatically adjusts the base settings as determined by the media and ribbon sensors according to the specific media and ribbon combination you are using. When this part of the calibration process is completed, the front panel LCD shows:

8. Open the printhead and pull the media forward until a label is positioned under the media sensor.
9. Move the ribbon back to its proper position. To ensure that the ribbon is smooth, rotate the take-up spindle a couple of turns.
10. Close the printhead.
11. Press the right oval key to continue. The printer performs the second part of the calibration process and the front panel LCD shows:

The media sensor determines label length and a new value based on the presence of media and liner. The ribbon sensor determines a new value based on the presence of ribbon. Once media stops feeding, the calibration process is complete.

12. Press **SETUP/EXIT** to leave Program Mode. When prompted to SAVE CHANGES PERMANENT, press **NEXT/SAVE** to save permanently. The front panel LCD shows:

Configuration

After you have installed the media and ribbon and the POST (Power-On Self Test) is complete, the front panel display shows PRINTER READY. You may now set printer parameters for your application using the front panel display and the five keys directly below it.

Refer to the Zebra *110XiIIIPlus Printer Users Guide* for further details on configuring the printer for your application.

If it becomes necessary to restore the initial printer defaults, see the Calibrate on page 2-20.

Enter Setup Mode

To enter Setup Mode, press **SETUP/EXIT**. Press either **NEXT/SAVE** or **PREVIOUS** to scroll to the parameter you wish to set. Throughout this process, press **NEXT/SAVE** to continue to the next parameter, or press **PREVIOUS** to go back to the previous parameter in the sequence.

Change Password-Protected Parameters

Certain parameters are password-protected by factory default.

Caution:

Do not change password-protected parameters unless you're sure you know what you're 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 (pressing the left oval or right oval keys) requires you to enter a four-digit password. This is done through the ENTER PASSWORD display. The left oval key changes the selected digit position. The right oval key increases the selected digit value. After entering the password, press **NEXT/SAVE**. The parameter you are trying to change is displayed. If the password was entered correctly, you can now change the value.

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

Note • Once the password has been correctly entered, it need not be entered again unless you leave and reenter Program Mode using **SETUP/EXIT**.

You can disable the password-protection feature so it no longer prompts by setting the password to ØØØØ through the ^KPØ ZPL/ZPL II command. To reenable the password-protection feature, send the ZPL/ZPL II command ^KPx, where "x" can be any number, one to four digits in length, except Ø.

Leave Setup Mode

You can leave Setup Mode at any time by pressing **SETUP/EXIT**.
The SAVE CHANGES display appears. There are five choices as described below. Press the right oval or left oval key to display the sequence of choices. When your choice is displayed on the LCD, press **NEXT/SAVE** to save the settings.

PERMANENT: Saves current settings. Values are stored in the printer even when the power is turned Off (**O**).

TEMPORARY: Saves current settings until changed again or until the power is turned Off (**O**).

CANCEL: Cancels all setting changes made since entering Program Mode except the darkness and tear-off settings, if they were changed.

LOAD DEFAULTS: Loads factory default settings. Refer to the *Users Guide* for default values.

Note • The 110*Xi*III*Plus* performs an auto-calibration.

LOAD LAST SAVE: Reloads settings made during the last permanent save.

Set Print Parameters

Darkness

Darkness (burn duration), settings depend on a variety of factors, including ribbon type, media, and the condition of the printhead. You may adjust the darkness for consistent high-quality printing.

Note • The Feed Key Self Test described in Basic Troubleshooting on page 3-13 can also be used to determine the best darkness setting. The 110*Xi*III*Plus* determines this in auto-calibration.

Caution:

Set darkness to the lowest setting possible for the desired print quality. Setting darkness too high for a given ribbon may cause ink smearing and/or printhead burning through the ribbon.

If printing is too light, increase the darkness. If printing is too dark, or if there is spreading or bleeding on printed areas, decrease the darkness. If there are voids in printed areas, adjust the toggle pressure.

Note • The darkness setting takes effect right away. If labels are being printed, results can be seen immediately.

Press the right oval key to increase darkness, or press the left oval key to decrease darkness.

Holding the key rapidly increases or decreases the darkness.

Default: +4

Range: 0 to +30 (In tenths)

Note • The next menu item is Tear-Off. Proceed to Set Tear-Off Position on page 2-25.

The next menu item is Print Speed.

Press **NEXT/SAVE** to display TEAR OFF or PRINT SPEED **(refer to Set Tear-Off Position on page 2-25).**

Set Print Speed

The Print Speed setting adjusts the speed of printing.

Press the right oval key to increase the speed or the left oval key to decrease the speed.

Each press of the key changes the speed by one ips (inch per second).

Press **NEXT/SAVE** to display TEAR-OFF.

Set Tear-Off Position

The Tear-Off position adjusts the position of the media over the peel bar after printing.

Press the right oval key to increase the value or the left oval key to decrease the value.

Note • Pressing the oval keys has no effect in the Rewind Mode.

Each press of the key moves the tear-off position by four dot rows (positive values move the media farther out over the peel bar).

Default: +0

Range: –120 to +120

Press **NEXT/SAVE** to display PRINT MODE.

Select Print Mode

Print mode settings tell the printer the method of media delivery you wish to use. Be sure to select a print mode your hardware configuration supports, because some selections displayed are for optional printer features.

Press the right or left oval key to display other selections.

Default: Tear-Off

Selections: Tear-Off, Peel-Off, Rewind, Cutter

Press **NEXT/SAVE** to display MEDIA TYPE.

Select Media Type

The media type parameter specifies the kind of media used. Continuous media requires that a label length instruction (^LLxxxx) be included in your ZPL or ZPL II label format.

With non-continuous media, the printer feeds media to calculate label length, the distance between two detections of the interlabel webbing, alignment notch, or hole.

Press the right or left oval key to display other selections.

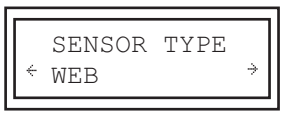
Default: Non-Continuous

Selections: Non-Continuous, Continuous

Press **NEXT/SAVE** to display SENSOR TYPE.

Select Sensor Type

This parameter tells the printer whether you are using media with a web (gap/space between labels, notch, or hole) to indicate the separations between labels or a black mark printed on the back. If your media does not have black marks on the back, leave your printer at the default (web).



Press the right or left oval key to display other selections.

Default: Web

Selections: Web, Mark

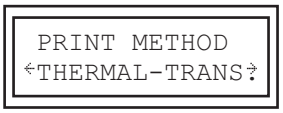
Press **NEXT/SAVE** to display PRINT METHOD.

Select Print Mode

The print method parameter specifies the mode of printing: Direct Thermal (using direct thermal media without ribbon) or Thermal Transfer (using thermal-transfer media and ribbon).

Caution:

Selecting direct thermal when using thermal transfer media and ribbon results in an error message, but printing continues. If the print method is not changed to thermal transfer or if the media is not changed, damage to the printhead may result.



Press the right or left oval key to display other selections.

Default: Thermal Transfer

Selections: Thermal Transfer, Direct Thermal

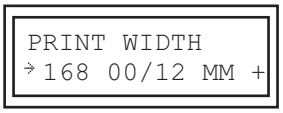
Press **NEXT/SAVE** to display PRINT WIDTH.

Set Print Width

Print width selects the media width. Setting the width too narrow may result in portions of your label not being printed on the label material. In addition, the setting can affect the horizontal position of the label format if you invert the image via the `^POI` ZPL II command. Setting the width too wide wastes formatting memory and can cause printing to occur on the platen to the side of the label.

The units of measure can be changed from millimeters to inches to dots per inch and millimeters are shown as fractions of the dots per inch (for example, 4 101/203 is the value for 4-1/2 in.).

Press the right oval key to increase the value or change the unit of measure, and press the left oval key to change the selected character position. Select a print width that is at least as wide as your media.



Default Range: Print width determines the printable area across the width of the label.

Press **NEXT/SAVE** to display MAXIMUM LENGTH.

Set Maximum Label Length

Maximum label length specifies the distance from the leading edge of one label to the leading edge of the next label.

Refer to Figure 2-17. A considerable part of the interlabel gap is part of the label length. Setting this parameter serves two functions:

- The value of this setting determines the maximum label length value to be used during the media portion of the calibration process.
- Only a few labels are required to set the media sensors.

Always set the length to a value one step above the actual length of the label you are using. For example, if the label length is 5 in. (126 mm), set the parameter for 6 in. (152 mm). If the label length is 7.5 in. (190 mm), set the parameter for 8.0 in. (202 mm).

Note • Before you begin the media and ribbon calibration procedure, ensure the maximum length is set to a value one step greater than the actual media. If the maximum length is set to a lower value, the printer assumes continuous media is loaded, which results in the printer not calibrating.

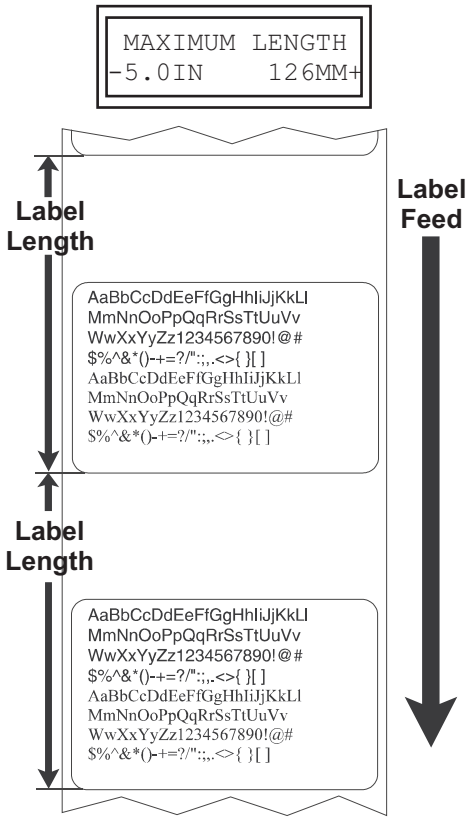


Figure 2-17. Maximum Label Length

Press the left oval key to decrease the value, or press the right oval key to increase the value.

Default: 39.0 in. (988 mm)

Range: 2.0 in. (50 mm) to 39.0 in. (988 mm) in 1.0 in. (25.4 mm) increments.

Press **NEXT/SAVE** to display EARLY WARNING MEDIA ENABLE/DISABLE.

Early Warning Media Enable/Disable

Set Early Warning: Press the right or left black oval key to display other choices.

This parameter enables the printer to provide early warnings when labels or ribbons are running low or when the printhead needs to be cleaned.

Default: Disabled

Selections: Disabled, Enabled

To enable the Early Warning System, press **SETUP/EXIT**, then press **NEXT/SAVE**. To select the Early Warning setting, scroll back until MEDIA ENABLED is listed on the LCD and press **NEXT/SAVE** to access the media settings. Use the right or left black oval key to select the setting, then press **SETUP/EXIT** and **NEXT/SAVE** to save the setting. Repeat this process to set the early warning for ribbon or maintenance (printhead cleaning).

Note • When setting the early warning for maintenance, an additional setting appears after the media setting that prompts the LCD to ask HEAD CLEAN. Use the right black oval key to select **YES** and then press **SETUP/EXIT** and **NEXT/SAVE** to reset the label counter.

When the printer detects it is running low with less than 15% of the remaining labels or ribbons, the following message appears on the LCD:
WARNING MEDIA LOW or WARNING RIBBON LOW. If the alert function has been enabled, an alert is also sent. When the printhead is opened and then closed after a media or ribbon warning has been received, the LCD asks MEDIA REPLACED or RIBBON REPLACED. Press the right black oval key (YES) to clear the warning and rest the label counter.

Note • Labels per roll and ribbon length need to be updated when beginning use of the Early Warning System. The printer does not make any adjustments when power is turned off (**O**) and on (**I**).

If media is disabled, Label Per Roll and Ribbon Length will not be displayed.

Press **NEXT/SAVE** to display LABELS PER ROLL.

Select Labels Per Roll

Press the right or left black oval key to display other choices.

This parameter needs to be updated when setting the Early Warning System so the printer can provide early warnings when labels are running low.

Default: 900 labels

Selections: 100 labels–9999 labels

Press **NEXT/SAVE** to display RIBBON LENGTH.

Select Ribbon Length

Press the Right or Left Black Oval key to display other choices.

This parameter needs to be updated when setting the Early Warning System so the printer can provide early warnings when ribbon is running low.

Default: 450 m (1476 ft.)

Selections: 100 m–450 m (328 ft.–1476 ft.)

Press **NEXT/SAVE** to display EARLY WARNING MAINTENANCE.

Select Early Warning Maintenance On/Off

This parameter tells the printer whether the Early Warning Maintenance is On or Off. If the Early Warning Maintenance is On, the Head Cleaning alert is enabled.

Default: Maint. Off

Selections: Maintenance On, Maint. Off

Note • Head Cleaning displays only when Maintenance On is displayed.

Press **NEXT/SAVE** to display HEAD CLEANING.

This parameter tells the printer when to display the Clean Head alert.

Default: Off

Selections: 100 m 328 ft.; 150 m 492 ft.; 200 m 656 ft.; 250 m 820 ft.; 300 m 984 ft.; 350 m 1148 ft.; 400 m 1312 ft.; 450 m 1476 ft.

Press **NEXT/SAVE** to display LIST FONTS.

List Printer Information

Fonts

Use this selection to print a label that lists all available fonts in the memory of the printer. Fonts may be stored in optional font EPROMs and as part of firmware EPROMs, on an optional PCMCIA memory card, Flash memory, or downloaded and stored in formatting memory (RAM).

Press the right oval key to print a label listing all fonts.

Press **NEXT/SAVE** to display LIST BAR CODES.

Bar Codes

Use this selection to print a label that lists all available bar codes in the memory of the printer.

Press the right oval key to print a label listing all bar codes.

Press **NEXT/SAVE** to display LIST IMAGES.

Images

Use this selection to print a label that lists all graphic images stored in the memory of the printer's RAM, optional EPROM, or on an optional memory card.

Press the right oval key to print a label listing all of the images.

Press **NEXT/SAVE** to display LIST FORMATS**.**

Formats

Use this selection to print a label that lists all formats stored in the memory of the printer's RAM, optional EPROM, or on an optional memory card.

Press the right oval key to print a label listing all formats.

Press **NEXT/SAVE** to display LIST SETUP.

Setup

Use this selection to print a label that lists the printer's configuration information (same as the Cancel Key Self Test).

Press the right oval key to print a label listing the printer configuration.

Press **NEXT/SAVE** to display LIST ALL.

All

Use this selection to print a label that lists the five previous selections, as described.

Press the right oval key to print a label listing all available fonts, bar codes, images, formats, and the printer configuration.

Press **NEXT/SAVE** to display INITIALIZE CARD.

Initialize Card

This selection initializes the optional memory card.

Note • Perform this operation only when it is necessary to erase all previously stored information in the memory card. If you do not want to erase all stored information, press **NEXT/SAVE** to bypass the operation.

1. Press the right oval key to select YES. If your printer is set to require a password, you are prompted to enter it.
2. Enter the password, then press **NEXT/SAVE**.

3. The display shows INITIALIZE CARD. Press the right oval key to select YES. The display prompts ARE YOU SURE.
4. Press the right oval key to select YES to begin the initialization, or press the left oval key to select **NO** to cancel the request and return to the INITIALIZE CARD prompt.

Press **SETUP/EXIT** followed by **NEXT/SAVE** once you have selected YES.

```
ARE YOU SURE
NO          YES
```

If initialization is still in process, the display flashes between CHECKING B: and PRINTER IDLE.

When initialization is complete, the printer automatically exits Configuration Mode and the display shows PRINTER READY.

Note • Depending on the amount of memory in the memory card, initialization may take up to five minutes to complete.

Initialize Flash Memory

This selection initializes the Flash memory.

Note • Perform this operation only when it is necessary to erase all previously stored information in the Flash memory. If you do not want to erase all stored information, press **NEXT/SAVE** to bypass the operation.

```
INIT FLASH MEM.
          YES
```

1. Press the right oval key to select **YES**. If your printer is set to require a password, you are prompted to enter it. Enter the password using the left oval and right oval keys and then press NEXT/SAVE.
2. The display shows INITIALIZE FLASH MEM. Press the right oval key to select YES. The display prompts ARE YOU SURE.

```
ARE YOU SURE
NO          YES
```

3. Press the right oval YES to begin initialization, or press the left oval key to select NO to cancel the request and return to INITIALIZE FLASH.
4. Press **SETUP/EXIT** followed by **NEXT/SAVE**. If initialization is still in process, the display flashes between CHECKING E: MEMORY and PRINTER IDLE.
5. When initialization is complete, the printer automatically exits the Configuration Mode and displays PRINTER READY.

Note • Depending on the amount of free Flash Memory, initialization may take up to one minute to complete.

Sensor Profile

Press the right oval key to print a graphic representation (Media Sensor Profile) of the changes in density between the media and the web (liner). Use the sensor profile to help troubleshoot media registration problems.

```
SENSOR PROFILE
        PRINT
```

Refer to Figure 2-18. The media sensor profile shows three conditions. The black area along the bottom of the profile illustrates media passing by the media sensor. When the level rises above the point labeled Web (black spikes), only the liner is passing by the sensor. When a notch or hole in the media passes by the sensor, the level rises above the point labeled Media. If the level remains above the Media point for longer than 0.5 seconds, this signifies a media-out condition. The ribbon profile indicates ribbon in if the black level is above the point labeled Ribbon.

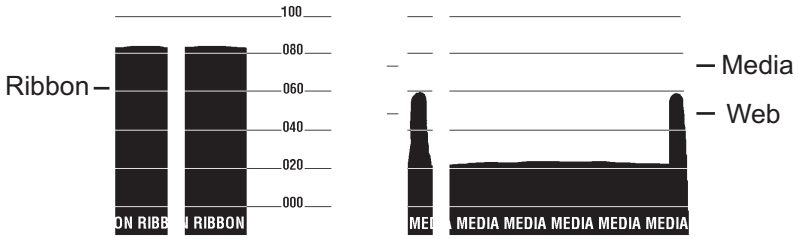


Figure 2-18. Sensor Profile Sample Label

Press **NEXT/SAVE** to display MEDIA AND RIBBON.

Calibrate Media and Ribbon Sensor

Note • Before you begin this procedure, ensure the maximum length is set to a value greater than the length of the labels you are using. If the maximum length is set to a lower value, the calibration process assumes that continuous media is in the printer.

Ensure that the media type and maximum length values have been configured prior to performing this calibration process.

```
MEDIA AND RIBBON
       CALIBRATE
```

Press the right oval key to perform calibration.

Refer to Calibrate on page 2-20 for further details.

Set Communication Parameters

Communication parameters must be set correctly for the printer to receive data from the host. These parameters ensure that the printer and host are speaking the same language.

All communications parameters are password-protected.

Parallel Communications

Select the communications port that matches the one used by the host computer.

Press the right or left oval key to display other selections.

Default:	Parallel
Selections:	Parallel, Twinax/Coax

Serial Communications

Select the communications port that matches the one used by the host computer.

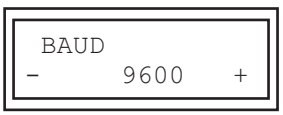
Press the right or left oval key to display other choices.

Default:	RS232
Selections:	RS232, RS422/485, RS485 Multidrop

Press **NEXT/SAVE** to display BAUD.

Baud Rate

The baud rate of the printer must match the baud rate of the host for communications to take place. Select the baud rate that matches the one used by the host.



Press the right oval key to increase the value, or press the left oval key to decrease the value.

Default:	9600
Selections:	110, 300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, 115200

Press **NEXT/SAVE** to display DATA BITS.

Data Bits

The data bits of the printer must match the data bits of the host for communications to take place. Select the data bits that match the ones used by the host.

Note • This parameter must be set to 8 data bits to use the full Code Page 850 character set. See the *ZPL II Programming Guide* for further information.

Press the right or left oval key to display other selections.

Default:	8 Bits
Selections:	7 Bits, 8 Bits

Press **NEXT/SAVE** to display PARITY.

Parity

The parity of the printer must match the parity of the host for communications to take place. Select the parity that matches the one used by the host.

Press the right or left oval key to display other selections.

Default:	None
Selections:	Even, None, Odd

Press **NEXT/SAVE** to display HOST HANDSHAKE. Proceed to Host Handshake on page 2-37.

Stop Bits

The stop bits of the printer must match the stop bits of the host for communications to take place. Select the number of stop bits that match the quantity being used by the host.

Press the right or left oval key to display other selections.

Default:	1 Stop Bit
Selections:	1 Stop Bit, 2 Stop Bits

Press the **NEXT/SAVE** key to display HOST HANDSHAKE.

Host Handshake

The handshake protocol of the printer must match the handshake protocol of the host for communications to take place. Select the handshake protocol that matches the one being used by the host.

Press the right or left oval key to display other selections.

Default:	XON/XOF
Selections:	XON/XOFF, DSR/DTR

Press **NEXT/SAVE** to display PROTOCOL.

Protocol

Protocol is a type of error-checking system. Depending on the selection, an indicator is sent from the printer to the host signifying received data. Select the requested protocol by the host. Further details on protocol can be found in the *ZPL II Programming Reference Volumes I* and *II*.

Note • Zebra is the same as ACK/NACK, except that the Zebra response messages are sequenced.

If Zebra is selected, the printer must use the DTR/DSR host handshake protocol.

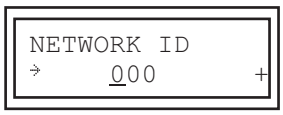
Press the right or left oval key to display other selections.

Default:	None (Always select “None” if you are not using error-checking software.)
Selections:	None, Zebra, ACK/NACK

Press **NEXT/SAVE** to display NETWORK ID.

Network ID

Use Network ID to assign a unique number to a printer used in an RS-422/RS-485 network. This gives the host the means to address a specific printer. This does not affect TCP/IP or IPX networks.



Press the left oval key to move to the next digit position, and press the right oval key to increase the value of the selected digit.

Default:	000
Selections:	000–999

Press **NEXT/SAVE** to display COMMUNICATIONS.

Communications Mode

The Communication Diagnostics Mode is a tool to check the interconnection between the printer and the host. When DIAGNOSTICS is selected, all data sent from the host to the printer is printed as an ASCII hex printout. The printer prints all ASCII characters received, including ASCII control codes (for example, CR Carriage Return). Figure 2-19 shows a sample printout.

Figure 2-19. Diagnostics Sample Label

Press the right or left oval key to display other selections.

Default:	Normal Mode
Selections:	Normal Mode, Diagnostics

Note • On diagnostic printouts:
FE indicates a framing error.
OE indicates an overrun error.
PE indicates parity error.
NE indicates noise.

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.

Press **NEXT/SAVE** to display CONTROL PREFIX.

Control Prefix Character

The control prefix character is a two-digit hex value. Once configured, this character signifies the start of a ZPL/ZPL II control instruction.

Press the left oval key to move to the next digit position, and press the right oval key to increase the value of the digit. (The displayed H is not entered as part of the value.)

Default: 7E (tilde)

Range: 00–FF (Exclude the values indicated on the ASCII Code Chart in the *ZPL II Guide Volume II, Appendix B*.)

Press **NEXT/SAVE** to display FORMAT PREFIX.

Format Prefix Character

The format prefix character is a two-digit hex value. Once configured, this character signifies the start of a ZPL or ZPL II format instruction.

Press the left oval key to move to the next digit position, and press the right oval key to increase the value of the digit. (The displayed H is not entered as part of the value.)

Default: 5E (caret)

Range: 00–FF (Exclude the values indicated on the ASCII Code Chart in the *ZPL II Guide Volume II, Appendix B*.)

Press **NEXT/SAVE** to display DELIMITER CHAR.

Delimiter Character

The delimiter character is a two-digit hex value. Once configured, this character acts as a parameter place marker in ZPL/ZPL II. Refer to the *ZPL II Programming Guide* for more information.

Press the left oval key to move to the next digit position, and press the right oval key to increase the value of the digit. (The displayed H is not entered as part of the value.)

Default: 2C (comma)

Range: 00–FF (Exclude the values indicated on the ASCII Code Chart.)

Press **NEXT/SAVE** to display MODE.

Select ZPL Mode

The printer accepts label formats written in either ZPL or ZPL II. Refer to the *ZPL II Programming Guide* for more information on the differences between ZPL and ZPL II.

The printer remains in the selected mode until changed by this front panel instruction or by sending the ^SZ ZPL/ZPL II command to the printer.

Press the right or left oval key to display other selections.

Default: ZPL II

Selections: ZPL II, ZPL

Press **NEXT/SAVE** to display MEDIA POWER UP.

Power Up and Head Close Parameters

Media Power Up

Turning the printer On (**I**) determines the action of the media. Calibration recalibrates the media and ribbon sensors, Feed feeds the label to the first web, Length calculates the length of the label, and No Motion means the media does not move.

Press the right or left oval key to display other selections.

Default: Calibration

Selections: Feed, Calibration, Length, No Motion

Press **NEXT/SAVE** to display HEAD CLOSE.

Head Close

This setting determines the action of the media after the opened printhead is closed. CALIBRATION recalibrates the media and ribbon sensors, Feed feeds the label to the first web, Length calculates the length of the label, and No Motion means the media does not move.

Press the right or left oval key to display other selections.

Default: Calibration

Selections: Feed, Calibration, Length, No Motion

Press **NEXT/SAVE** to display BACKFEED.

Label Positioning Parameters

Backfeed Sequence

This parameter establishes when backfeed occurs after a label is removed in Peel-Off or Cutter Mode. It has no effect in Rewind or Tear Off Mode.

This parameter setting can be superseded by the ~JS instruction when received as part of a label format. Refer to the *ZPL II Programming Guide*.

Press the right oval key for the next choice, or press the left oval key for the previous choice.

Default: Default

Selections: Default, After, Before, Off, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%

Press **NEXT/SAVE** to display LABEL TOP.

Set Label Top Position

The label top position controls the initial vertical print position on the label (viewed as the label exits the printer). The reference default position is to 2 mm below the leading edge of the label that follows the one to be printed. Refer to Figure 2-20. If there is a lengthy web between labels, the label format may begin printing on the liner. To set the position where the format begins printing, change the label top position value.

Press the right oval key to increase the value, or press the left oval key to decrease the value. Each positive number moves the label top position down by one dot row; each negative number moves the position up by one dot row.

Default: +0

Range: –120 to +120

Press **NEXT/SAVE** to display LEFT POSITION.

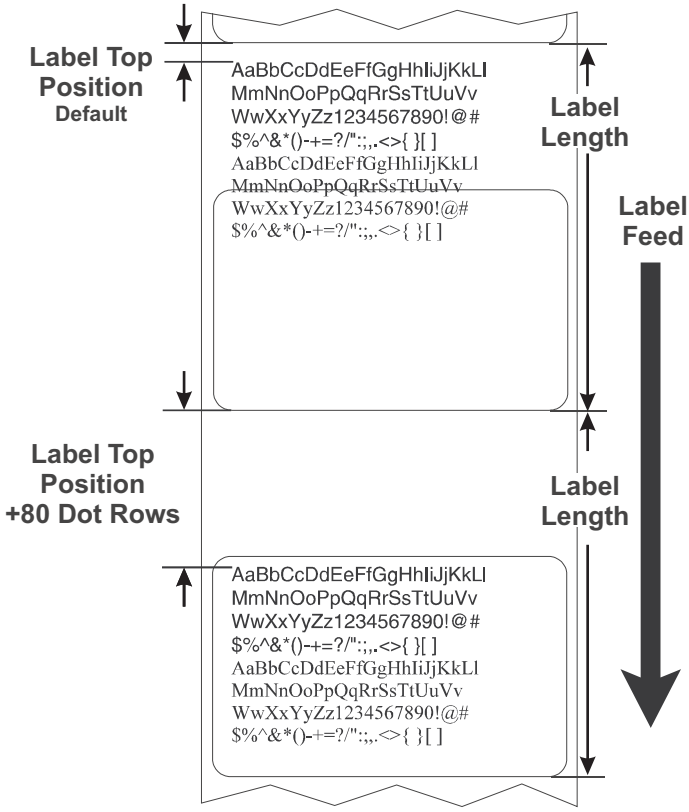


Figure 2-20. Label Top Position

Set Left Position

The left position controls the initial print position from the left edge of a label (view as the label exits the printer). The reference default position is to the left edge of the media. Refer to Figure 2-21. Depending on the width of the media, the label format may begin printing on the liner or on the platen. To set the position where the format begins printing, change the left position value.

Press the left oval to move the cursor to the next digit, and press the right oval to change the ± value and increase the value of the digit (right oval key shifts to the left, left oval key shifts to the right). The displayed value represents the number of dot positions the format shifts right or left.

Default: 000

Range: –9999 to +9999 (If a negative value is required, enter the numeric value first, then change + to –.)

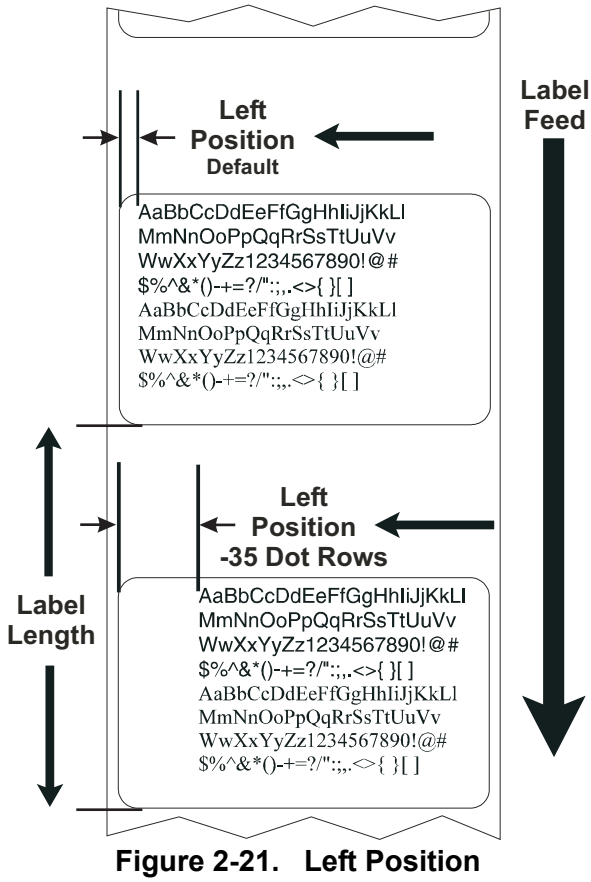


Figure 2-21. Left Position

Press **NEXT/SAVE** to display HEAD RESISTOR.

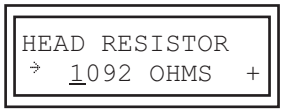
Set Head Resistance Value

This value has been preset at the factory to match the resistance value of the printhead. It must not be changed unless the printhead is replaced.

Before replacing a printhead, look on the bottom of the new printhead for the label that shows the resistance (ohm = Ω) value.

Caution:

Do not set the value higher than that shown on the printhead. Setting the value to a higher number can damage the printhead.



Press the left oval key to move to the next digit position, and press the right oval key to increase the value of the digit.

Initial Value:	Factory set
Range:	0488–2415

Press **NEXT/SAVE** to display VERIFIER PORT.

Set Verifier Port

The auxiliary port determines how the printer reacts to the online verifier. There are three operating conditions for this port:

1. **Off:** The verifier port is off.
2. **VER-RPRNT ERR:** Label reprinted if verifier detects an error. If a bar code is near the upper edge of the label, the label is fed out far enough to be verified then backfeed to allow the next label to be printed and verified.
3. **VER-THRUPUT:** Allows greatest throughput but may not indicate a verification error immediately upon detection. May print from one to three labels before an error is recognized and printing stops.

For more information on the operation of the optional verifier, refer to the documentation provided with that option.

Default:	Off
Range:	Off, 1 VER-RPRNT, 2 VER-THRUPUT

Press **NEXT/SAVE** to display APPLICATOR PORT.

Set Applicator Port

Determines the action of the verifier port.

Note • Set as suggested by the applicator manufacturer.

Default:	Off
Range:	Off, mode 1, mode 2, mode 3, mode 4

Off: The applicator port is off.

Mode 1: Asserts the ~END_PRINT signal low while the printer is moving the label forward.

Mode 2: Asserts the ~END_PRINT signal high while the printer is moving the label forward.

Mode 3: Asserts the ~END_PRINT signal low for 20 milliseconds when a label has been completed and positioned. Not asserted during continuous printing modes.

Mode 4: Asserts the ~END_PRINT signal high for 20 milliseconds when a label has been completed and positioned. Not asserted during continuous printing modes.

Press **NEXT/SAVE** to display START PRINT SIG.

Set Start Print Signal

This parameter determines how the printer reacts to the Start Print Signal input on pin 3 of the applicator interface connector at the rear of the printer.

Press the right or left black oval key to display other choices.

- In Pulse Mode, labels print when the signal transitions from HIGH to LOW.
- In Level Mode, labels print as long as the signal is asserted LOW.

Default:	Pulse Mode
Range:	Pulse Mode, Level Mode

Caution:

Start Print Signal is set by the applicator manufacturer and should not be changed unless the factory defaults have been reloaded. The printer **must** be returned to its designated setting to work properly.

Press **NEXT/SAVE** to display RESYNCH MODE.

Set Resynch Mode

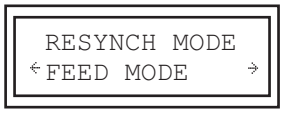
This parameter determines how the printer reacts if the label synchronization is lost and the label top is not where expected.

FEED MODE—If the label top is not where expected, the printer feeds a blank label to find the label top position.

ERROR MODE—If the label top is not where expected, the printer stops, enters Pause Mode, displays the message Error Condition Feed Label, flashes the ERROR LED, and asserts the Service Required signal (pin 10 on the Applicator Interface Connector).

To resynch the media to the top of the label in Error Mode, press **PAUSE** to exit the pause state. The ERROR LED stops flashing and the Service Required signal is deactivated. The action of the printer is determined by the Head Close configuration selection:

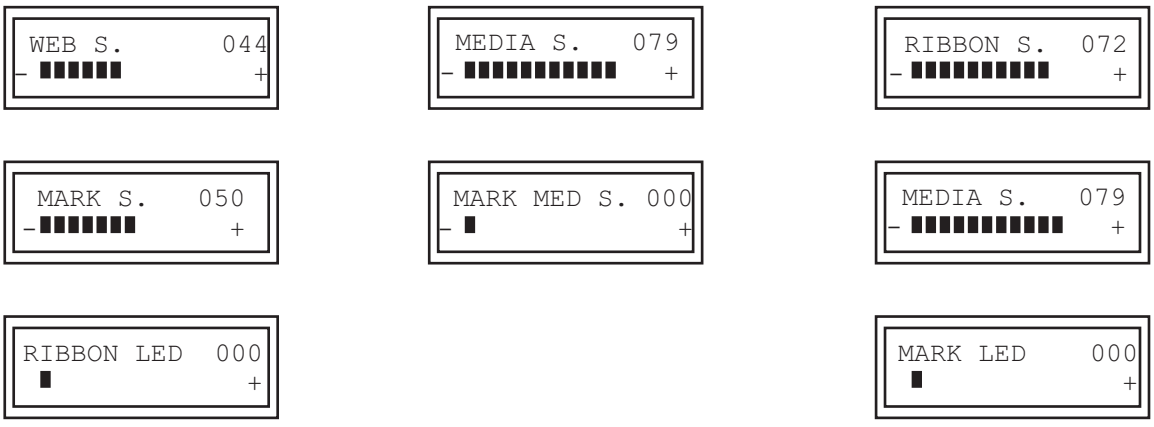
- Calibration—determines the length of the label.
- Feed—feeds the labels to the first registration point.
- Length—used in continuous mode to feed the last stored label length.
- No Motion—the media does not move. Press **FEED** to cause the printer to resynch to the start of the next label.



Default:	Feed Mode
Range:	Feed Mode, Error Mode

Print Controls

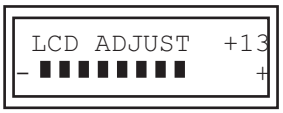
The parameters Web Sensor, Media Sensor, Ribbon Sensor, Mark Sensor, Mark Media Sensor, Media LED, Ribbon LED, and Mark LED are automatically calculated during the calibration procedure and typically do not require adjustment. Refer to the *ZPL II Programming Guide* for further information on these parameters.



Press **NEXT/SAVE** repeatedly to skip these parameters and go to the LCD ADJUST display.

Set LCD Adjust

This parameter adjusts the brightness of your display.



Press the right oval key to increase the value (increases the brightness). Press the left oval key to decrease the brightness.

Default:	10
Range:	00 to 19

Press **NEXT/SAVE** to display FORMAT CONVERT.

Set Format Convert

This parameter selects the bitmap scaling factor. The first number is the original dpi (dots per inch) value for which the ZPL format was written; the second number is the dpi to which you wish to scale (usually the dpi of the printer being used).

Press the right or left oval key to display other choices.

Default:	None
Selections:	None, 150 → 300, 150 → 600, 200 → 600, 300 → 600

Press **NEXT/SAVE** to display IDLE DISPLAY.

Idle Display

This parameter selects the LCD options for the real-time clock.

Note • If the default value is not selected, pressing either black oval key briefly displays the firmware version of the printer.

Press the right or left black oval key to display other choices.

Default:	Firmware version
Selections:	mm/dd/yy (24 hour), mm/dd/yy (12 hour), dd/mm/yy (24 hour), dd/mm/yy (12 hour)

Press **NEXT/SAVE** to display RTC DATE.

Set RTC Date

This parameter sets the date following the convention selected in IDLE DISPLAY.

Press the left black oval key to move to the next digit position; press the right black oval key to increase the value of the digit.

Press **NEXT/SAVE** to display RTC TIME.

Set RTC Time

This parameter sets the time following the convention selected in IDLE DISPLAY.

Press the left black oval key to move to the next digit position; press the right black oval key to increase the value of the digit.

For the XiIII*Plus*: Press **NEXT/SAVE** to display LANGUAGE. Proceed to Language on page 2-50.

For the XiIII: Press **NEXT/SAVE** to display IP RESOLUTION.

IP Resolution

Note • This display does not appear unless a ZebraNet II PrintServer is installed.

Depending on the selection, this parameter allows either the user or the server to select the IP address. For more information, refer to *ZebraNet Networking: PrintServer II Installation* and the *Users Guide* for this printer.

Press the right or left oval key to display other choices.

Default:	Dynamic
Selections:	Dynamic, Permanent

Press **NEXT/SAVE** to display IP ADDRESS.

IP Address

```
IP PROTOCOL
ALL
```

Note • This display does not appear unless a ZebraNet II PrintServer is installed.

This parameter selects 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 *ZebraNet Networking: PrintServer II Installation* and *Users Guide*.

```
IP ADDRESS
000.000.000.000
```

Press the left oval key to move to the next digit position; press the right oval key to increase the value of the digit.

Press NEXT/SAVE to display SUBNET MASK.

Subnet Mask

Note • This display does not appear unless a ZebraNet II PrintServer is installed.

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.

```
SUBNET MASK
000.000.000.000 +
```

Press the left oval key to move to the next digit position; press the right oval key to increase the value of the digit.

Press **NEXT/SAVE** to display DEFAULT GATEWAY.

Default Gateway

Note • This display does not appear unless a ZebraNet II PrintServer is installed.

This parameter allows you to select the IP address through which the network traffic is routed if the destination address is not part of the local network.

```
DEFAULT GATEWAY
000.000.000.000 +
```

Press the left oval key to move to the next digit position; press the right oval key to increase the value of the digit.

Press **NEXT/SAVE** to display LANGUAGE.

Language

This parameter allows you to change the language used on the front panel display.

```
   LANGUAGE
←  ENGLISH    →
```

Press the right or left oval key to display other choices.

Default:	English
Selections:	English, Spanish, French, German, Italian, Norwegian, Portuguese, Swedish, Danish, Spanish 2, Dutch, Finnish, Japanese

You have now completed the entire configuration and calibration sequence. Press either **NEXT/SAVE** to save all settings, or **SETUP/EXIT** to go through the selections again.

Section 3
Troubleshooting

Test routines are built into the Zebra 110*Xi*III-Series printers to aid the technician in diagnosing faults. Some of these tests are enabled by holding a front panel key while turning the printer On (**I**).

Power-On Self Test

A Power-On Self Test (POST) is performed each time the printer is turned On (**I**). This test checks for proper initialization of various electronic circuits and establishes starting parameters as those stored in the printer's memory. During this test sequence, the front panel LEDs turn on and off to ensure proper operation.

At the end of this self test, only the Power LED remains lit. If other LEDs are also lit, refer to Basic Troubleshooting on page 3-13.

If the printer is set up for non-continuous media, one or more labels feed out, up to a maximum length of one label plus 3 in. (76 mm) of additional media.

To initiate the Power-On Self Test, turn the printer On (**I**) using the power switch located at the rear of the printer. The other front panel LEDs and the Liquid Crystal Display (LCD) monitor the progress and indicate the results of the self test. The normal self test sequence starts on page 3-2.

The normal self test sequence is as follows:

Table 3-1. Self Test Sequence, Firmware 48.12.X, 110*Xi*III*Plus*

1.		After several seconds, all lights turn on and then off, except for POWER.
2.	PRINTER READY 12.0MB V48.12.X	Printer is still testing, then starts to test the memory card.
3.	CHECKING MEMORY CARD	Checking memory card.
	PRINTER READY 12.0MB V48.12.X	Printer is ready for operation. Refer to Configuration on page 2-23 to set specific parameters. Designate prompt language with the ^KL command or from the menu.

Printer Self Tests

Introduction

These self tests produce sample labels 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 keys while turning the printer On (**I**). Keep the key pressed until all the front panel LEDs turn on and stay on.

When the Power-On Self Test is completed, the selected printer self test automatically starts.

Note • When performing self tests, ensure that all data interface cables are disconnected from the printer.

It is recommended that fullwidth media be used when performing these tests. Labels less than full-width lose printing on the right side. Label length determines the amount of print starting at the top of the label.

When canceling a self test prior to its actual completion, always turn the printer Off (**O**) and then back On (**I**) to reset the printer.

Cancel Key Self Test

Refer to Figure 3-1. This self test prints a single label that contains a listing of the current configuration parameters stored in configuration (EEPROM) memory. To perform this self test, press and hold **CANCEL** while turning the printer On (**I**).

The configuration may be changed either temporarily (for specific label formats or ribbon and label stock) or permanently (by saving the new parameters in EEPROM memory). Refer to the *Users Guide* for further details on the printer configuration procedure.

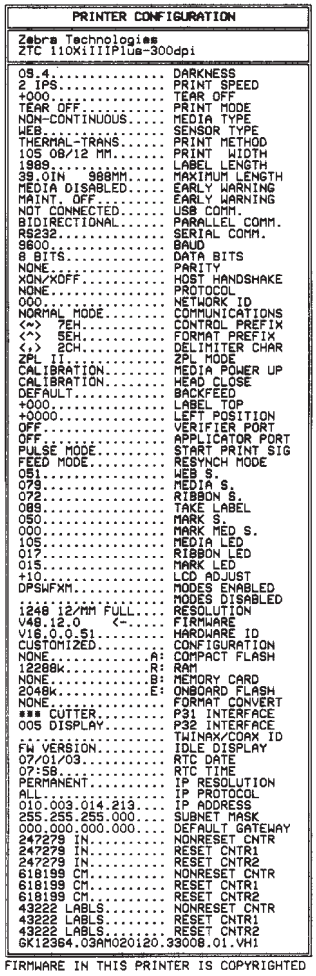


Figure 3-1. Cancel Key Test Sample Labels

Pause Key Self Test

1. Refer to Figure 3-2. The initial self test prints 15 labels at a speed of 2 ips (inch per second); then it automatically pauses the printer. Each time **PAUSE** is pressed, an additional 15 labels print.
2. While the printer is paused, press **CANCEL** once to alter the self test. Now each time **PAUSE** is pressed, the self test labels print at 6 ips. Fifteen additional labels are printed each time **PAUSE** is pressed.
3. While the printer is paused, press **CANCEL** a second time to change the self test print speed back to 2 ips. Each time **PAUSE** is pressed, 50 labels print.
4. While the printer is paused, press **CANCEL** a third time to change the self test print speed to 6 ips. Each time **PAUSE** is pressed, 50 labels print.
5. While the printer is paused, press **CANCEL** a fourth time to change the self test print speed to the printer's fastest speed: 10 ips for the 200 dpi, 8 ips for the 300 dpi, and 4 ips for the 600 dpi 110*Xi*III*Plus*. Each time **PAUSE** is pressed, 50 labels print.

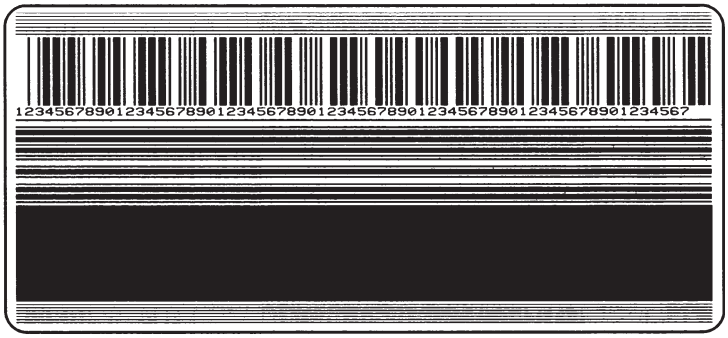


Figure 3-2. Pause Key Test Sample Label

Feed Key Self Test

Note • The Cancel Key Self Test should be performed prior to this self test.

Information on the printed configuration (Cancel Key Self Test) label will be used with the results of this self test to determine the best darkness setting for a specific media/ribbon combination.

The Feed Key Self Test label (shown in Figure 3-3) prints out at various positive and negative darkness settings relative to the darkness value shown on the configuration label. Inspect these labels and determine which one has the best darkness setting for the application. This value can be entered into the printer by configuring the Darkness Parameter.

The value printed on the selected test label is added to or subtracted from the darkness value specified on the configuration label.

The resulting numeric value (0 to 30) that is best for that specific media/ribbon combination should be entered as the Darkness Parameter.

Note • The 110*Xi*III*Plus* darkness value adjusts in 0.1 increments.

Figure 3-3. Feed Key Self Test Sample Label

Feed and Pause Key Self Test

To reset the printer configuration temporarily to the factory default values, press and hold **FEED** and **PAUSE** while turning the printer On (**I**). The factory default values are active until the printer is turned Off (**O**). If factory default values are saved during configuration, a media calibration procedure must be performed and some parameters must be reconfigured. Refer to the *Users Guide* for more details.

Pause and Cancel Key Self Test

Refer to Figure 3-4. This self test can be used to verify proper printer operation after parts have been replaced or adjusted. When activated, a maximum of 500 head test labels print. A serialized number prints on each label. Press **PAUSE** or turn the printer Off (**O**) to stop printing.

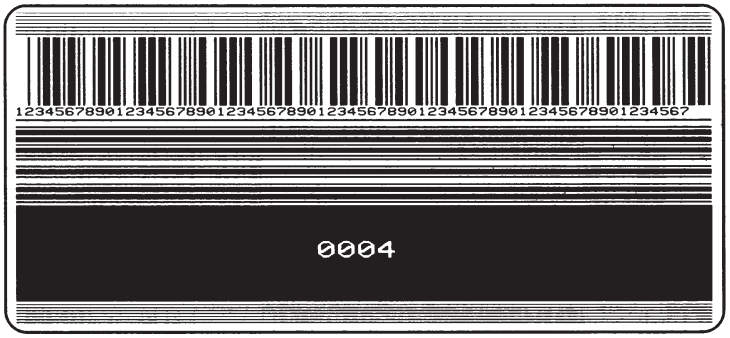


Figure 3-4. Pause and Cancel Key Self Test Label

Feed and Cancel Key Self Test

This self test is normally performed during the manufacturing process or after a major overhaul of the mechanical assemblies. This test prints seven preprogramming label formats at speeds of 6 ips and 2 ips. The printer pauses after each format. The sequence of label formats is shown in Table 3-2. Refer to Figures 3-8 through 3-14 for sample labels.

Note • Disregard the speed for the sample labels.

Table 3-2. Format Sequence

Format	Printing	Test Function
1	20 at 6 ips	Left Ribbon Wrinkle Test
2	20 at 6 ips	Right Ribbon Wrinkle Test
3	20 at 6 ips	Bar Code Wrinkle Test (Code 39)
4	20 at 2 ips	Left Ribbon Wrinkle Test
5	20 at 2 ips	Right Ribbon Wrinkle Test
6	20 at 2 ips	Bar Code Wrinkle Test (Code 39)
7	20 at 6 ips	Usable Area Test
8	20 at 6 ips	Head Temperature Test
9	20 at 6 ips	Upper Smear Test
10	20 at 6 ips	Lower Smear Test
11	20 at 2 ips	Usable Area Test
12	20 at 2 ips	Head Temperature Test
13	20 at 2 ips	Upper Smear Test
14	20 at 2 ips	Lower Smear Test

Communications Diagnostics Test

Refer to Figure 3-5. This test is controlled by configuring the Setting Communications Mode parameter. Set to diagnostic.

Note • This label is inverted when printed.

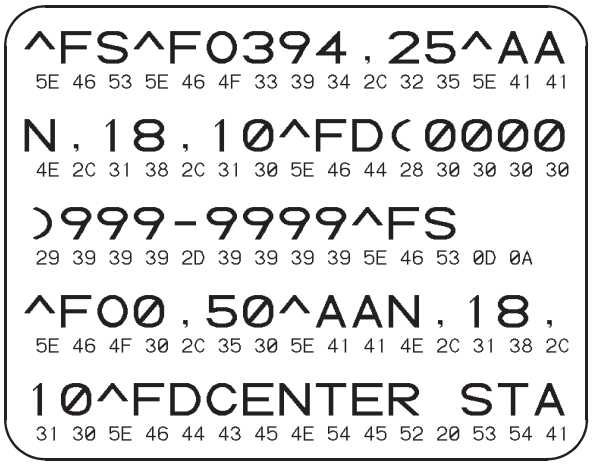


Figure 3-5. Communications Diagnostics Self Test

Extended Printer Diagnostics

Additional diagnostic tests are available for printhead assembly adjustments. These diagnostic tests are accessible only when the data interface cable is disconnected from the printer and a loop back connector is attached in its place.

The serial rollback connector is a 25-pin “D” Type (DB25P – Male) with the following pins tied together:

- Pins 2 and 3
- Pins 6 and 20
- Pins 13 and 14
- Pins 16 and 19

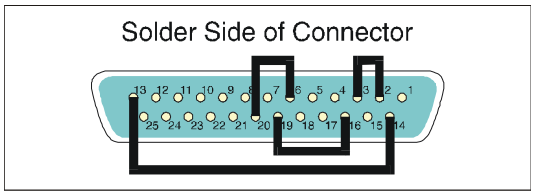


Figure 3-6. Parallel Loopback Connector

The parallel loopback connector is a standard 36-pin parallel connector mounted to a small printed circuit board. This connector is available from Zebra (Zebra part number 44680M).

For each of these diagnostic tests, the printer transmits the test label format out of the data interface connector to the rollback connector. The rollback connector passes the test label format to the printer as received data, and the test label is prints.

Pause Key Loopback Test

This test demonstrates the media movement capabilities of the printer and provides a test label to inspect while making print quality adjustments.

With the rollback connector in place, press and hold **PAUSE** while turning the printer On (**I**).

After the Power-On Self Test, 500 head test labels print.

A serialized number prints on each label for label comparison purposes if required. Refer to the label example in Figure 3-7. Use **PAUSE** to stop and restart the printing operation.

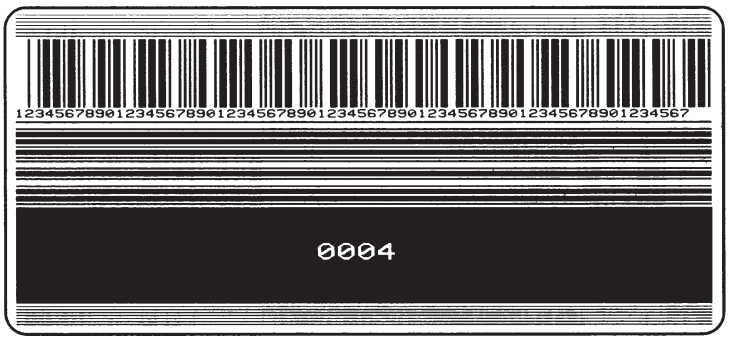


Figure 3-7. Pause Key Loopback Test Sample Label

Feed Key Loopback Test

With the rollback connector in place, press **FEED** while turning the printer On (**I**).

After the Power-On Self Test, the printer begins printing the same series of label formats as shown in Figure 3-3 for the Feed and Cancel Key Test. The printer pauses at the end of each printed format. Press **PAUSE** to begin printing the next format. Sample labels are shown in Figures 3-8 through 3-14.

Use **PAUSE** to stop and restart the printing operation. When the printer is paused, press **CANCEL** to move to the next label format.

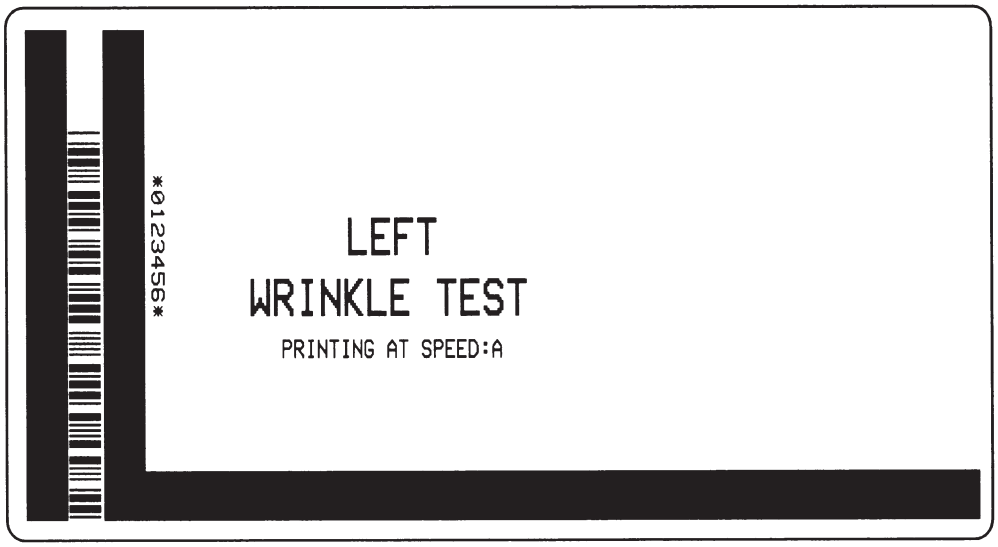


Figure 3-8. Format 1 (4) Test Sample Label

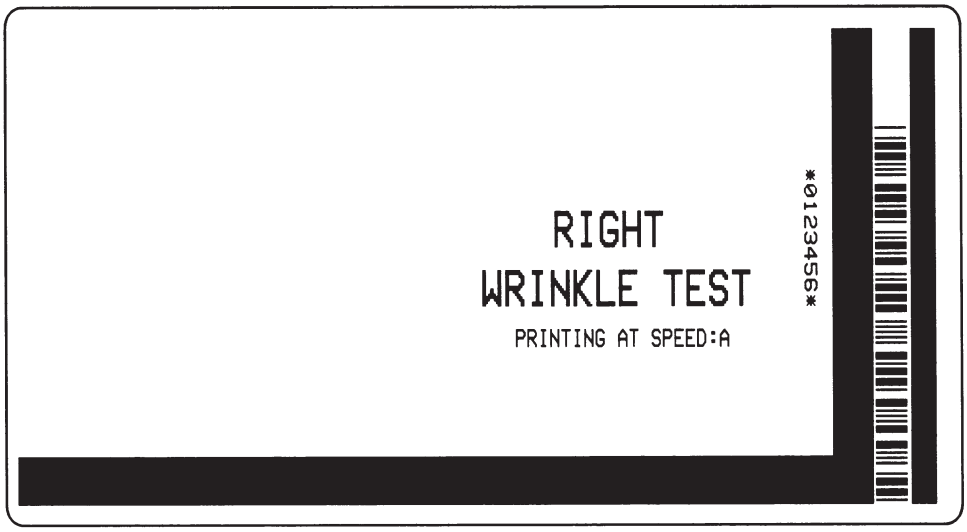


Figure 3-9. Format 2 (5) Test Sample Label

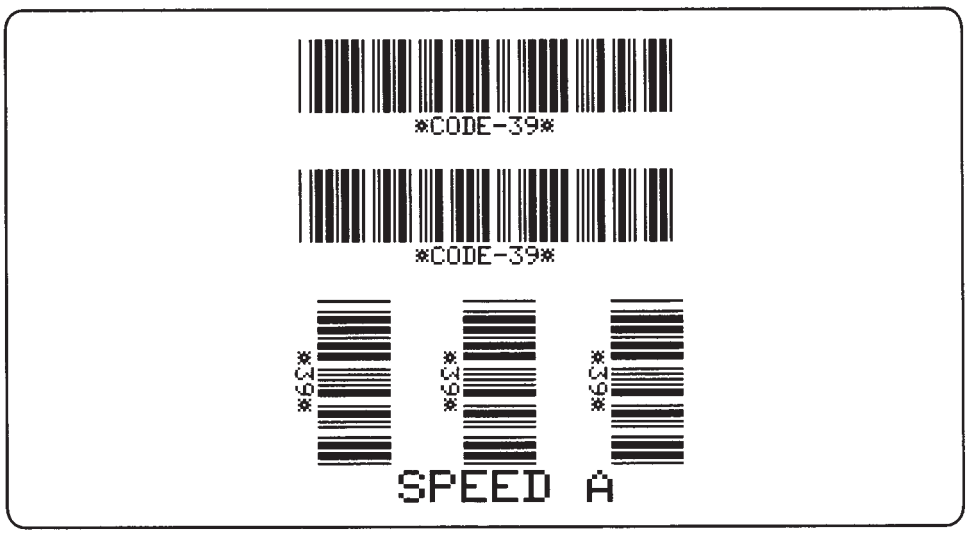


Figure 3-10. Format 3 (6) Test Sample Label

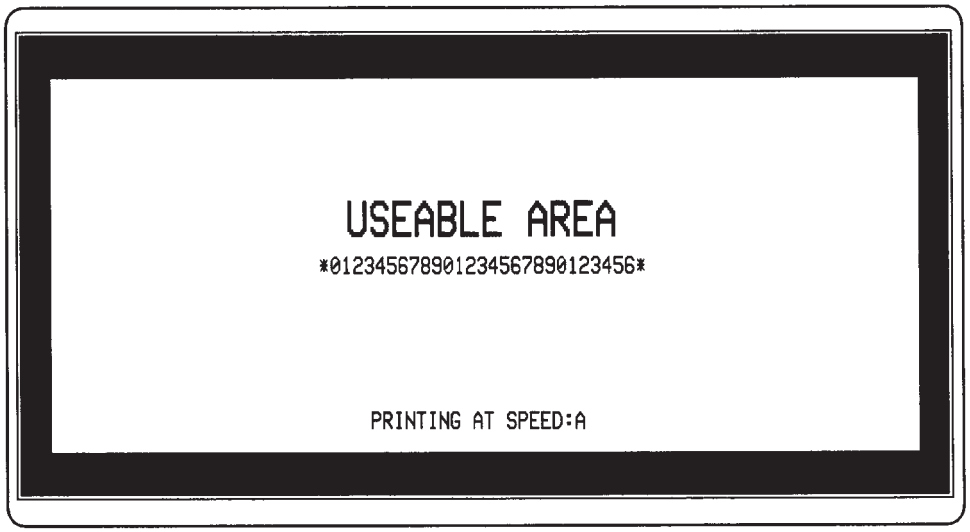


Figure 3-11. Format 7 (11) Test Sample Label

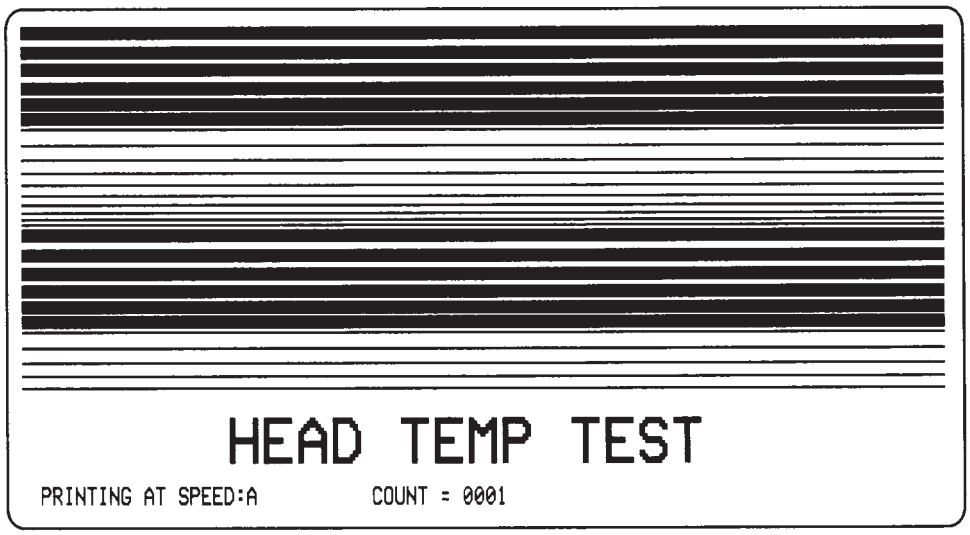


Figure 3-12. Format 8 (12) Test Sample Label

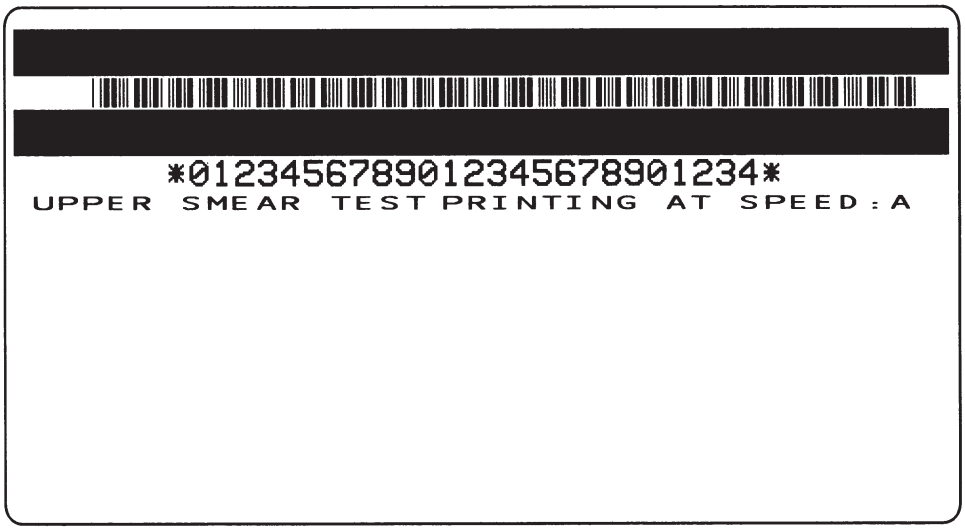


Figure 3-13. Format 9 (13) Test Sample Label

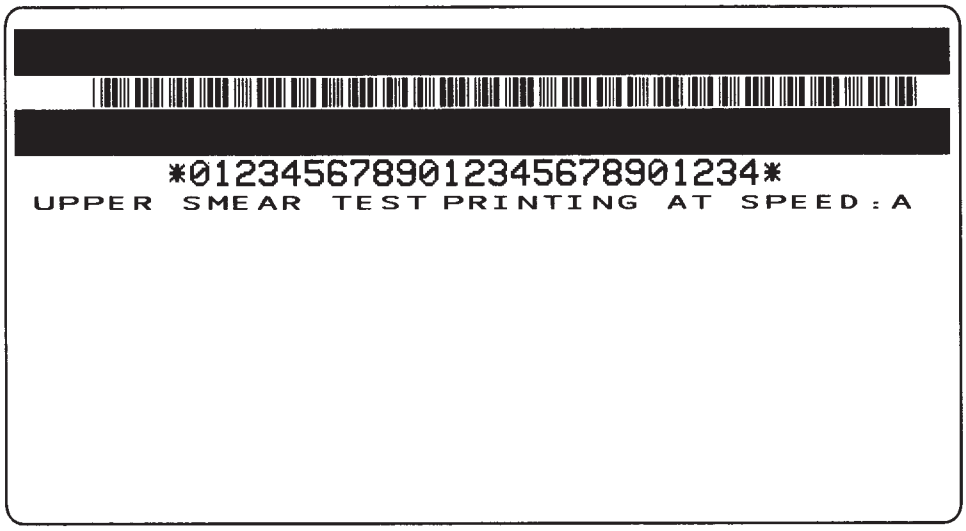


Figure 3-14. Format 10 (14) Test Sample Label

Basic Troubleshooting

Consult the Troubleshooting Table that follows and compare the printer output with the sample labels to improve the quality of your labels.

Table 3-3. Basic Troubleshooting

Symptom	Diagnosis	Action
All LEDs light, but nothing displays on LCD and printer does not operate.	Main logic board or Flash faulty.	Download new Flash or replace the main logic board.
All LEDs flash.	No significant amount of DRAM tested good.	Replace the main logic board.
Take-Label LED flashes.	Printer misconfigured for Peel-Off Mode.	If peel-off is desired, check Take-Label sensor.
Printer locks up while running Power-On Self Test.	Main logic board failure.	Replace the main logic board.
EEPROM CHECKSUM INVALID	EEPROM checksum is incorrect.	Replace the main logic board.
ERR0R CONDITION PAPER OUT Printer stops and ERROR LED flashes.	No media loaded or incorrectly loaded.	Load media correctly.
	Misadjusted media sensor.	Check media sensor position and sensitivity.
	Maximum label length set shorter than label length.	Verify maximum label length setting is correct.
	Printer set for non-continuous media, but continuous media is loaded.	Install proper media or reset printer for current media type.
ERR0R CONDITION RIBBON OUT Printer stops and ERROR LED flashes.	For Thermal Transfer: Ribbon not loaded or incorrectly loaded. or Ribbon sensor not sensing ribbon that is correctly loaded.	Load ribbon correctly. Ensure snap plate is properly installed. Perform media and ribbon sensor calibration.
WARNING RIBBON IN	For Direct Thermal: Ribbon loaded unnecessarily.	Remove ribbon. Verify snap plate is properly installed.

Table 3-3. Basic Troubleshooting (Continued)

Symptom	Diagnosis	Action
ERR0R CONDITION HEAD OPEN Printer stops and ERROR LED flashes.	Printhead is not fully closed.	Close printhead completely.
	Head-open sensor not detecting position flag, or flag is not in the proper position.	Check head-open sensor and flag for proper operation.
WARNING HEAD OVERTEMP Printer stops and ERROR LED flashes.	Printhead element is overheated.	Printer resumes printing when the printhead element cools to normal operating temperature.
WARNING HEAD UNDERTEMP Printer stops and ERROR LED flashes.	Printhead element is not hot enough to print properly.	Environment too cold for proper printing. Relocate printer to warmer area.
	Printhead data cable not properly connected.	Allow printhead to cool. Disconnect and reconnect printhead cables. Ensure cables are fully inserted into connectors.
ERR0R CONDITION ELEMENT BAD Print quality problems.	Printhead element is going bad.	To override this message, place ^JT in your format and then ~JO to turn off the HEAD TEST. Clean printhead and test for proper printing. Replace printhead if necessary.
ERR0R CONDITION CUTTER JAMMED	Cutter blade is in the media path.	Turn power Off (**O**). Remove media, reload media, and turn power On (**I**). If the error condition persists, check cutter sensors and control board. Replace if necessary.

Table 3-3. Basic Troubleshooting (Continued)

Symptom	Diagnosis	Action
Printer stops and PAUSE LED lights. LCD displays: ERR0R CONDITION Out of Memory	Not enough memory to perform the function indicated in the second line of the display. (Printer may not be configured for continuous label stock with the maximum label length set too long.) Functions: 1. Creating a bitmap size is larger than label length/ width specified. 2. Storing a bitmap: Not enough memory available to store bitmap created. 3. Building a format: Label is too complex. 4. Storing a format size too large to fit in available memory. 5. Storing a graphic image is too large to fit in available memory. 6. Storing a font: Not enough memory to store font.	You may do any of the following: 7. Storing errors: With PAUSE on, use the ~HM ZPL II command to display the amount of memory available. Redesign graphic/format to fit in available memory or remove items from memory to create more space. or 8. Press **PAUSE** to skip that step in the process and continue to the next step. 9. With Pause on, press **CANCEL**— printer skips that label formatting process and continues to the next label format. 10. Turn printer Off (**O**) to clear printer memory and start over.
Poor print quality.	Darkness set too low.	Reconfigure darkness setting.
	Incorrect media and ribbon.	Replace media and ribbon.
	Printhead just replaced.	Ensure printhead is installed properly with no wires or debris caught underneath.
	Incorrect printhead adjustments.	Perform required adjustments.
	Printhead resistance not configured to proper value.	Reconfigure printhead resistance.
Truncated print, no print, or FEED operates incorrectly while using non-continuous media.	Maximum label length parameter set less than actual label length.	Set correct label length.
	Printer in Rewind or Peel-Off Mode turned on without media or liner around rewind spindle.	Load media correctly for Rewind or Peel-Off Mode.
Long vertical tracks of missing print on several labels.	Wrinkled ribbon.	Refer to Wrinkle Ribbon Symptom on page 3-16 of this table.
	Print element damaged.	Replace printhead.

Table 3-3. Basic Troubleshooting (Continued)

Symptom	Diagnosis	Action
Fine gray lines on blank labels at angles.	Wrinkled ribbon.	Refer to Wrinkled Ribbon Symptom on page 3-16 of this table.
Wrinkled ribbon	Ribbon fed through machine incorrectly.	Load ribbon correctly.
	Ribbon supply spindle tension needs adjusting.	Perform adjustments.
	Incorrect burn temperature.	Set burn temperature to lowest setting possible for good print quality.
	Incorrect printhead pressure or balance.	Set pressure to minimum needed. Refer to printhead balance adjustment and printhead pressure adjustment procedures.
	Media not feeding properly; walking from side to side.	Make sure media is snug by adjusting media guide.
	Strip plate needs adjusting.	Perform adjustments.
	Printhead needs realigning with platen roller.	Perform adjustments.
	Ribbon take-up spindle tension needs adjusting.	Perform adjustments.
	Three-point mount for ribbon supply spindle needs adjusting.	Perform adjustments.
	Ribbon supply core slipping; spindle blades need adjusting.	Perform adjustments.
Light printing or no printing on left or right side of label.	Printhead needs balancing.	Adjust balance. See printhead balance adjustment procedures.
Misregistration or skipped labels.	Improper sensor type selected.	Perform media sensor adjustments.
	Misadjusted media sensors.	Calibrate printer.
	Improper spindle tensions.	Perform spindle adjustments.
	Improper ZPL format.	Correct ZPL format.

Table 3-3. Basic Troubleshooting (Continued)

Symptom	Diagnosis	Action
Misregistration and misprint of one to three labels. Vertical drift in top-of-form registration.	Media was pulled when motor was not moving.	Open and close printhead so it calibrates to find label length.
	Printer in Rewind or Peel-Off Mode turned on without media or liner around rewind spindle.	Load media correctly for Rewind or Peel-Off Mode.
	Misadjusted media sensor.	Place media sensor in proper position.
	Tolerances of the mechanical parts and printer modes create ±1 mm vertical drift	Use top position setting to reposition top of form.
		Calibrate if excessive.
Label jam in rear area of printhead.	Upper media plate (snap plate) needs cleaning.	Clean upper media plate (snap plate).
Printed label feeds out and then backfeeds, immediately resting under the printhead.	Printer set for Cutter Mode with no cutter installed.	Set correct print mode.
Changes in parameter settings did not take effect.	Parameters set incorrectly.	Cycle power. Reload factory defaults. Set parameters and save permanently.
	If problem persists, there may be a problem on the main logic board.	Replace main logic board.
Missing LCD characters or parts of characters.	LCD may need replacing.	Run Power-On Self Test and check that LCD displays all characters.
ZPL sent to printer but not recognized. Buffer light remains on or flashes.	Communications parameters are incorrect.	Print communications diagnostic label. Check for format or overrun errors. Reset communication parameters.
	Prefix and delimiter characters set in printer do not match those used in ZPL.	Set characters in the printer to match ZPL format. If problem continues, check ZPL format for changed ^CC, ^CT, and ^CD.
	Zebra protocol is on.	Set protocol to none.

Factory Assistance

Should you encounter any problem that cannot be corrected with the aid of this manual, immediately contact your distributor or the Zebra Technical Support department to minimize downtime and/or assist in returning the equipment.

Returning Equipment

Should it become necessary to ship your 110*Xi*III-Series printer, carefully pack it in a suitable container to avoid damage during transit. A note describing the failure must be enclosed with the unit. Whenever possible, use the original shipping container. If the original shipping container is not available, a replacement can be ordered from the Technical Support department. If other containers are used, follow a procedure similar to the original factory packaging.

Remove all media and ribbon from the printer. Enclose the unit in a protective, dust proof bag and ensure that the unit floats in an outer carton of shock-absorbing material.

US Zebra Technical Support	
Phone:	+1 847.913.2259
Fax:	+1.847.913.2578
Hardware:	hwtsamerica@zebra.com
Software:	swtsamerica@zebra.com
UK and Europe Zebra Technical Support	
Phone:	+44 (0) 1494 768298
Fax:	+44 (0) 1494 768210
Support:	tseurope@zebra.com

A Return Materials Authorization (RMA) number is required for all equipment being returned. Contact Zebra Technologies Technical Support department to obtain an RMA number. Equipment returned for service without prior authorization may be refused.

Caution:

Before packing the printer, remove any ribbon and paper rolls from the media compartment. Do not package the printer in a rigid container without shock mounts or shock-absorbing packing material. A rigid container allows shock on the outside to be transmitted to the unit and may cause damage.

Section 4
Maintenance

Maintenance Concepts

Maintenance for the Zebra 110*Xi*III*Plus* thermal transfer demand printers can be divided into two basic categories:

- **Preventive Maintenance** procedures and operator care instructions. These procedures may be performed by the operator as well as the service technician and should be performed on a regular basis. Preventive maintenance consists of a visual inspection, general cleaning of the interior, exterior of the printer, and cleaning the printhead and the associated media and ribbon paths.
- **Corrective Maintenance** provides the service technician detailed steps for resolving faults by adjusting or replacing components or modules.

Table of Contents

Safety Information

Equipment Safety Tips

After reviewing each procedure, place a check in the box.

☐ The AC power plug and IEC 320 connectors on all Zebra printers must bear the certification mark of at least one of the international safety organizations listed below.

☐ Unless indicated otherwise, turn the power Off (**O**) before performing any maintenance procedures on the printer. Disconnect the AC power cord from the power source.

☐ Zebra printers comply with international regulations governing radiated emissions when using fully shielded data cables. Data cables must be fully shielded and fitted with metal or metallized connector shells. Required shielded data cables and connectors prevent radiation and reception of electrical noise. Use of unshielded data cables may increase radiated emissions above the regulated limits.

☐ Permanent damage to the Flash memory will result if you turn on the printer with Flash memory chips installed in the wrong direction.

Equipment Safety Tips (Continued)

- ☐ To ensure that static-sensitive devices such as printhead and printed circuit boards are not damaged during disassembly and reassembly, observe proper electrostatic safety precautions when handling these components.
- ☐ Zebra recommends using solvent containing 90% isopropyl alcohol and 10% distilled water for cleaning:
  - Printheads
  - Platen Rollers
  - Peel-Off Roller
  - Media Path
  - Peel/Tear Bar
  - Spindles
- ☐ Ribbons used in the printers must be as wide as or wider than the media. If the ribbon is narrower than the media, areas of the printhead will be unprotected and subject to premature wear.
- ☐ To ensure the printer has proper ventilation and cooling, do not place any padding or cushioning material under the unit because this restricts airflow.
- ☐ Install Zebra printers on a solid, level surface of sufficient size and strength to accommodate the physical dimensions and weight of the unit. The area enclosure in which the printer will operate must meet the environmental conditions specified in this Maintenance Manual or the Users Guide. Electrical power must be available and in close proximity to the printer.

Personal Safety Tips

- ☐ Do not wear any jewelry (rings, watches, bracelets, etc.) or loose clothing when servicing the printer.
- ☐ Beware of “Pinch Points” on the printers. Be especially careful of:
  - Opening and closing covers
  - Opening and closing the printhead
  - Rewind Spindle
  - Platen Roller
- ☐ Wear protective eyewear when removing E-rings, C-clips, and springs.
- ☐ For personnel and equipment safety, use a three-prong plug with a ground (earth) connection.

Preventive Maintenance

Clean the Zebra Printer

Refer to Table 4-1 and perform the preventive maintenance procedures at the prescribed interval.

Table 4-1. Recommended Cleaning Schedule

Area	Method	Interval
Printhead	Solvent*	After every roll of media (or 500 feet [150 m] of fanfold media) when printing in Direct Thermal Mode and after every roll of ribbon when printing in Thermal Transfer Mode.
Platen Roller	Solvent*	
Transmissive Media Sensor	Air blow	
Reflective (Black-Mark) Sensor	Air blow	
Media Path	Solvent*	
Tear-Off or Peel-Off Bar	Solvent*	As needed.
Snap Plate	Solvent*	As needed.
Take-Label (Label-Available) Sensors	Air blow	Monthly.
Ribbon Sensor	Air blow	After every roll.
Ribbon Feeding	Visual inspection	After every roll.
Belts	Visual inspection: Look for belt wear.	Every 6 months or after every 500 rolls.
Media Supply Spindle Media Take-Up Spindle Ribbon Supply Spindle Ribbon Take-Up Spindle	The spindle torque should be tested every year, or 500 rolls of media for the media take-up spindle; and every 200 rolls of ribbon for the ribbon supply and ribbon take-up spindles. The spindle torque need not be readjusted unless the printer is malfunctioning.	
Cutter	Clean stationary cutter blade with solvent* when it becomes gummed up with adhesive and cut debris. After cleaning, apply a small amount of grease to the moving cutter parts.	

*Zebra recommends a solution containing 90% isopropyl alcohol.

Caution:

Unless indicated otherwise, turn the printer power Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

Caution:

Use only the cleaning agents described in the following procedures. Zebra Technologies will not be responsible if any other fluids are used on this printer.

Exterior: The exterior surfaces of the printer may be cleaned as required by using a lint-free cloth. Do not use solvents or harsh cleaning agents. If the unit is excessively dirty, a mild detergent solution or desktop cleaner may be used sparingly.

Interior: As required, use a soft-bristle brush or vacuum cleaner to remove any dirt or lint accumulated in the interior of the printer. It is a good practice to inspect these areas after every four rolls of media.

Cleaning supplies: A preventive maintenance kit (Zebra part number 01429) containing six cleaning swabs soaked in solvent (alcohol and distilled water) is available from Zebra Technologies.

Caution:

The use of certain lubricants such as penetrating oil and silicone oil will damage the printers spindles and inhibit proper operation. Do not lubricate any parts in this printer unless called for in the installation and adjustment procedure.

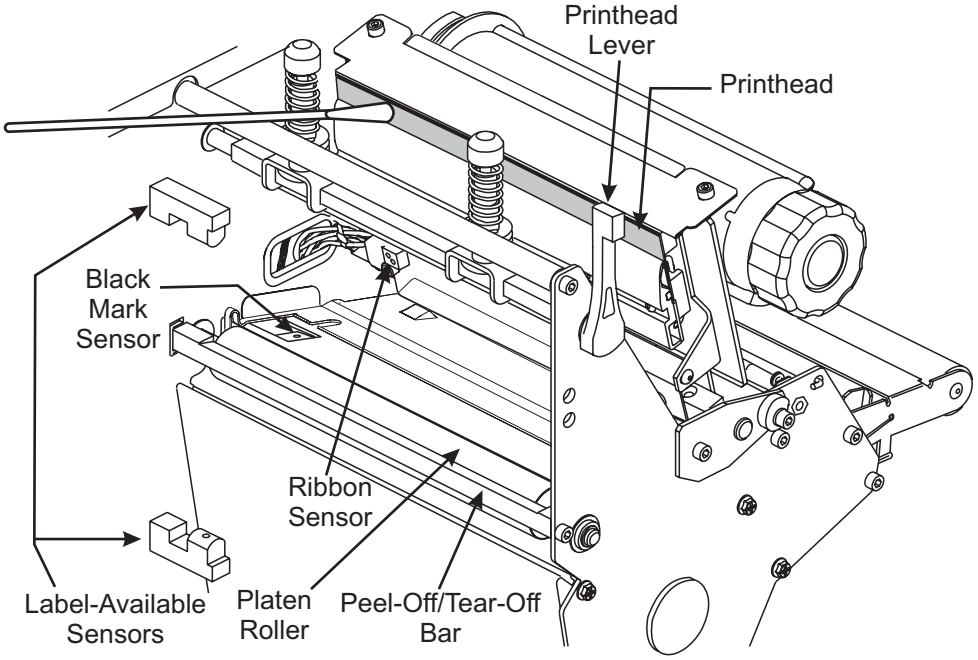


Figure 4-1. Cleaning a Typical Printhead

Clean the Printhead

Inconsistent print quality such as voids in the bar codes or graphics may indicate a dirty printhead. For optimum performance, the printhead should be cleaned regularly. Zebra Technologies recommends performing the cleaning procedure when installing a new roll of ribbon, when installing a new roll of direct thermal media, or after printing 500 feet (150 m) of continuous or fanfold media.

It is not necessary to turn the printer Off (**O**) prior to cleaning. If printer is turned Off (**O**), all label formats, images, and parameter settings stored in the printer's formatting RAM memory will be lost. Permanent parameter settings stored in EEPROM or Flash are retained. When the printer is turned On (**I**), it may be necessary to reload some items into the memory.

Use the following procedure to clean the printhead:

1. Open the printhead by moving the printhead lever to the open position.
2. Remove the media and ribbon.
3. Refer to Figure 4-1. Moisten a cleaning swab with solvent and wipe the print elements from end to end. The print elements are the greyish black strip just behind the chrome strip on the underside of the printhead. Allow a few seconds for the solvent to evaporate.
4. Rotate the platen roller and clean thoroughly with a solvent and an applicator.
5. Brush or vacuum any accumulated paper lint and dust away from the rollers and the media and ribbon sensors.
6. Reload ribbon and media, close and latch the printhead, restore power, and run the Pause Key Self Test to check print quality.

Clean the Upper Media Guide (Snap Plate)

Clean to remove a label or label adhesive from the underside of the snap plate.

1. Refer to Figure 4-2. Insert a small-blade screwdriver or similar tool into the loop on the left side of the snap plate. Lift the snap plate up a short distance.

Note • Use care not to bend, twist, or otherwise deform the loops!

2. Lift up the loop on the right side of the snap plate.
3. Remove the snap plate from the printer.
4. Clean the snap plate with cleaning solvent and a soft cloth.
5. To reinstall the snap plate, insert the two tabs on the bottom of the snap plate into the two slots of the media pathway.
6. Slide the snap plate toward you.
7. Press down on the loops to lock the snap plate into place.

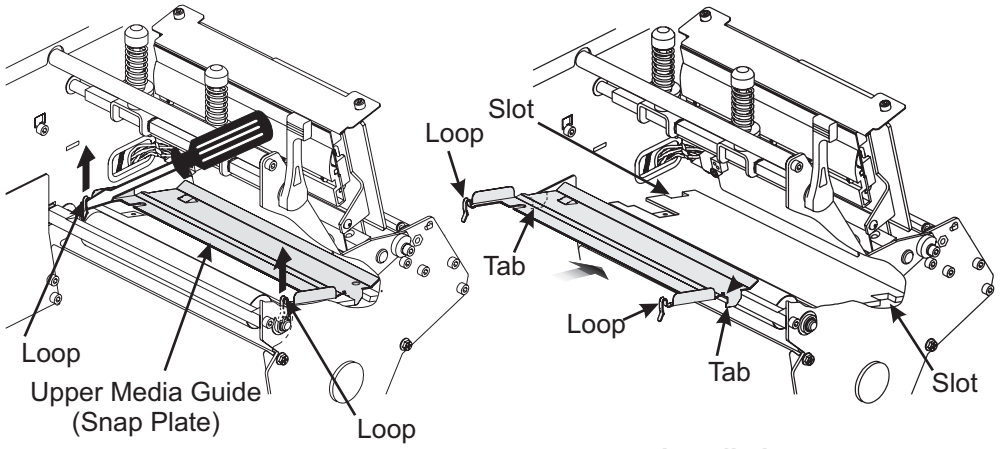


Figure 4-2. Snap Plate Removal and Installation

Corrective Maintenance

Tools Required for Corrective Maintenance

You need a complete set of technician's tools, including a flat-blade and Phillips screwdrivers, American standard and metric nut drivers, American standard and metric Allen wrenches, combination wrenches, wire cutters, and two special tools:

- Spring scale, 0–2250 g (Zebra part number 11303)
- Spindle torque adjustment kit (Zebra part number 01773)

Test Equipment Required

- Multimeter and test leads
- Antistatic mat and antistatic wrist strap for removing static sensitive components.

Printer Parts and Locations

External Components

Refer to Figure 4-3 to familiarize yourself with the external parts of the printer.

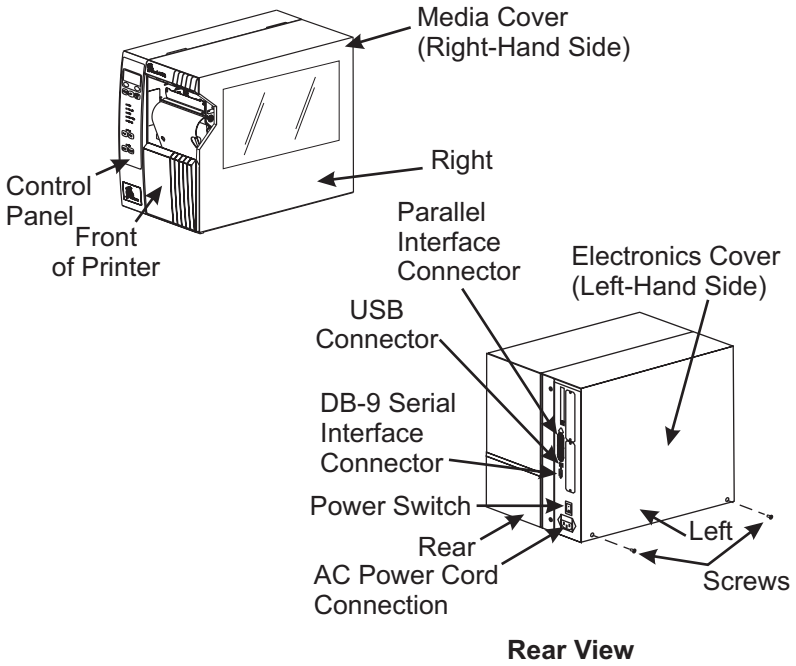


Figure 4-3. External Printer Component Orientation

Electrical Interconnections

Refer to Figure 4-4 when you remove and replace circuit boards or disconnect and reconnect any electrical components.

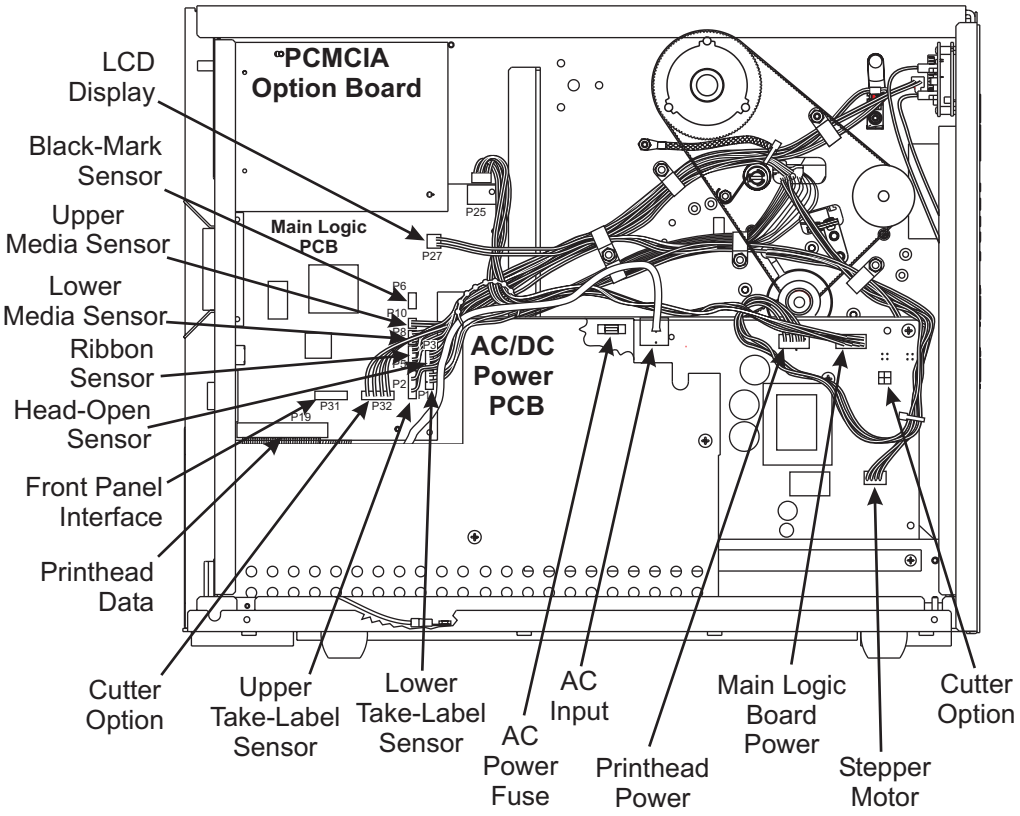


Figure 4-4. Interconnections

Routine Referral Procedures (RRP)

Routine Referral Procedures are commonly used steps that are performed often during corrective maintenance. These procedures are referenced throughout this section of the manual.

RRP No. 1: Prepare Printer for Maintenance

Remove Power and Disconnect Printer

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

Refer to Figure 4-5.

1. Turn the printer Off (**O**).
2. Remove the AC power cord.

Refer to Figure 4-6.

3. **Parallel Data Cable:** Remove wire retainers from the parallel data cable connector. Pull the data cable connector away from the parallel data port connector.
4. **Serial Data Cable:** Loosen the screws securing serial data cable connector and pull it away from the serial data port connector.
5. **USB Data Cable:** Pull the USB connector away from the USB connector.

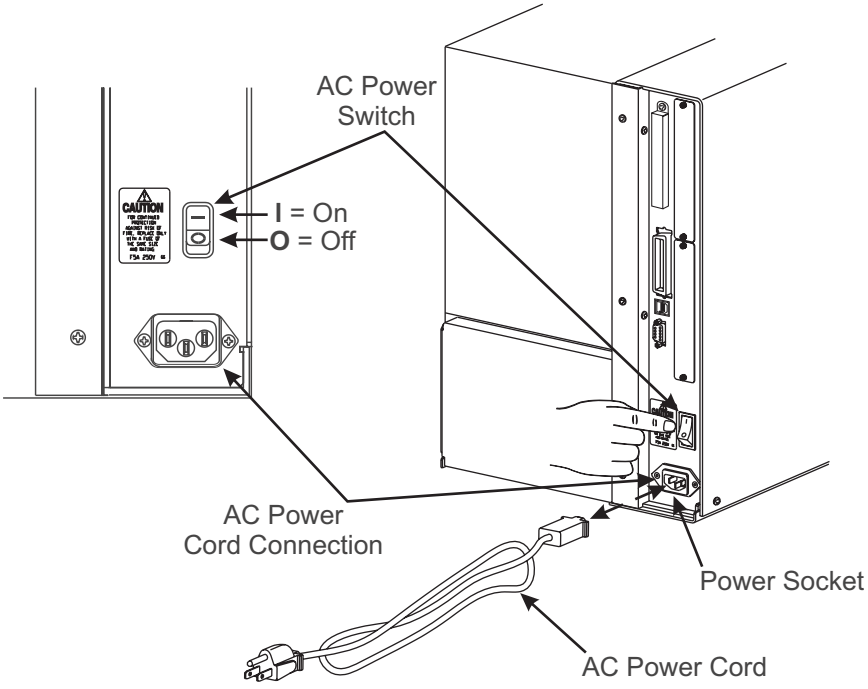


Figure 4-5. Power Cord Removal and Installation

Reconnect Printer

Refer to Figure 4-6.

1. **Parallel Data Cable:** Insert the parallel data cable, 36-pin parallel data cable, male connector into the parallel data port connector. Firmly seat the connector. Secure the connector with the two wire retainers.

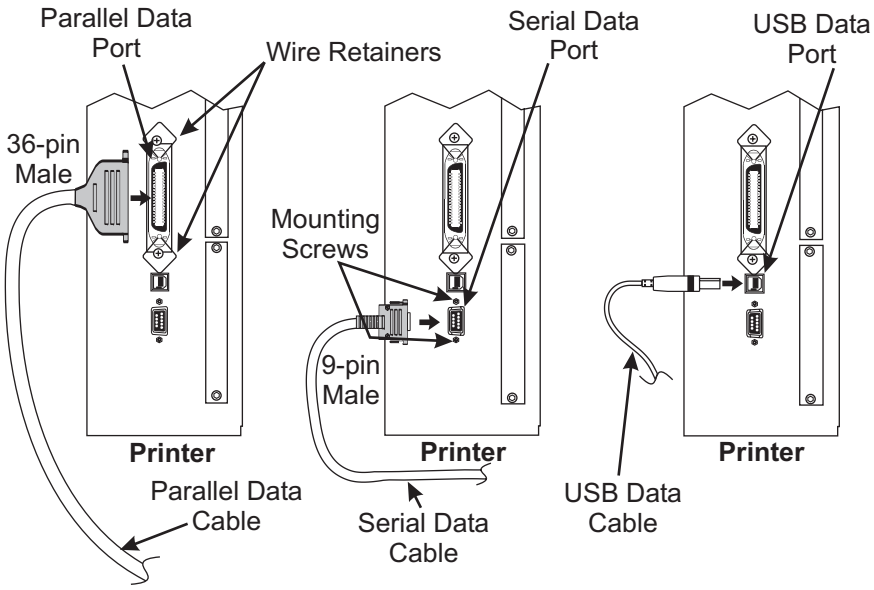


Figure 4-6. Remove and Install the Data Cables

2. **Serial Data Cable:** Insert the serial data cable, 9-pin serial data cable, male connector into the serial data port connector. Firmly seat the connector and secure the connector.
3. **USB Data Cable:** Insert the USB connector firmly into the USB connector.
4. Ensure the printer is turned Off (**O**) and reconnect the AC power cord.
5. Turn the printer On (**I**).

RRP No. 2: Remove and Install the Electronics Cover

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

Caution:

This installation must be performed by a qualified service technician.

Refer to Figure 4-7. Remove the two screws located near the bottom. Lift the electronics cover at the rear top corner as shown and pull the corner forward and up. Lift the cover up and away from the printer.

To install the cover, lower the cover so the lip goes into the channel on the top of the printer and reinstall the screws.

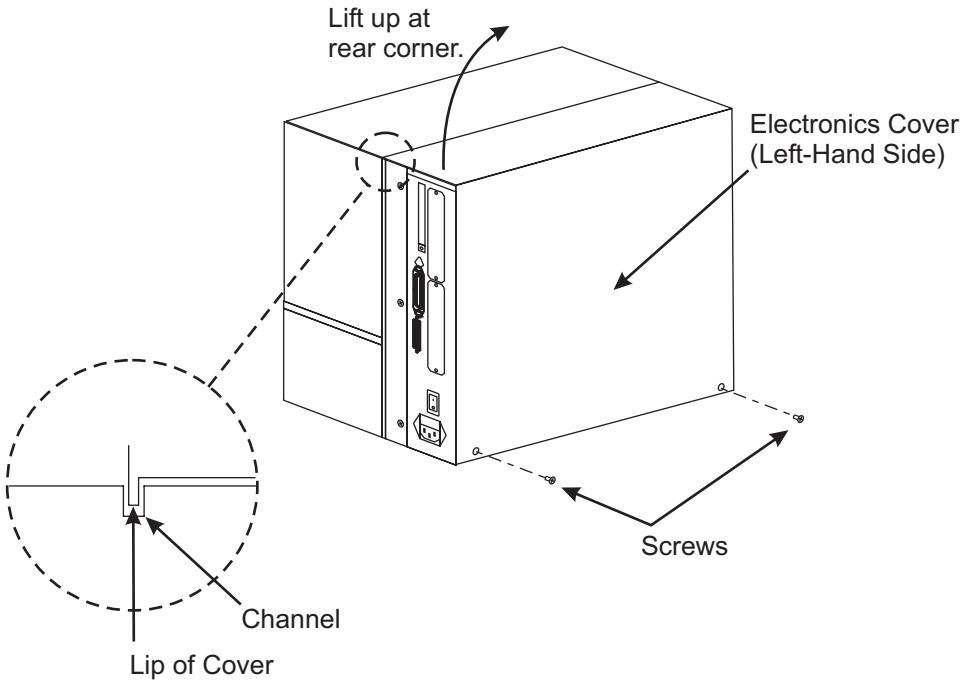


Figure 4-7. Remove and Install the Electronics Cover

RRP No. 3: Remove and Install the Power Supply

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

Remove Power Supply

1. Refer to RRP No. 1 on page 4-14 and turn the printer Off (**O**) and disconnect the AC power cord. Disconnect the data cables.
2. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

3. Disconnect the cable tie and remove it from the insulation shield.

Caution:

Certain components located under the insulation shield can store a residual charge for as long as 10 minutes after power has been removed. Use extreme care when removing the power supply. Handle the board only around the outer edges.

4. Refer to Figure 4-8. Remove and retain the two screws securing the insulation shield to the standoffs on the power supply. Carefully unwrap the top of the shield and remove it from the power supply.

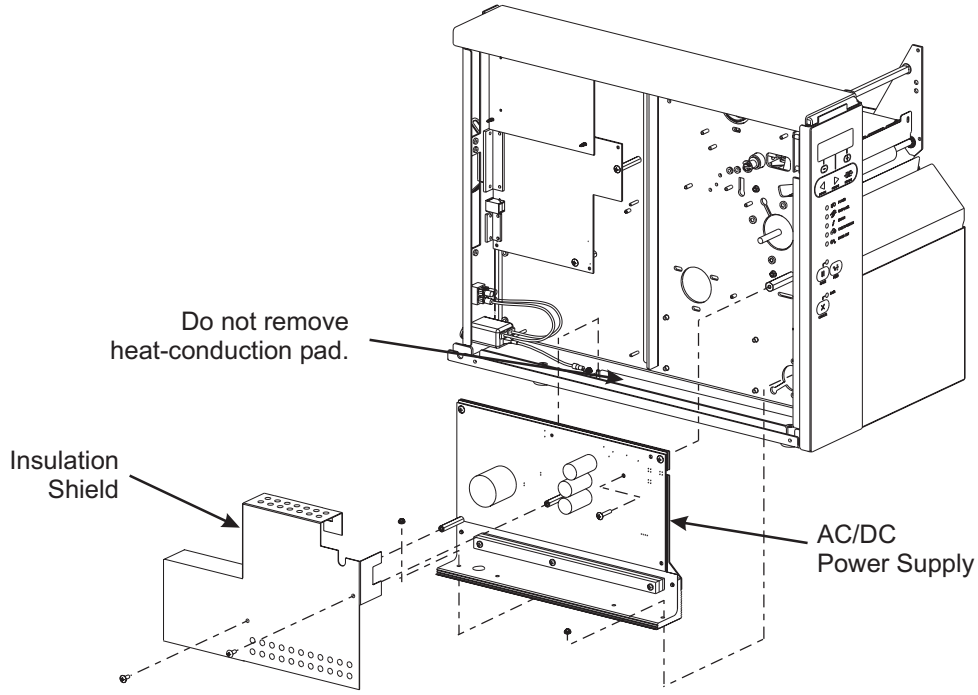


Figure 4-8. Remove and Install the AC/DC Power Supply

5. Refer to Figure 4-8. Unplug all connectors from the AC/DC power supply.
6. Remove the mounting screw and two nuts securing it.
7. Remove the power supply assembly.

Note • The black heat-conduction pad must not be discarded.

Install the Power Supply

1. Refer to Figure 4-8. Ensure the heat-conduction pad is in position. Move the cables out of the way while installing the AC/DC power supply assembly.
2. Reinstall the mounting screw and nuts securing the power supply assembly.
3. Connect all the cable connectors on the power supply board as shown in Figure 4-8.
4. Reinstall the insulation shield, ensuring the top is dressed properly. Secure the insulation shield to the standoffs with two screws.
5. Dress the wire harnesses across the top of the insulation shield, and secure them with the cable tie.
6. Reinstall the electronics cover.
7. Reconnect the AC power cord and all data cables and supply power.
8. Press and hold **PAUSE** while turning the printer On (**I**). Observe the printer Power-On Self Test and examine the test labels for proper print quality.

RRP No. 4: Remove and Install the Main Logic Board

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

Remove the Main Logic Board

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**) and disconnect the AC power cord. Disconnect the data cables.

Caution:

This installation must be performed by a qualified service technician.

2. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Note • Retain all attaching hardware to use during reassembly.

3. Refer to Figure 4-9. Remove the memory or font card from the card slot at the rear of the printer by removing the shield and pressing the card-eject button.

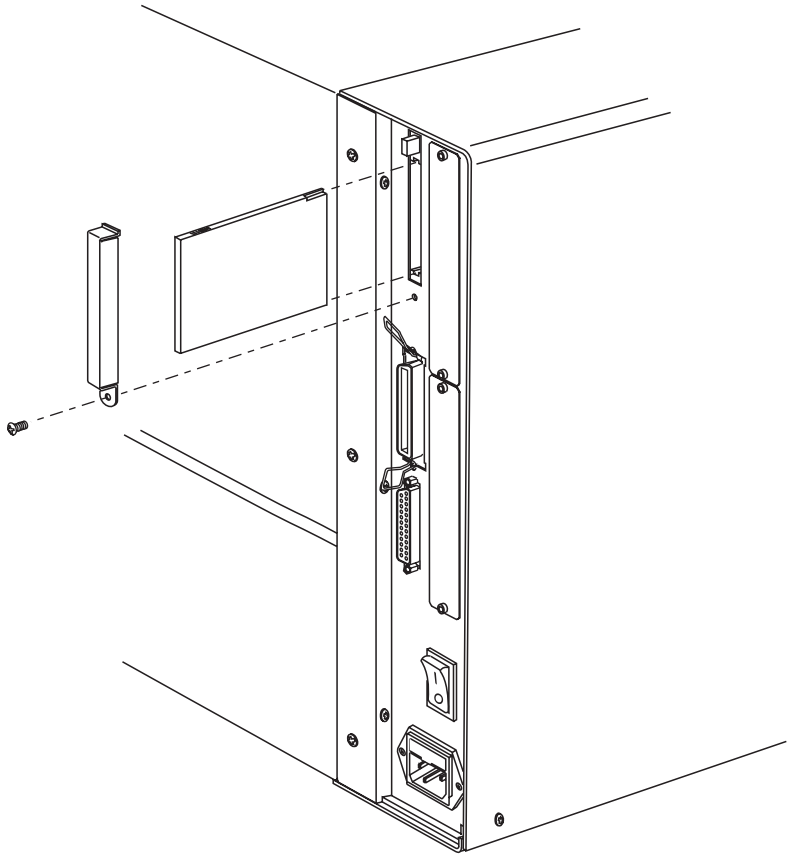


Figure 4-9. Memory or Font Optional Board

4. If an optional interface board is installed in the printer, refer to the removal instructions *Removing the Existing PCMCIA or Wireless PCMCIA Option Board Assemblies on page 4-128* in this Maintenance Manual before continuing with this procedure.

5. Refer to Figure 4-10. Disconnect all connectors from the main logic board.

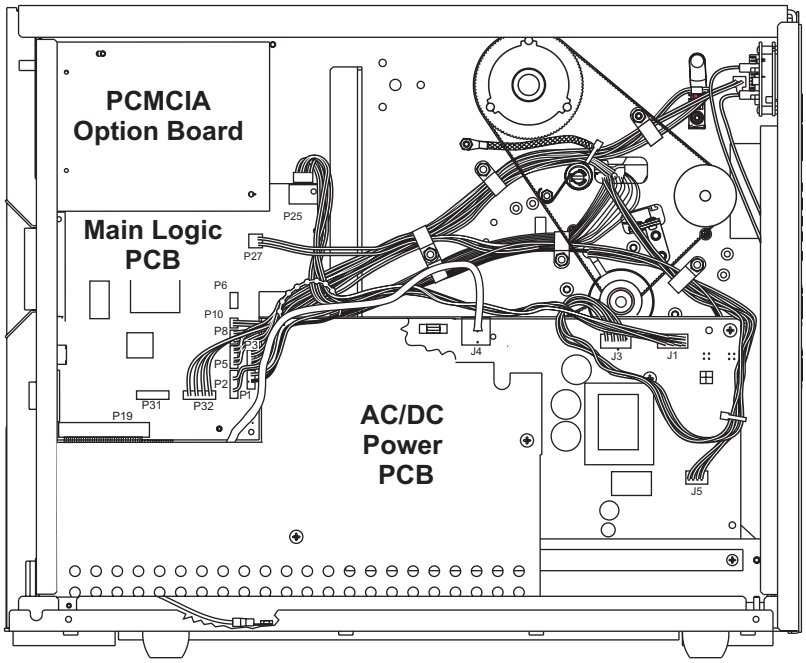


Figure 4-10. Main Logic Board

6. Refer to Figure 4-11. At the rear of the printer, remove the screws securing the serial and parallel port connectors.

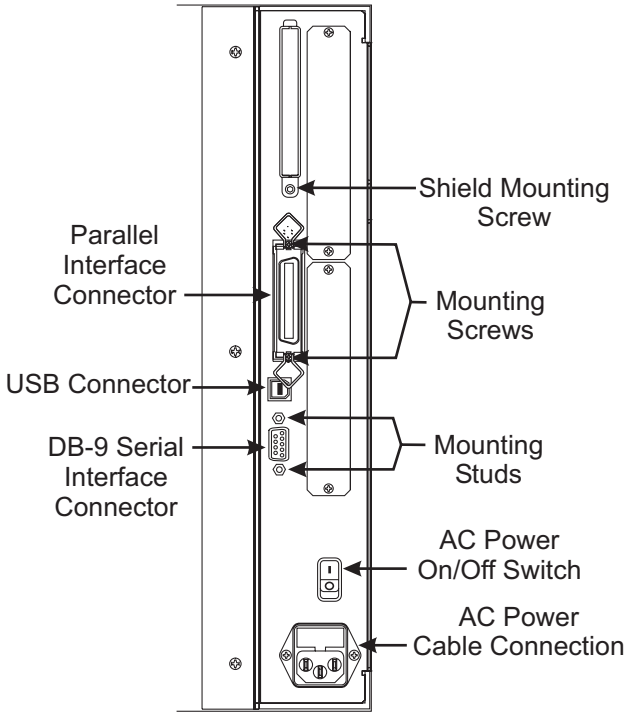


Figure 4-11. Rear View

7. Refer to Figure 4-12. Remove the PCMCIA board by first removing the mounting screw at the upper left of the board, then squeezing the tips of two plastic standoffs at the lower left and right, and remove the board.

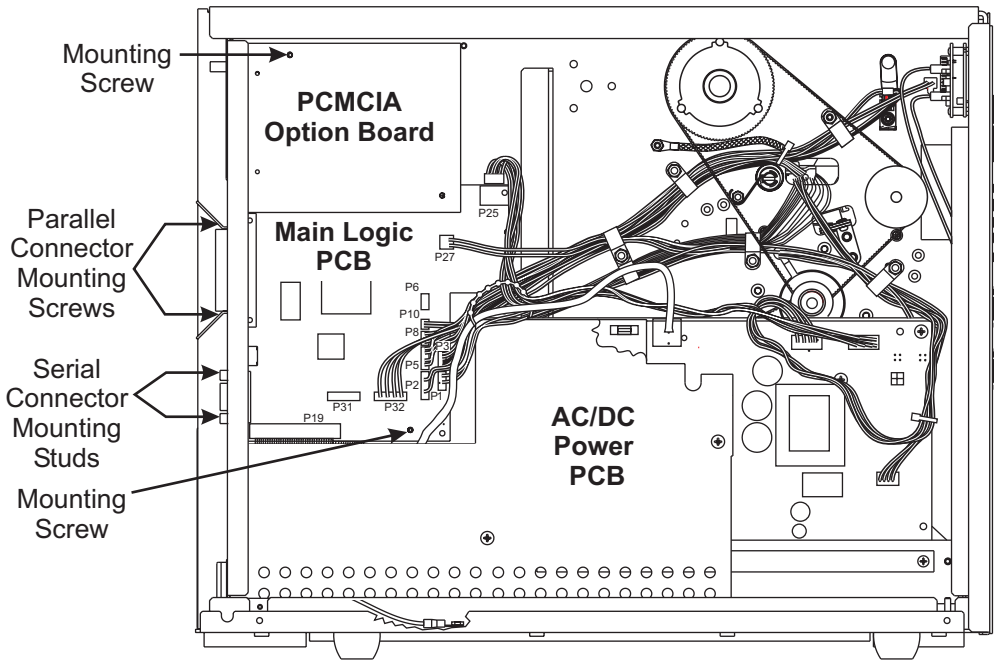


Figure 4-12. Remove and Install the PCMCIA and Main Logic Board

8. Remove the main logic board by removing the mounting screw at the upper right and the mounting nut at the bottom right.

9. Remove the two standoffs from the main logic board.

Install the Main Logic Board

1. Refer to Figure 4-12. Reinstall the two standoffs into the main logic board.
2. Install the main logic board using the screw and nut previously removed.
3. Refer to Figure 4-11. Reinstall the screws and studs for the serial and parallel interface connectors.
4. Reinstall the PCMCIA board by pushing it onto the two standoffs and into connectors P23 and P24, securing it with the previously removed screw.
5. Refer to Figure 4-4. Reconnect all ribbon and small wire connections to the main logic board.
6. Reinstall the memory or font card into the PCMCIA board and reinstall the shield.
7. Reinstall any other option boards previously removed.
8. Reinstall the electronics cover.
9. Reinstall the AC power cord and restore power.
10. Turn the printer On (**I**) and verify operation.
11. Turn the printer Off (**O**).
12. Press and hold the Left Black Oval while turning the printer On (**I**), hold the Left Black Oval until all front panel lights come on.
13. Press **NEXT/SAVE** until MODEL SELECT appears.
14. Press the Left Black Oval or the Right Black Oval until you model appears.

RRP No. 5: Adjust the Main Drive Belt Tension

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

Adjust the Tension

1. Refer to RRP No. 1 on page 4-14. Place the power switch in the Off (**O**) position, and disconnect the AC power cord. Disconnect the data cables.
2. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

3. Remove all ribbon and media.
4. Refer to Figure 4-13. Rotate the ribbon take-up pulley until the three holes in the pulley align with the three mounting screws that hold the ribbon take-up spindle assembly to the printer frame.
5. Through the holes in the ribbon take-up pulley, loosen the three spindle assembly mounting screws.
6. Slide the ribbon take-up spindle assembly to the right to relieve the tension on the main drive belt.
7. Hook a 2200-gram spring scale to the belt as shown in Figure 4-13, and carefully slide the ribbon take-up spindle assembly to the left to increase belt tension.
8. When a scale reading of 2000 grams ±250 grams (4.5 lbs. ±0.5 lbs.) creates a deflection of 1/4 in. (6 mm), tighten the three mounting screws to a torque of 20 inch-pounds (2.3 N•m).
9. Reinstall the electronics cover.
10. Reinstall the media and ribbon. Close the printhead.
11. Close the media cover.
12. Reconnect data cables and AC power cord.
13. Turn the printer On (**I**).

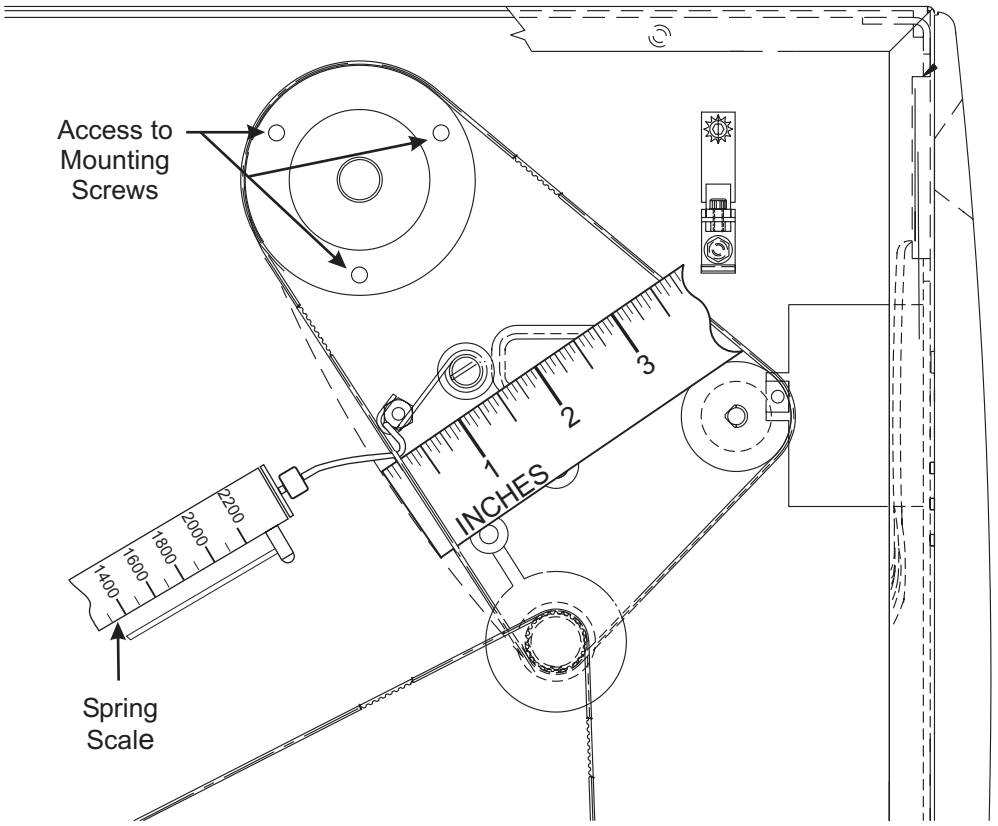


Figure 4-13. Main Drive Belt

RRP No. 6: Remove and Install the Main Drive Belt

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

Remove the Main Drive Belt

1. Refer to RRP No. 1 on page 4-14. Place the power switch in the Off (**O**) position, and disconnect the AC power cord. Disconnect all data cables.
2. Open the media cover.
3. Open the printhead and remove all media and ribbon. Close the printhead.
4. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

5. Refer to Figure 4-13. Rotate the ribbon take-up pulley until the three holes in the pulley align with the three mounting screws that secure the ribbon take-up spindle assembly.
6. Through the holes in the ribbon take-up pulley, loosen the three spindle assembly mounting screws.
7. Slide the ribbon take-up spindle assembly to the right to relieve the tension on the main drive belt.
8. Refer to Figure 4-13. Remove the main drive belt by sliding it off the ribbon take-up pulley.

Install Main Drive Belt

1. Install the replacement main drive belt around the outer gear of the stepper motor pulley, the platen pulley, and the ribbon take-up pulley.
2. Hook a 2200-gram spring scale to the belt as shown in Figure 4-13 and carefully slide the ribbon take-up spindle assembly to the left to increase belt tension.
3. When a scale reading of 2000 grams ±250 grams (4.5 lbs. ±0.5 lbs.) creates a deflection of 1/4 in. (6 mm), tighten the three mounting screws to a torque of 20 inch-pounds (2.3 N•m).
4. Reinstall the electronics cover.
5. Reinstall media and ribbon then close the printhead.
6. Close media cover.
7. Reconnect data cables and AC power cord.
8. Turn the printer On (**I**).

RRP No. 7: Adjust Rewind Drive Belt Tension

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**) and disconnect the AC power cord and data cables.
2. Open the media cover.
3. Open the printhead and remove all media and ribbon. Close the printhead.
4. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

5. Refer to RRP No. 3 on page 4-17 and remove the power supply.
6. Refer to Figure 4-14. Locate the idler pulley.

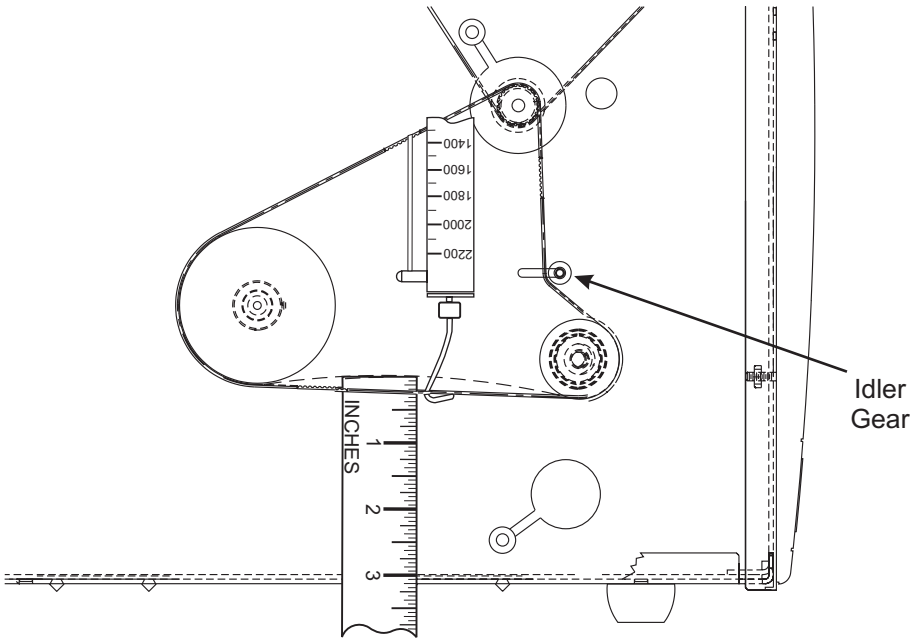


Figure 4-14. Adjust the Rewind Drive Belt Tension

7. Refer to Figure 4-15. On the media side of the printer, locate the lower access hole in the side plate. Remove the plug and extend the special tool (Zebra part number 11301) through the hole and loosen the idler pulley mounting screw.
8. Slide the idler pulley assembly toward the front of the printer to relieve the tension on the rewind drive belt.
9. Refer to Figure 4-14. Hook a 2200-gram spring scale to the belt and slowly slide the idler gear assembly to the left to increase belt tension.

10. When a scale reading of 2000 grams ±250 grams (4.5 lbs. ±0.5 lbs.) creates a deflection of 1/4 in. (6 mm), tighten the idler pulley mounting screw to a torque of 20 inch-pounds (2.3 N•m).
11. Reinstall the plug into the lower access hole.
12. Reinstall the power supply.
13. Reinstall electronics cover.
14. Reinstall the media and ribbon. Close the media cover.
15. Reconnect the data cables and Ac power cord.
16. Turn the printer On (**I**).

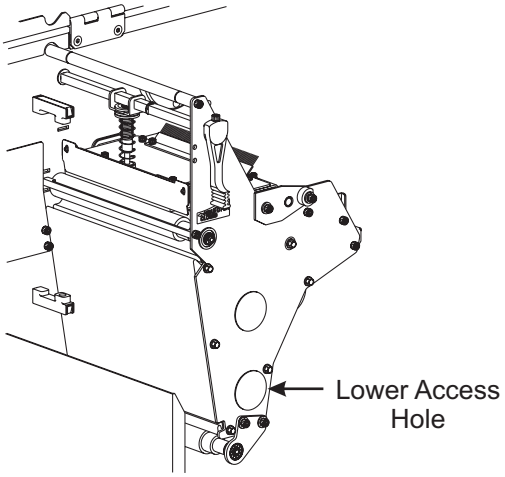


Figure 4-15. Access to Idler Pulley

RRP No. 8: Remove and Install the Rewind Drive Belt

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

Remove the Rewind Drive Belt

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**) and disconnect the AC power cord and data cables.
2. Open the media cover.
3. Open the printhead and remove the media and ribbon. Close the printhead.
4. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

5. Refer to RRP No. 6 on page 4-25 and remove the main drive belt.
6. Refer to RRP No. 3 on page 4-17 and remove the power supply.
7. Refer to Figure 4-16 and locate the idler pulley. On the media side of the printer, remove the plug from the lower access hole in the side plate. Loosen the idler pulley mounting screw.
8. Slide the idler pulley assembly toward the front of the printer to relieve tension on the rewind drive belt.
9. Remove the rewind drive belt.

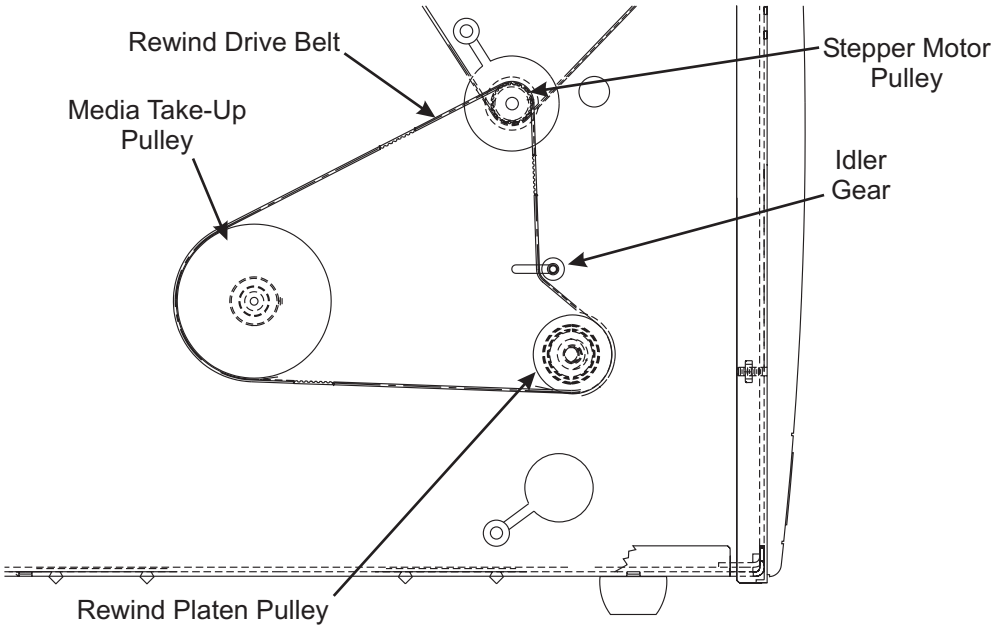


Figure 4-16. Remove and Install the Rewind Drive Belt

Install the Rewind Drive Belt

1. Install the replacement rewind drive belt onto the inner stepper motor pulley, inside the idler pulley, around the lower peel roller pulley, and slide it onto the rewind spindle pulley.
2. Refer to RRP No. 7 on page 4-26 and adjust the tension on the rewind drive belt.
3. Reinstall the power supply.
4. Refer to RRP No. 6 on page 4-25 and reinstall the main drive belt.
5. Refer to RRP No. 5 on page 4-23. Adjust the tension on the main drive belt and place the printer back into service.
6. Reinstall the electronics cover.
7. Reinstall the media and ribbon.
8. Reinstall the AC power cord and data cables.
9. Turn the printer On (**I**).

Remove and Install the Printhead

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

Remove the Printhead

Refer to Figure 15 while performing the following procedure.

Caution:

The printer electronics are susceptible to static discharge. Before proceeding, it is highly recommended that the technician wear an antistatic wrist strap connected to the printer chassis.

1. Turn the printer Off (**O**), remove the AC power cord and data cables.
2. Open the printhead assembly and remove the media and ribbon; then close the printhead assembly.
3. Loosen the spring-loaded mounting screw until it disengages from the printhead.

Caution:

Printhead may be hot and can cause burns if touched. Exercise care when handling.

4. Slowly open the printhead assembly. The printhead remains on the platen while the rest of the assembly pivots back out of the way.
5. Spread apart the holding tabs on the sides of the printhead data connector to release the data cable.

6. Grasp the outside edges of the printhead power cable connector and press down on the locking tab. Maintain pressure on the locking tab and disconnect the printhead power cable.
7. Remove the printhead through the front of the printer.

Note • Printhead resistance must be set in printer configuration after the replacement printhead is installed. Make note of the resistance value before installing the replacement printhead.

8. Refer to Figure 15 and locate the sticker with the printhead resistance. Write the resistance value here: _____.

Caution:

If the printhead cables are not connected securely to the printhead, a cold warning message may appear on the display even though the printhead may be very hot. Accidentally touching a hot printhead can cause severe burns.

Install the Printhead

1. Connect the printhead power cable to the appropriate connector. Ensure that the connector is fully seated.
2. Spread apart the holding tabs of the data connector and press the printhead data cable into the connector. The holding tabs must snap into place around the cable connector.
3. Carefully position the alignment slots in the new printhead over the alignment posts on the underside of the mounting bracket.
4. Once the printhead is seated properly, carefully tighten the mounting screw to a value of 5–6 inch-pounds (0.5–0.7 N•m).
5. Refer to Figure 4-1. Use a cleaning swab to clean thoroughly the print element (gray area) of the new printhead.
6. Reinstall media and ribbon.
7. Reconnect the data cable. Reconnect the AC power cord and turn the printer power On (**I**).
8. After the power on self test (POST), enter the configuration mode, enter the new printhead resistance value, then permanently save the configuration.

Note • If the Head Test Count and Head Resistor settings appear on the configuration label, you need to set the resistance value for the 200, 300, and 600 dpi. See Figure 4-17.

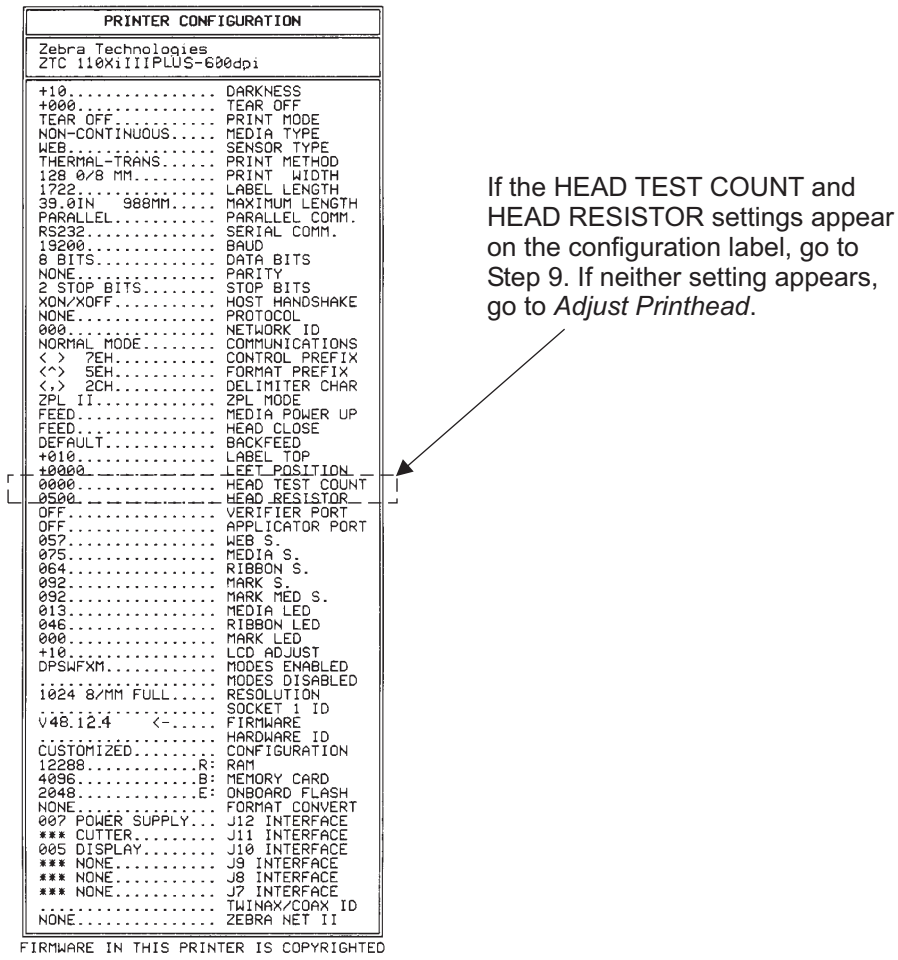


Figure 4-17. Configuration Label

9. Press SETUP/EXIT to enter the Configuration Mode.
10. Press PREVIOUS or NEXT/SAVE until HEAD RESISTOR is displayed.
11. Press the left or right oval; ENTER PASSWORD is displayed. Enter your password; the factory default password is 1234. Use the left oval to move the cursor to the digit you want to change, and then use the right oval to change the value. After your password is set, press NEXT/SAVE to enter the password.
12. Use the left and right ovals to change the Head Resistance, and then press NEXT/SAVE to enter your resistance.
13. Press SETUP/EXIT, and then NEXT/SAVE to permanently save the Head Resistance.
14. Turn the printer Off (**O**), then perform the Pause Key Self Test by pressing and holding PAUSE while turning On (**I**) the printer, and check print quality.

15. The printer is ready for operation. If problems arise, continue to adjust printhead.

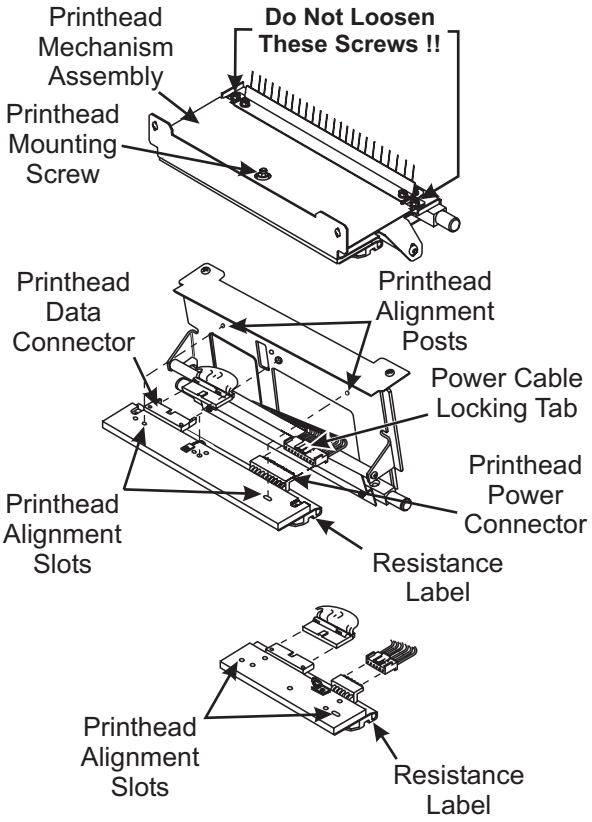


Figure 4-18. Printhead Replacement

Adjust Printhead

Caution:

Other than printhead pressure, printhead adjustments rarely need to be performed, even after replacing the printhead. These adjustments should be performed only by a qualified technician who has been specifically trained. Do not perform these adjustments unless you have been trained to do so.

There are four printhead adjustments that affect print quality. The adjustments must be performed in the following order:

Note • The following adjustments are interrelated and may have to be performed more than once to achieve desired results.

- Printhead Pressure
- Printhead Position
- Wear Plate (Balance) Position
- Printhead Parallelism

Note • To achieve optimum results with print quality adjustments, install full width media and ribbon. Verify that media and ribbon are properly matched and darkness/print speed configurations are correct for the application before performing any mechanical adjustments.

Toggle Pressure

1. Ensure that the power switch is in the Off (**O**) position.
2. Refer to Figure 4-19 and measure the distance from the top of the toggle foot to the bottom of the lower knurled nut. If the measurement is not 1-3/16 in. (30 mm), loosen the upper knurled nut and adjust the lower knurled nut until the distance is correct.

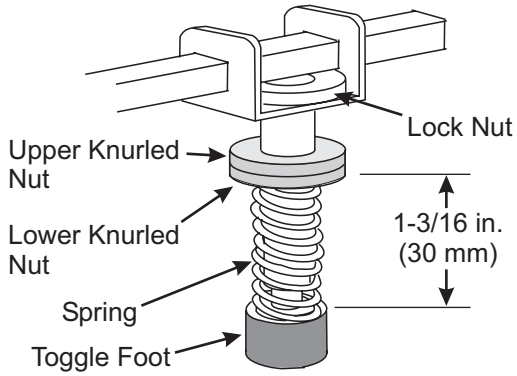


Figure 4-19. Initial Toggle Setting

3. Tighten the upper knurled nut against the lower knurled nut to lock that position.
4. For printers with two toggles, repeat steps 2 and 3 on the other toggle.
5. Install media and ribbon, and position the toggle in the center of the print mechanism.
6. Perform the Pause Key Self Test by pressing and holding **PAUSE** while turning the printer On (**I**).

Note • To increase printhead pressure, loosen the upper knurled nut on the toggle and adjust the lower toggle knurled nut downward. To decrease printhead pressure, loosen the upper knurled nut and adjust the lower knurled nut upward.

7. Adjust printhead pressure for the lowest pressure that produces acceptable print quality. Lock the toggle pressure by tightening the upper knurled nut against the lower knurled nut.

Printhead Position

Caution:

Other than printhead pressure, printhead adjustments rarely need to be performed, even after replacing the printhead. These adjustments should be performed only by a qualified technician who has been specifically trained. Do not perform these adjustments unless you have been trained to do so.

Adjusting the printhead position moves the printhead with respect to the platen for optimum print quality. If satisfactory print quality cannot be achieved or can be achieved only with higher than normal darkness settings or higher than normal printhead pressure, the printhead may not be in the proper position.

Refer to Figure 4-20 for location of adjustment screws.

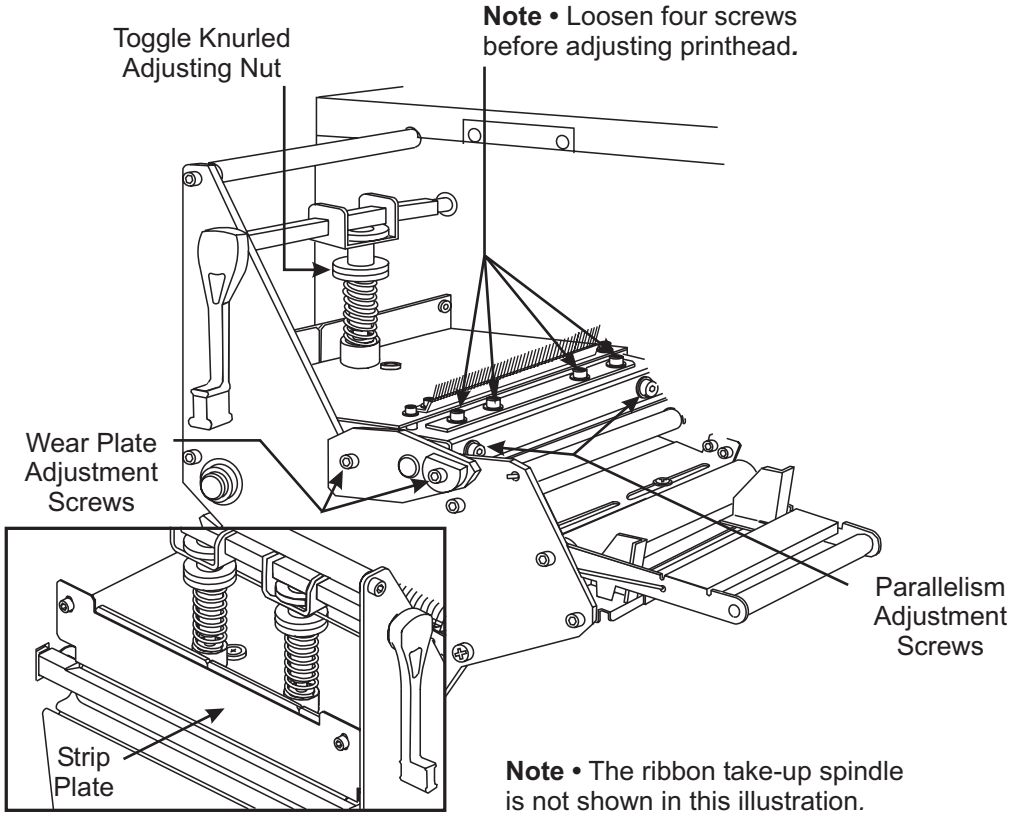


Figure 4-20. Adjust the Printhead

Note • The thermal elements of the printhead should be aligned just behind top dead center of the platen roller.

1. Print test labels using the Pause Key Self Test.
2. Enter Configuration Mode and set the darkness to achieve as close to optimum print quality as possible.
3. Refer to Figure 4-20. Loosen the four screws at the top rear of the print mechanism.

Notes • Make very small adjustments and check the results. Turn the screws clockwise to move the printhead toward the front of the printer. Turn the screws counterclockwise to move the printhead toward the back of the printer.

Special tool (Zebra part number 11301) allows adjustment of the printhead location screws while the printer is running.

4. Adjust the printhead position by turning equally the two screws located at the back of the print mechanism. Turn both screws one-eighth of a turn clockwise and observe the changes in print quality. Turn both screws one-sixteenth of a turn counterclockwise and observe the changes in print quality. Due to spring pressure, there may be a dead spot in the actual printhead movement when changing adjustment direction.
5. Continue to make small adjustments in both directions until the best quality is achieved.
6. Enter Configuration Mode and decrease the darkness setting until the Pause Key Self Test labels are a charcoal-gray color.
7. Inspect the test labels for streaks, flowering, and other print quality problems.
8. If required, adjust the printhead position until print quality problems are corrected.
9. Enter Configuration Mode and increase the darkness until the Pause Key Self Test labels are printed at optimum resolution and contrast.
10. When acceptable print quality is achieved, tighten the four screws at the top of the printhead.
11. Run additional Pause Key Self Test labels to verify proper positioning.

Adjust the Wear Plate (Balance) Position

Caution:

Wear plate position adjustment rarely needs to be performed. Do not perform this adjustment unless you have been trained to do so. If the procedure is not done correctly, print quality will be adversely affected.

Adjusting the wear plate position changes the pressure across the width of the printhead and platen roller. If uneven printing occurs when the toggle is properly positioned and printhead pressure is set correctly, the wear plate may need adjustment.

Refer to Figure 4-21 for the location of the adjustment screws used in the following procedure.

1. Enter Configuration Mode and decrease the darkness setting until the Pause Key Self Test labels are a charcoal-gray color.
2. Slightly loosen the two screws on the wear plate.

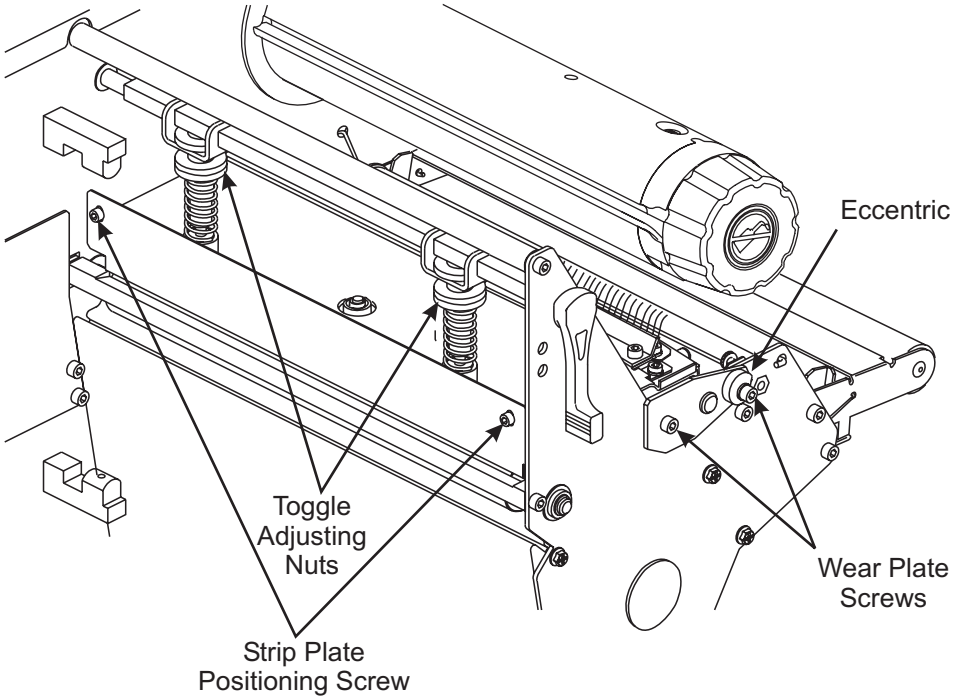


Figure 4-21. Wear Plate Adjustment

Notes • Print Pause Key Test labels while adjusting the wear plate eccentric and check for even printing.

Adjust the wear plate eccentric by turning it by hand or with an open-end wrench or pliers. Make very small adjustments and check the results.

Wear plate adjustments can adversely affect all adjustments. Additional adjustments may be necessary.

3. Adjust the wear plate eccentric clockwise to increase pressure on the main frame side of the label or adjust it counterclockwise to increase pressure on the outboard side of the printer.

4. When even print quality is achieved, hold the wear plate eccentric in position and tighten the two wear plate screws.
5. Enter Configuration mode and increase the darkness setting until the Pause Key Self Test labels are at optimum resolution and contrast.
6. Continue to print Pause Key Self Test labels and verify even printing and parallelism.
7. If parallelism is out of tolerance, perform the Adjust Printhead Parallelism on page 4-37.
8. If no other adjustment is required, tighten the two screws to lock the adjustment.

Test Printhead Parallelism

Adjusting the printhead parallelism squares the printhead with respect to the media path.

1. Prior to starting this test, ensure the installed media is "squared" to the tear-off bar. Open the printhead and move media until it is square with the tear-off bar. Close printhead.
2. Print the Pause Key Self Test labels.
3. The uppermost line on the test label should be parallel to the top edge of the label, within a tolerance of 0.020 in. (0.5 mm).
4. If the print lines are not parallel with the top of the label, proceed to the printhead parallelism adjustment. If parallelism is within tolerance, do not perform the procedure.

Adjust Printhead Parallelism

Caution:

Printhead parallelism adjustment rarely needs to be performed. Do not perform this adjustment unless you have been trained to do so. If the procedure is not done correctly, print quality will be adversely affected.

The printhead parallelism adjustment corrects for printing skew. If the lines at the top of the Pause Key Self Test labels are not parallel to the media, this adjustment should be performed.

1. Refer to Figure 4-20. Loosen the four screws at the top rear of the print mechanism.

Notes • Make very small adjustments and check the results. Turn the screws clockwise to move the printhead toward the front of the printer. Turn the screws counterclockwise to move the printhead toward the back of the printer.

Special tool (Zebra part number 11301) allows adjustment of the printhead location screws while the printer is running.

2. Adjust the parallel location of the uppermost lines by turning one of the screws located at the back of the print mechanism.
3. Adjust one side as necessary to align the uppermost line of the test label parallel with the top edge of the label.

4. To check the results of your adjustments, run additional Pause Key Self Test labels and check for proper parallelism.
5. When parallelism is achieved, tighten the four screws at the top of the printhead.
6. Run additional Pause Key Self Test labels to verify proper positioning.

Adjust the Strip Plate

The strip plate can be adjusted to achieve proper tracking and separation of the ribbon from the media after printing.

1. Print a Pause Key Self Test labels.
2. Press **PAUSE,** wait until the printer pauses, then observe the ribbon for problems such as wrinkling.
3. Refer to Figure 4-21 and loosen but do not remove the two screws securing the strip plate to the front of the printhead assembly.
4. While running the Pause Key Self Test, lower the strip plate so that the ribbon tracks flat and smoothly when fed to the ribbon take-up spindle.
5. Tighten the strip plate screws. Print a minimum of 25 labels and check for ribbon wrinkle, tracking, and media and ribbon separation problems. If ribbon problems persist, refer to Adjust the Spindle Tension on page 4-43.

Adjust Darkness

Differences in types of media and ribbon wear on thermal printhead elements may make it necessary to adjust the darkness setting (burn temperature) of the printhead.

Note • It is not required to turn Off (**O**) the printer for the new setting to take effect.

Use the following procedure to adjust the darkness:

Caution:

Set the darkness to the lowest setting possible for the desire print quality. Darkness set too high for a given ribbon may cause ink smearing, ribbon wrinkle or burning through of the ribbon. High darkness settings reduce printhead life.

1. Begin printing a batch of labels using the Pause and Cancel Key Self Test label.
2. Enter Configuration Mode and adjust the darkness setting until the desired print quality is achieved.

Align the Take-Label (Label-Available) Sensor

The take-label sensor activates only when the printer is set to Peel-Off Mode. This mode requires the Rewind or Peel option. The media take-label sensor pair is not installed on printers without this option.

Refer to Figure 4-22 for the location of the take-label sensor components. When the beam is broken, the printer is inhibited from printing or feeding in Peel-Off Mode only. It may, however, accept additional label formats if the buffer is not full.

If you encounter problems, ensure the printer is set to Peel-Off Mode and the sensors are aligned. Sensors are aligned at the factory or when the media rewind spindle option is installed. Refer to your User Guide and do a manual calibration of the media and ribbon.

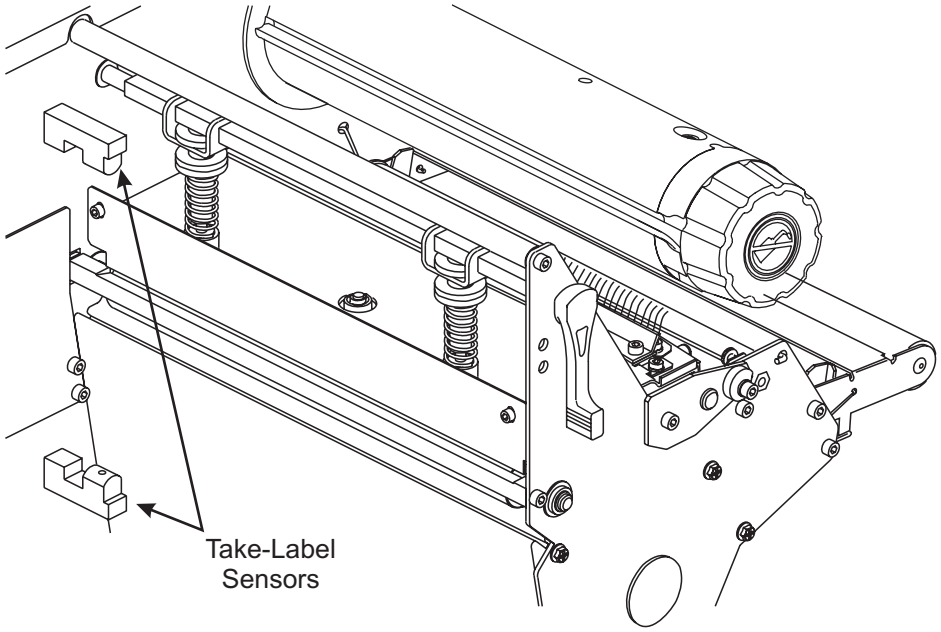


Figure 4-22. Take-Label Sensor Location

Adjust the Media Tracking

Rewind Mode

Refer to Figure 4-23. If the media walks from side to side, tears, or wrinkles against the media rewind tracking plate, it is necessary to adjust the rewind plate assembly.

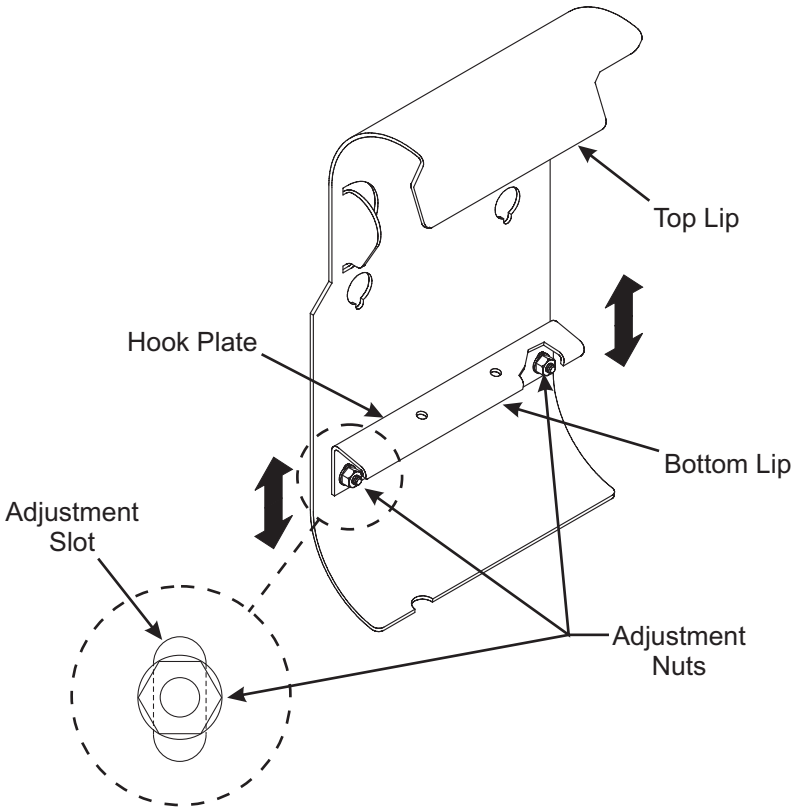


Figure 4-23. Rewind Plate Assembly

Note • Moving the outer end of the hook plate up forces the media toward the rewind tracking plate; moving this end down moves the media away from the tracking plate. The opposite effect occurs if the same adjustments are made on the inner end of the hook plate.

1. Remove the rewind plate assembly and loosen the two adjustment nuts attaching the hook plate to the rewind plate.
2. Refer to Figure 4-23. Move the outer end of the hook plate up to force the media toward the rewind tracking plate or move the outer end of the hook plate down to force the media away from the rewind tracking plate.
3. Tighten the adjustment nuts, and reinstall the rewind plate assembly and print a number of test labels. If problems persist, readjust the hook plate.

Peel-Off Mode

In Peel-Off Mode, the lower roller alignment has the same effect on media tracking as the rewind plate alignment does in Rewind Mode. Refer to Figure 4-24 and perform the following procedure.

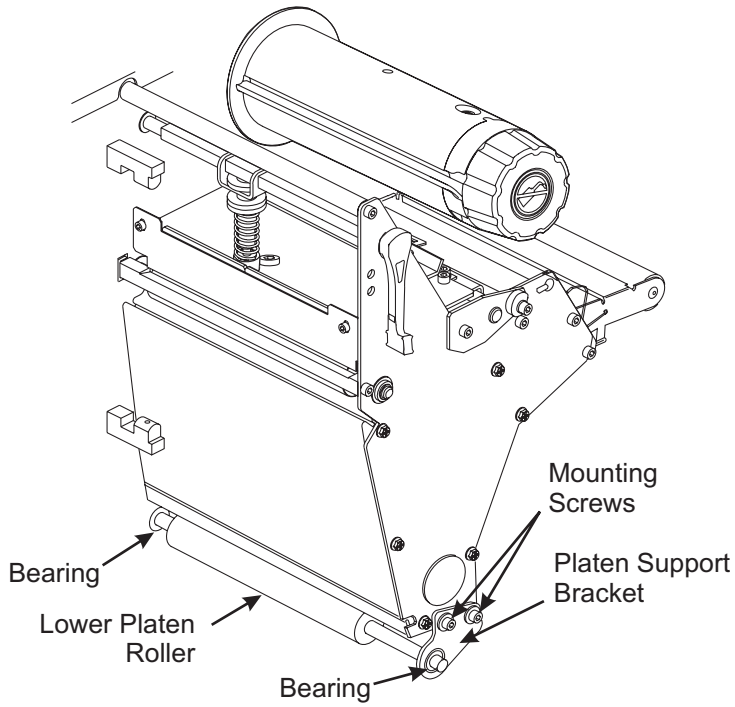


Figure 4-24. Align Peel-Off Lower Roller

1. Loosen the two screws that secure the platen support bracket to the side plate.

Note • Moving the bracket toward the front of the machine moves the label liner away from the rewind tracking plate. Moving the bracket toward the rear of the machine moves the liner toward the tracking plate.

2. Adjust the bracket position as required and tighten the screws.
3. Run test labels and repeat the adjustment until the required results are achieved.

Adjust and Maintain Spindle

There are four spindles that require periodic tension measurement and adjustment. Measure spindle tension at least once each year (more often if high printer use). Adjust tension whenever it is not within the tolerance range associated with that spindle.

Caution:

Do not disassemble spindle!!!

Spindle (force)	110*Xi*III*Plus* (grams)
Ribbon Supply (F1)	450 ±50
Ribbon Take-up (F2)	450 ±50
Media Supply (F3)	300 ±50
Media Rewind (F4)	1450 ±100

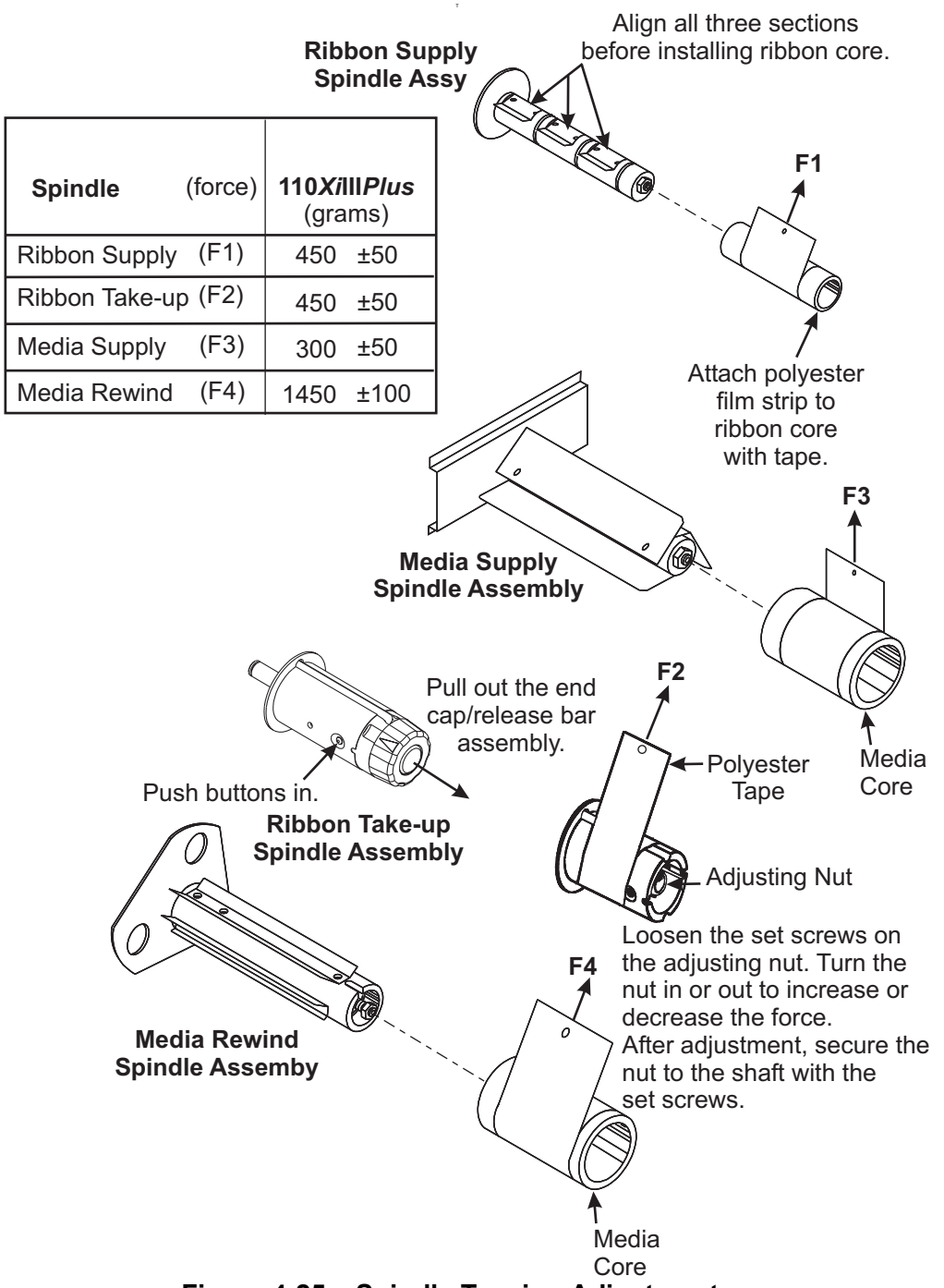


Figure 4-25. Spindle Tension Adjustments

Tension Measurement Procedure

Refer to Figure 4-25.

The procedure for measuring spindle tension is similar for all four spindles.

1. Use adhesive tape to attach a 2 in. (50 mm) wide strip of polyester film (Zebra part number 01776) to the spindle shaft (or core where required) as illustrated. Wind the polyester film around the spindle (or core) about five times in the direction indicated.
2. Measure tension by slowly pulling the film with a spring scale. Pull only in the direction shown. The pull rate should typically be 2 in. (50 mm) per second.
3. Compare the spring scale reading with the force values provided in Figure 4-25. Perform the spindle adjustment only if the reading is out of spec.
4. If adjustment is made, recheck the tension after running a full roll of labels.

Adjust the Spindle Tension

Refer to Figure 4-25 for the spindle tension adjustment diagram and adjust the spindle tension as follows:

1. Loosen the set screw(s), if present, in the adjustment nut at the end of the spindle.
2. Turn the adjustment nut clockwise to increase the tension or counterclockwise to decrease the tension. Tighten the set screws if present.

Note • Refer to Figure 4-25. Locate the access hole nearest the main frame and insert an Allen wrench through the hole and into the set screw in the shaft collar. Do not turn the Allen wrench. Simply hold the shaft in place with the Allen wrench while turning the adjustment nut.

3. Measure the spindle tension as performed above. Compare the tension reading on the spring scale with the appropriate force value provided in Figure 4-25. Repeat the adjustment procedure until the correct tension is obtained.

Spindle Maintenance

- Tension should be checked periodically.
- Spindles should be kept clean of dust, dirt, etc.

Caution:

Do not apply lubrication to any of the spindles.

Replace the Platen Roller

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

Caution:

Wear protective eyewear when removing E-rings, C-clips, snap rings, and springs. All of these are under tension and could fly off while being removed.

Remove the Upper Platen Roller

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**), remove the AC power cord and data cables.
2. Open the media cover and printhead; remove media and ribbon. Close the printhead.
3. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

4. Refer to RRP No. 6 on page 4-25 and remove the main drive belt.
5. Refer to Figure 4-26 and loosen but do not remove the set screws in the platen pulley.

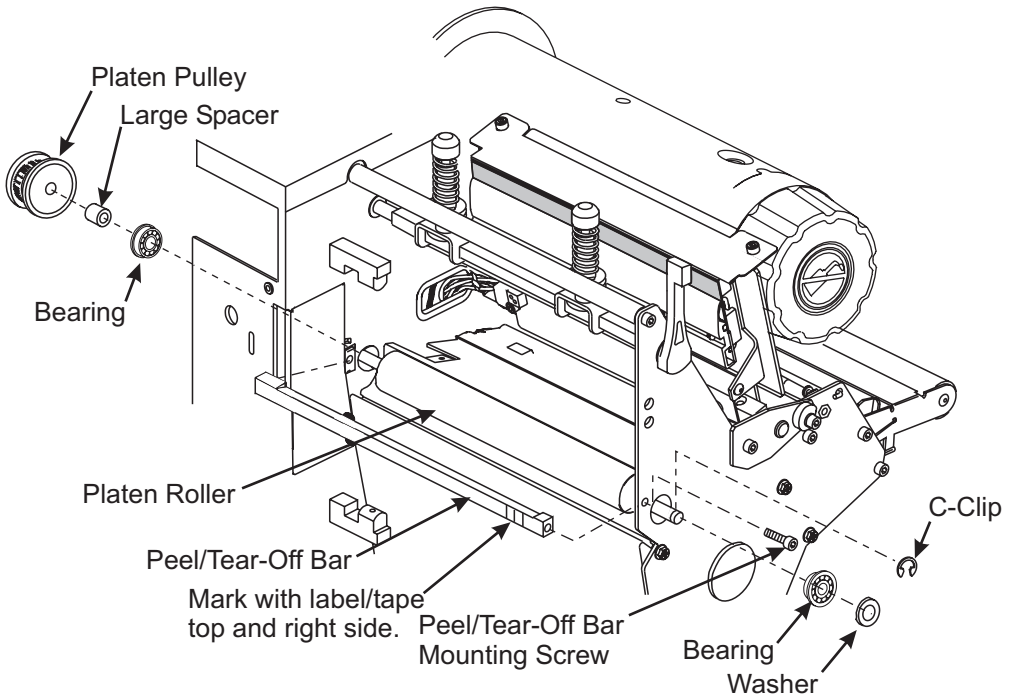


Figure 4-26. Platen Roller Removal

6. Remove the platen pulley and spacer.
7. When facing the front of the printer, slide the platen roller to the right. Remove the C-clips, washer, and right bearing from the platen roller.

8. Slide the platen roller as far to the left as possible to free the right end. Remove the platen roller.

Caution:

Never reuse the old bearings. Use only the new bearings that were provided with the replacement platen roller.

Install the Upper Platen Roller

1. Orient the replacement platen roller so the end of the roller with the flats for the pulley is on the left side when facing the front of the printer.
2. Insert the left end of the shaft into the hole in the main frame. Then, place the right end of the roller through the side plate.
3. Note the correct orientation of the new bearings. Install the new bearing and the washer on the right of the platen roller. Secure the bearing and washer with the C-clip.
4. Install a new bearing, the spacer, and the pulley on the end of the platen roller with the two flats.
5. Ensure that both set screws in the platen roller pulley align with the flats on the platen roller shaft.
6. Adjust the platen roller pulley on the left side of the platen roller shaft. Leave a gap of approximately 0.020 in. (0.5 mm) between the spacer and the platen roller pulley.
7. Tighten the two set screws to secure the pulley to the shaft.
8. Reinstall and adjust the main drive belt.
9. Reinstall the electronics cover.
10. Reinstall the media and ribbon. Close the printhead.
11. Close the media cover.
12. Reconnect data cables and power cord.
13. Turn the printer On (l).

Remove and Install the Rewind (Lower) Platen Roller

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

Caution:

Wear protective eyewear when removing E-rings, C-clips, snap rings, and springs. All of these are under tension and could fly off while being removed.

Remove the Rewind Platen Roller

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**), remove the AC power cord and data cables.
2. Open the media cover.
3. Open the printhead. Remove the media and ribbon. Close the printhead.
4. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

5. Refer to RRP No. 6 on page 4-25 and remove the main drive belt.
6. Refer to RRP No. 3 on page 4-17 and remove the DC power supply.
7. Refer to RRP No. 8 on page 4-28 and remove the rewind drive belt.

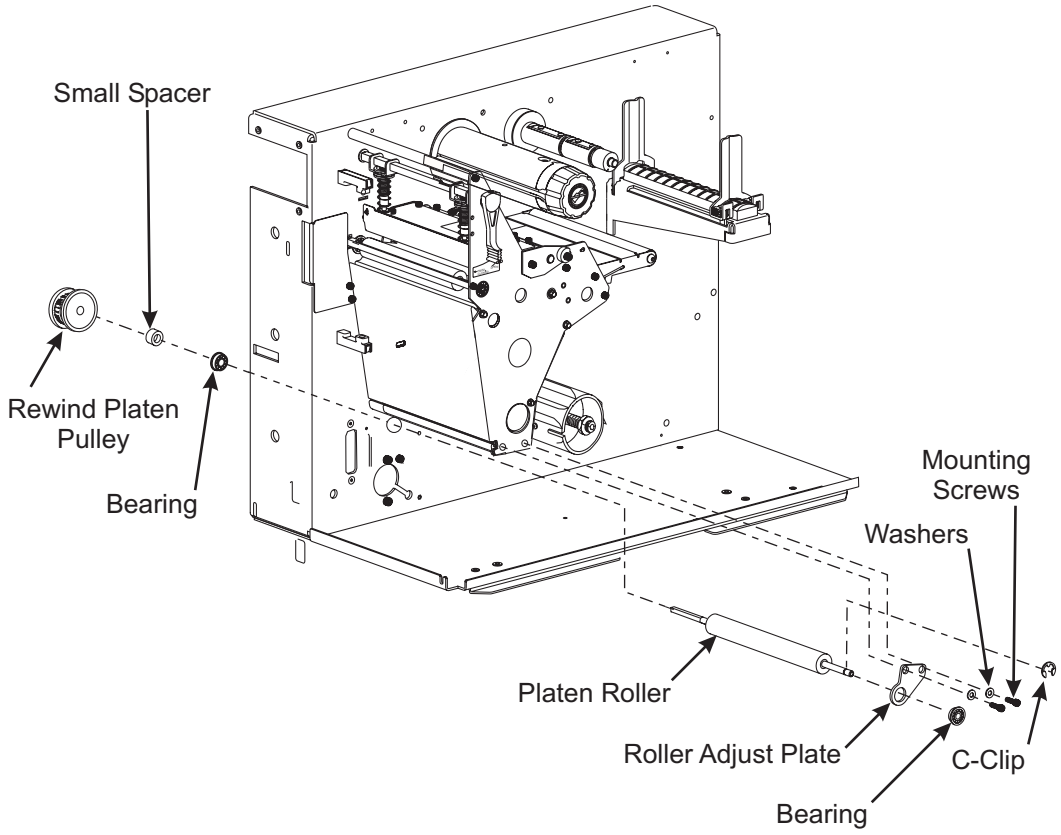


Figure 4-27. Print Mechanism View with Rewind Platen Roller

8. Refer to Figure 4-27. Loosen but do not remove the set screws in the rewind platen pulley assembly.
9. Remove the lower platen roller pulley.
10. Remove the small spacer and bearing.
11. Push the lower platen roller to the right.

Note • Do not remove the roller adjust plate unless it is damaged, twisted, or bent. If the adjust plate is removed, the alignment is lost and an adjustment procedure must be performed.

12. Remove the C-clip and bearing.
13. Slide the platen roller as far to the left as possible to free the right end and remove the roller.

Caution:

Never reuse the old bearings. Use only the new bearings that were provided with the replacement platen roller.

Install the Rewind Platen Roller

Refer to Figure 4-27.

1. Insert the long end of the shaft through the hole in the main frame as far as possible.
2. Insert the short end through the roller adjust plate.

Note • Ensure both flanged bearings are installed with the flanged side facing out.

3. Install a new bearing on the roller adjust plate with the flange of the bearing on the outside of the adjust plate. Install C-clip in the groove on the end of the roller shaft. Slide the roller to the left to seat the bearing into the adjust plate.
4. Install a new bearing, spacer, and pulley on the long end of the platen roller.
5. Ensure that both set screws in the platen roller pulley align with the flats on the platen roller shaft.
6. Adjust the peel roller pulley on the left side of the peel roller shaft. Leave a gap of approximately 0.020 in. (0.5 mm) between the spacer and the pulley.
7. Tighten the set screws.
8. Reinstall and adjust the rewind drive belt.
9. Reinstall and adjust the main drive belt.
10. Reinstall the electronics cover.
11. Reinstall the media and ribbon. Close the printhead and media cover.
12. Reconnect the data cables and the AC power cord.
13. Turn the printer On (**I**).
14. Perform a Pause Key Self Test and observe the tracking of the rewind drive belt and the tracking of the label liner. If you move the roller adjust plate, you must readjust.

Adjust the Roller Plate

The lower roller alignment has the same effect on media tracking as the rewind plate alignment does in Rewind Mode.

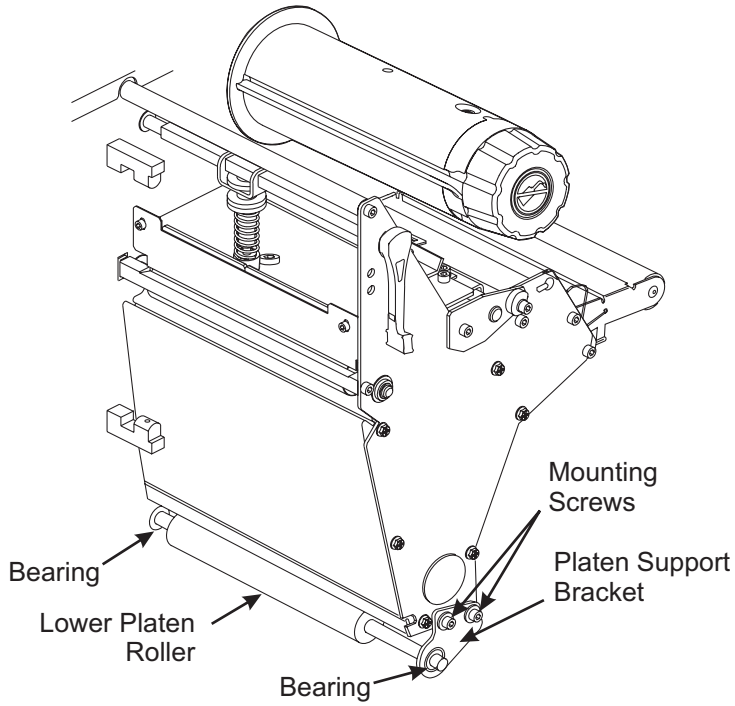


Figure 4-28. Peel-Off Lower Roller Alignment

1. Refer to Figure 4-24. Loosen the two screws that attach the platen support bracket to the side plate.

Note • Moving the bracket toward the front of the machine moves the liner away from the rewind tracking plate. Moving the bracket toward the rear of the machine moves the liner toward the tracking plate.

2. Adjust the bracket position as required and tighten the screws.
3. Run test labels and repeat the adjustment until the required results are achieved.

Replace the Platen Pulley

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

4. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**), remove the AC power cord and data cables.
5. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

6. Refer to RRP No. 6 on page 4-25 and remove the main drive belt.

Remove and Install the Upper Platen Pulley

1. Refer to Figure 4-29. Loosen the two set screws. Remove the old pulley assembly.

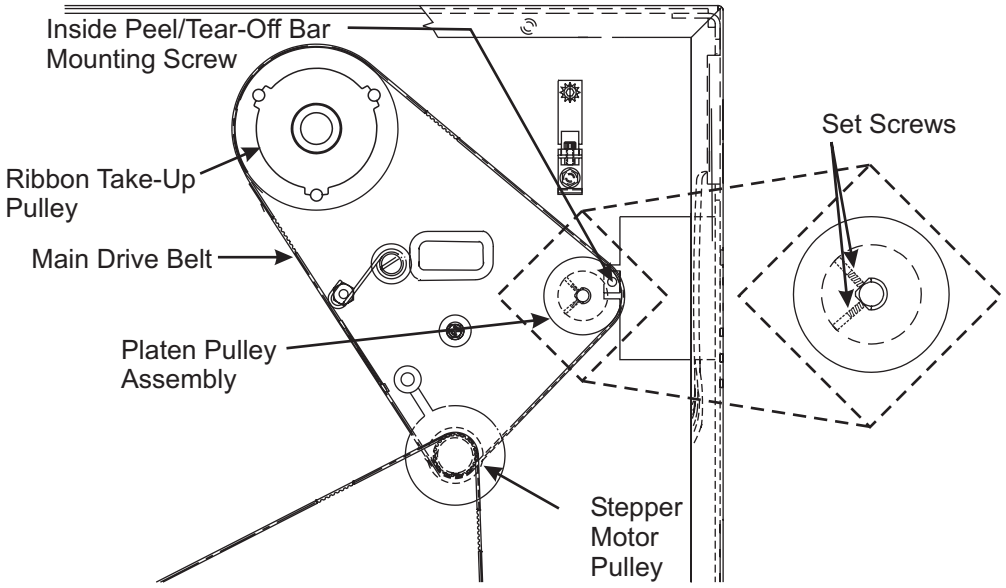


Figure 4-29. Replace the Platen Pulley

2. Install a new platen pulley on shaft aligning the set screws with the flats of the platen shaft.
3. Tighten the set screws.
4. Reinstall and adjust the tension of main drive belt.
5. Reinstall electronics cover.
6. Reconnect data cables and AC power cord.
7. Turn the printer On (**I**).

Remove and Install the Lower Platen Pulley

1. Perform the procedures in Replace the Platen Pulley on page 4-50.

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

Caution:

Wear protective eyewear when removing E-rings, C-clips, snap rings, and springs. All of these are under tension and could fly off while being removed.

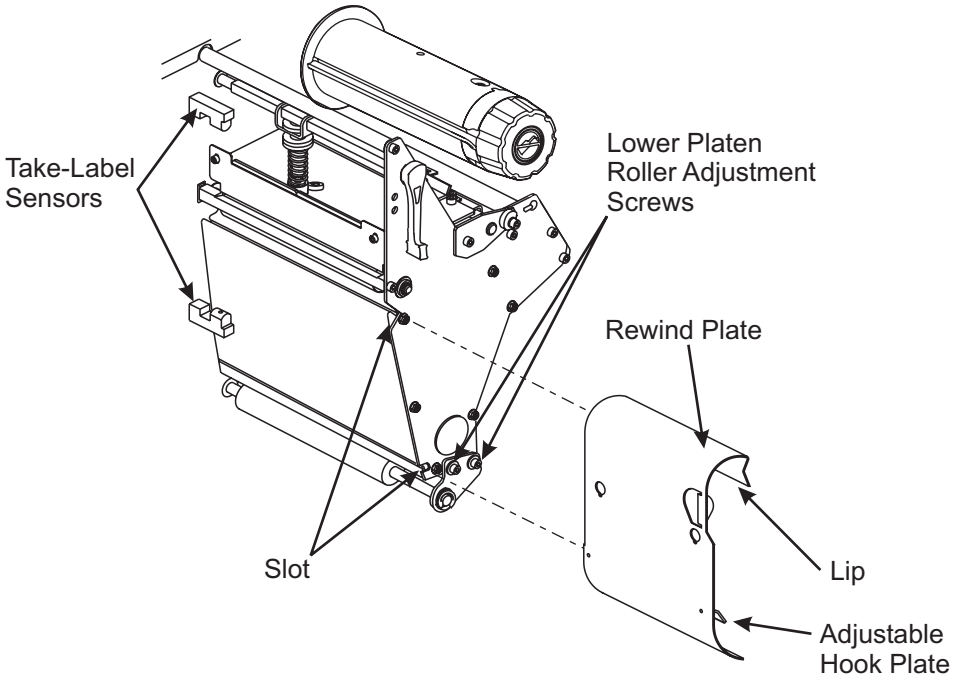


Figure 4-30. Remove and Install the Rewind Plate

2. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

3. Refer to RRP No. 3 on page 4-17 and remove the power supply.
4. Refer to RRP No. 8 on page 4-28 and remove the rewind drive belt.
5. Refer to Figure 4-30. Remove the rewind plate by sliding it off of the print mechanism.
6. Loosen but do not remove the set crews in the rewind platen pulley.
7. Remove the rewind pulley.
8. Refer to Figure 4-31. Remove the screws securing the roller adjust plate to the print mechanism.

9. Remove the roller adjust plate and lower platen roller.
10. Remove the old bearing from the printer main frame.
11. Remove the C-clip from the end of the old platen roller.
12. Slide the roller adjust plate off the platen roller shaft and remove the bearing.

Note • Do not reuse the old bearings.

13. Install a new bearing on the roller adjust plate with the flange facing out.
14. Orient the platen roller with the short end on the right (when facing the front of the printer).
15. Slide the bearing and the roller adjust plate onto the right end of the shaft.

Note • For lower platen roller replacement (Peel-Off or Rewind Options only), the washer is not used and should be discarded.

16. Install the C-Clip in the groove on the right end of the platen roller shaft.
17. Install a flanged bearing onto the left side of the shaft, flange facing out, and press bearing into main frame.

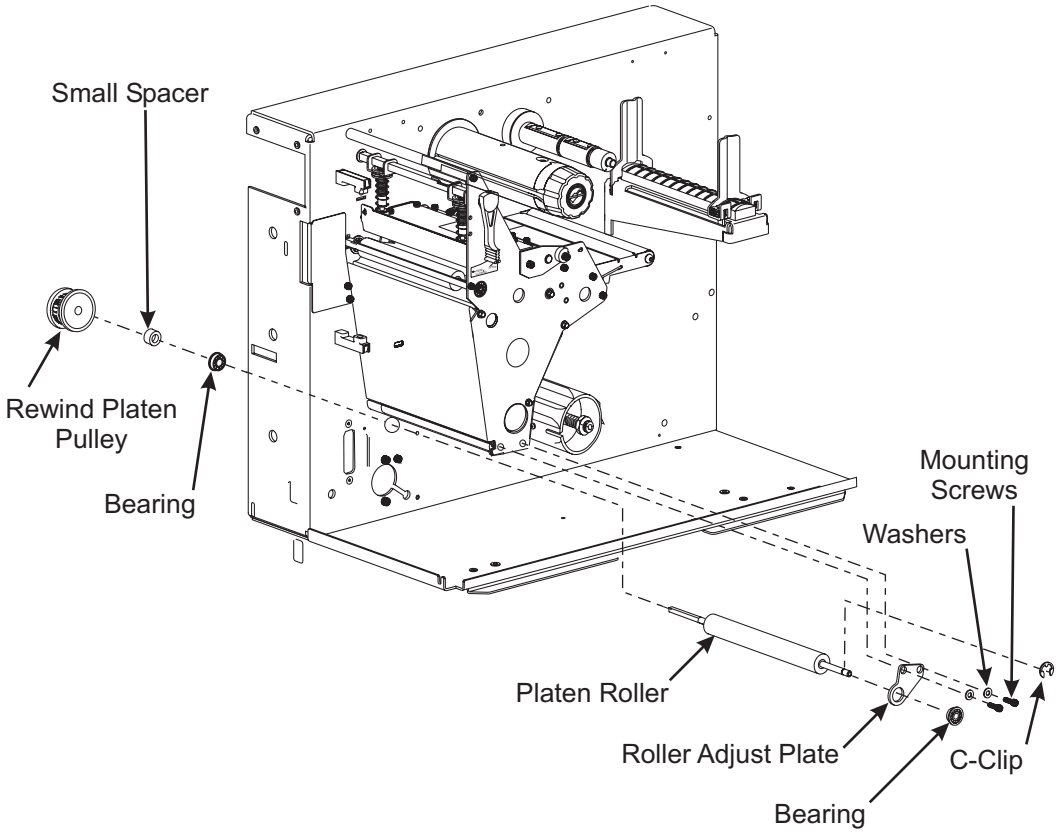


Figure 4-31. Remove and Install the Lower Platen Roller

18. Slide the small spacer onto the shaft.
19. Slide the rewind platen pulley onto the platen roller and align the set screws with the flat surfaces of the platen roller.
20. Leave a gap of approximately 0.020 in. (0.5 mm) between the C-clip and roller adjust plate on the right-hand side of the platen roller shaft.
21. Tighten the screws on the rewind platen pulley. Both screws must be on the flat portions of the shaft.
22. Reinstall the rewind drive belt.
23. Refer to Figure 4-30. Reinstall the rewind plate by sliding it onto the print mechanism.
24. Refer to the Users Guide and reload the media and ribbon in Peel-Off Mode.
25. Connect the AC power cord and turn the printer On (**I**).
26. Perform a Pause Key Self Test to check the tracking of the rewind drive belt, liner and to examine print quality.

    If the liner is tracking off to one side, perform steps 27 and 28.
27. Refer to Figure 4-31. Loosen the two screws securing the roller adjust plate to the print mechanism.
28. Move the roller adjust plate in the appropriate direction to compensate for the tracking and tighten the screws.

Note • Moving the roller adjust plate toward the front of the printer moves the liner material away from the roller adjust plate. Moving the roller adjust plate toward the rear of the printer moves the liner material toward the roller adjust plate.

29. Repeat steps 27 and 28 until the required results are achieved.
30. Reinstall the electronics cover.
31. Reinstall the communications cable.

Replace the Cutter Components

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

Remove and Install the Cutter Main Link

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**), remove the AC power cord and data cables.
2. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

The printer electronics are susceptible to static discharge. Before proceeding, it is highly recommended the technician wear an antistatic wrist strap connected to the printer chassis.

Caution:

This installation must be performed by a qualified service technician.

3. Refer to RRP No. 3 on page 4-17 and remove the power supply.

Caution:

Wear protective eyewear when removing E-rings, C-clips, snap rings, and springs. All of these are under tension and could fly off while being removed.

4. Refer to Figure 4-32. Remove the E-ring securing the cutter main link to the short arm side of the cutter slotted link.

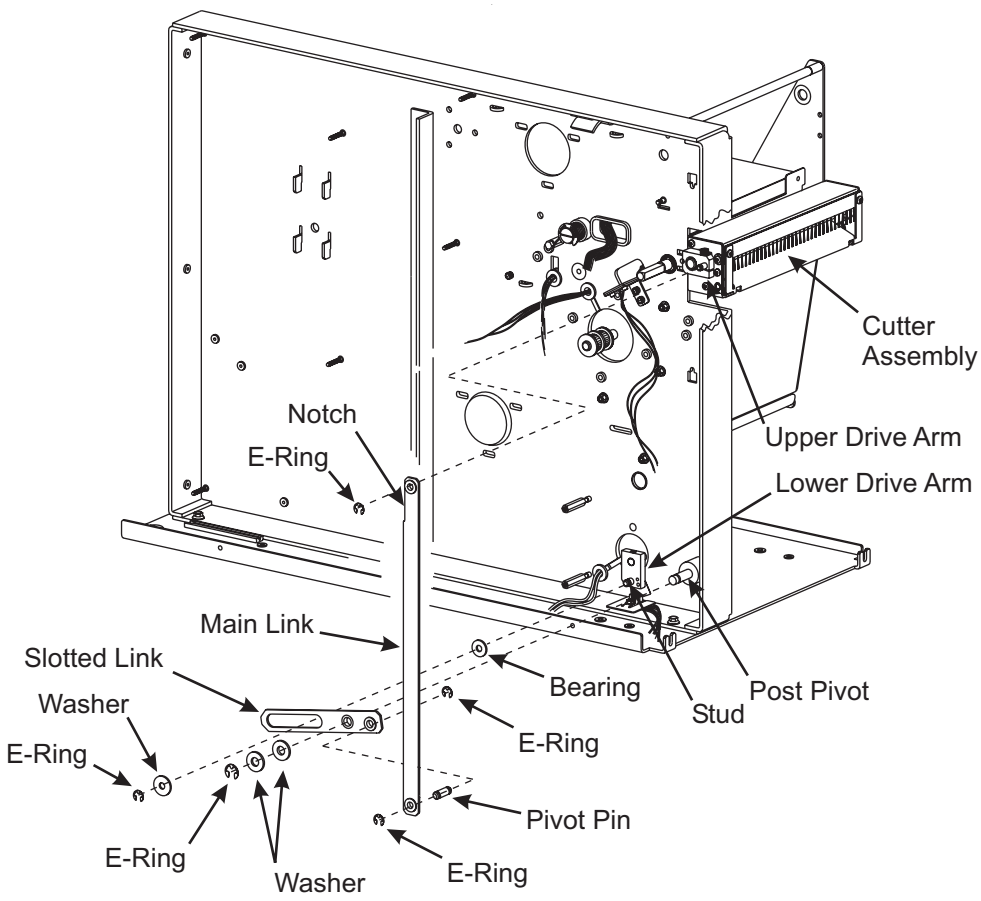


Figure 4-32. Remove and Install the Cutter Main and Slotted Link

5. Remove the E-ring securing the cutter main link to the upper drive arm on the cutter assembly.
6. Ensure that the pivot pin remains in the slotted link, and remove the cutter main link.

Note • The notch in the main link must be at the top and facing the rear.

7. Install the new cutter main link onto the cutter assembly and pivot pin in the slotted link.
8. Secure both ends with E-rings.
9. Reinstall the power supply.
10. Reinstall the electronics cover.
11. Reconnect data cables and AC power cord.
12. Turn the printer On (**I**).

Remove and Install the Cutter Slotted Link

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**), remove the AC power cord and data cables.
2. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

3. Refer to RRP No. 3 on page 4-17 and remove the power supply.

Caution:

Wear protective eyewear when removing E-rings, C-clips, snap rings, and springs. All of these are under tension and could fly off while being removed.

4. Refer to Figure 4-32. Remove the E-ring securing the cutter main link to the pivot pin in the cutter slotted link.
5. Remove the E-ring, flat washer, and bearing securing the cutter slotted link to the pin on the lower drive arm.
6. Remove the E-ring and two flat washers securing the cutter slotted link to the pivot post.
7. Remove the slotted link.
8. Install the new slotted link as shown in Figure 4-32.
9. Secure the slotted link to the pivot post with two flat washers and the E-ring.
10. Install the bearing onto the lower drive arm. Place the slot in the slotted link over the bearing. Secure the link with a washer and E-ring.
11. Secure the main link to the pivot pin of the slotted link with an E-ring.
12. Apply a small amount of white lithium grease to the slot in the slotted link where the bearing will ride. Remove any excess grease to prevent it from contaminating the cutter optical sensor.
13. Reinstall the power supply.
14. Reinstall the electronics cover.
15. Reconnect the data cables and AC power cord.
16. Turn the printer On (**I**).

Remove and Install the Cutter PCB

Caution:

The printer electronics are susceptible to static discharge. Before proceeding, it is highly recommended that the technician wear an antistatic wrist strap connected to the printer chassis.

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**), remove the AC power cord and data cables.
2. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

3. Refer to RRP No. 3 on page 4-17 and remove the power supply.
4. Refer to Figure 4-34 and disconnect all cables from the cutter PCB.
5. Refer to Figure 4-33. Remove the screws securing the cutter PCB.
6. Remove and discard the cutter PCB.

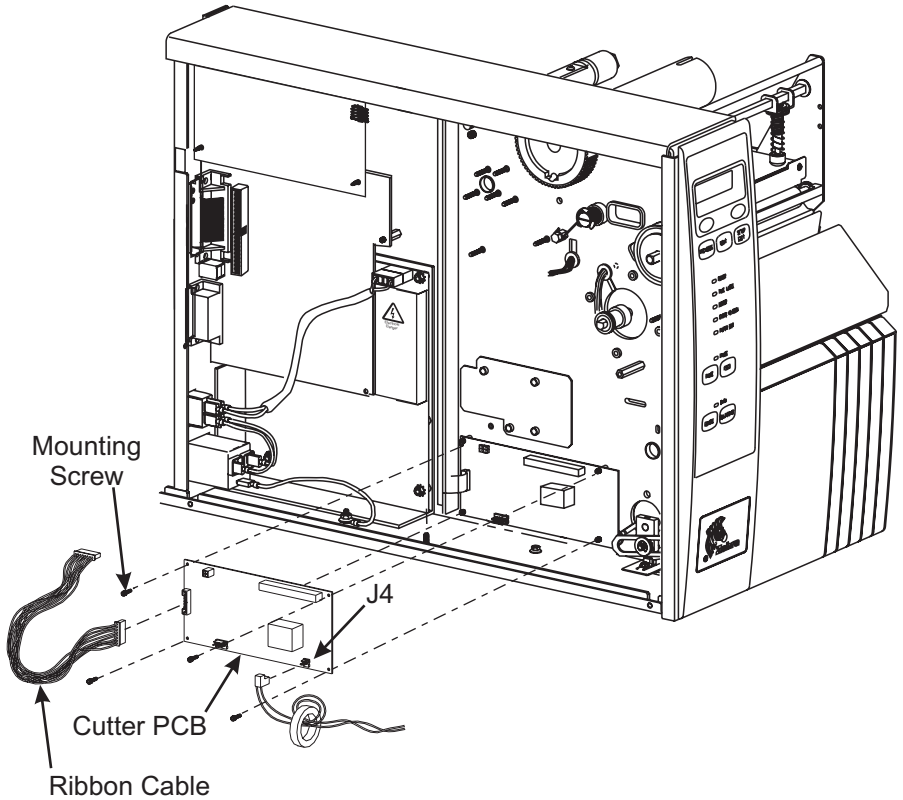


Figure 4-33. Remove and Install the Cutter PCB

7. Remove the new cutter PCB from the antistatic bag and position it onto the standoffs.
8. Refer to Figure 4-34. Connect the cutter power cable to connector J2.
9. Connect the cutter data cable to connector J1.

Note • The cutter motor leads have a polarized connector.

10. Route the cutter stepper motor wires between the two right-hand standoffs and under the bottom of the PCB. Attach the motor wires to connector J4 on the new cutter PCB. Ensure the black lead is to the left.
11. Refer to Figure 4-33. Secure the new cutter PCB to the standoffs with the screws previously removed.
12. Refer to Figure 4-34. Connect the cutter optical sensor to the cutter optical connector J3 on the new cutter PCB.
13. Dress all the wires to ensure no wiring touches any moving parts.

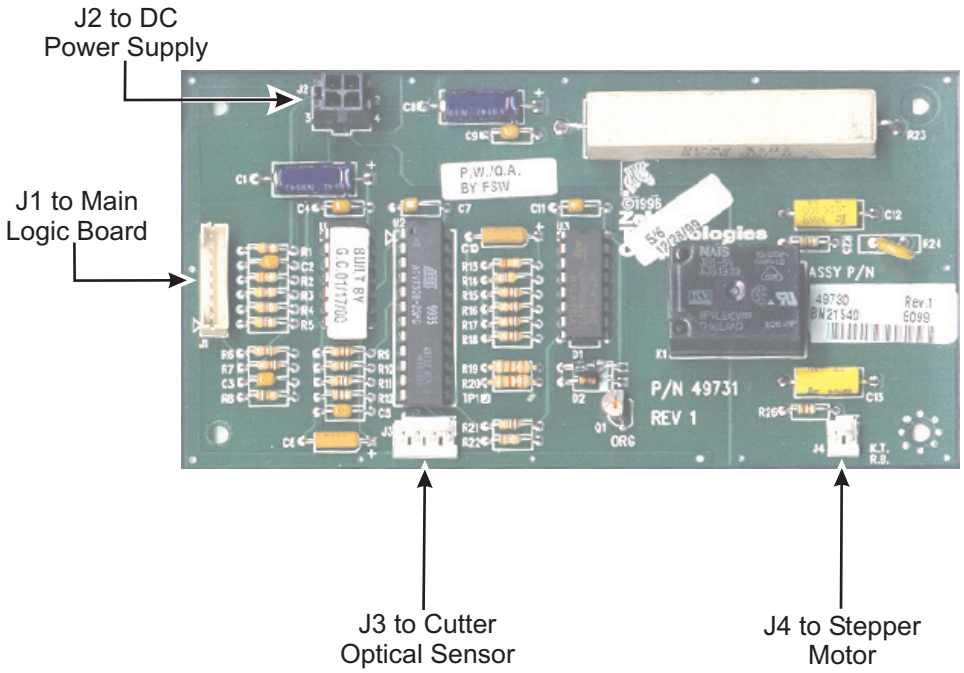


Figure 4-34. Cutter PCB Connections

14. Refer to RRP No. 3 on page 4-17 and reinstall the AC/DC power supply. Reconnect all removed cables to the power supply.

Note • When the cutter PCB is changed, the lower drive arm alignment must be checked.

15. Proceed to Align the Lower Drive Arm on page 4-59.

Align the Lower Drive Arm

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

The alignment of the lower drive arm must be checked any time the cutter PCB is replaced.

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**), remove the AC power cord and data cables.
2. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

3. Refer to RRP No. 3 on page 4-17 and remove the power supply.
4. Refer to Figure 4-32. Loosen the screws securing the lower drive arm to the motor shaft.

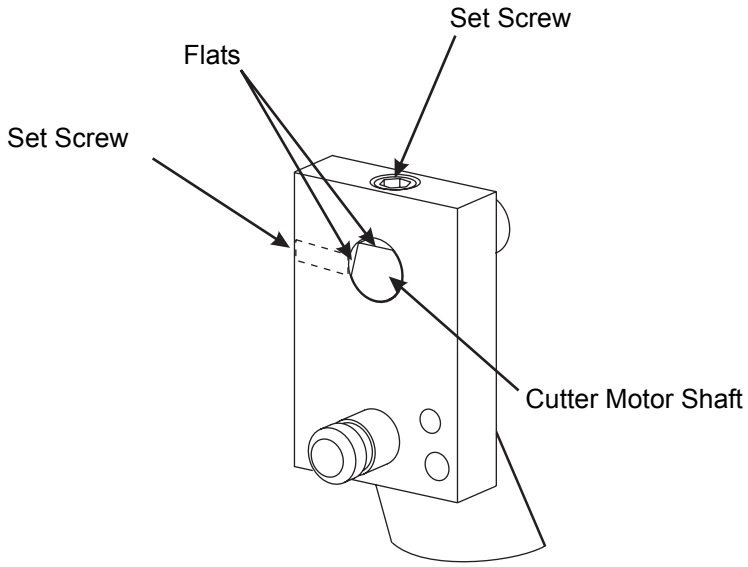


Figure 4-35. Lower Drive Arm

5. Rotate the cutter motor shaft until the two flats on the shaft align with the two set screws, then tighten the set screws to 20 inch-pounds (2.3 N•m).

Note • Do Not touch the flag with your fingers.

6. Rotate the lower drive arm until the sensor flag is approximately centered between the front and back portions of the optical sensor. Ensure the sensor flag does not touch the sensor at any time by rotating the lower drive arm a few degrees in both directions.

7. Refer to RRP No. 3 on page 4-17. Reinstall the AC/DC power supply.
8. Reconnect all cables to the power supply and verify proper placement and orientation.
9. Refer to RRP No. 2 on page 4-16. Reinstall the electronics cover.
10. Reconnect the AC power cord.
11. Turn the printer On (**I**). Enter Configuration Mode and set the printer to Cutter Mode. Save as PERMANENT and turn the printer Off (**O**).
12. Load media and ribbon, press and hold **PAUSE** while turning the printer On (**I**), and run labels through the printer. Test the cutter for proper operation.
13. Reconnect data cables and turn the printer On (**I**).

Retiming the Upper Drive Arm

If the media hits either cutter blade or if the cutter does not cut through the label material completely, the upper drive arm alignment must be checked.

Note • The upper drive arm is part of the cutter mechanical assembly and has been aligned at the factory. If the position is altered, the following procedure may be used to realign the upper drive arm. The printer must be programmed to operate in Cutter Mode prior to performing the following procedure.

Caution:

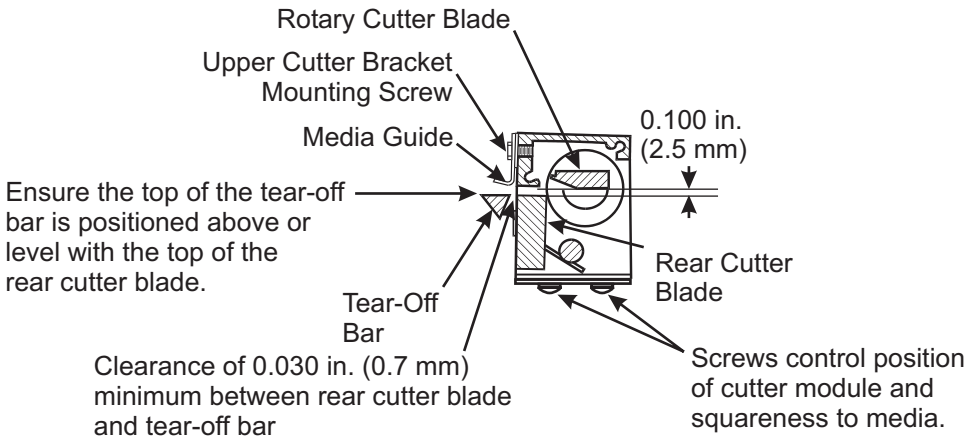
Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**), remove the AC power cord and data cables.
2. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

3. Refer to RRP No. 3 on page 4-17 and remove the power supply.
4. Hold the upper drive arm in a stationary position and adjust the rotary cutter blade to a gap of approximately 0.100 in. (2.5 mm) between the cutting edge on the left end and the cutting edge of the rear cutter blade, as shown in Figure 4-36.



Relative position of the rotary cutter blade when the drive link assembly is stopped by the optical sensor, when the power is On (**I**) in Cutter Mode.

Figure 4-36. Mechanical Assembly Position

5. Position the upper drive arm out from the cutter frame so its flat surface is flush with the end of the rotary cutter blade shaft.

Note • Overtightening the screw can damage the drive arm and strip the threads.

6. Use an Allen wrench socket on a torque wrench and tighten the screw until the slot closes or until a torque of 100 inch-pounds (11.3 N•m) is achieved.
7. With a pen, draw a line across the outer face of the upper drive arm and the end of the cutter blade shaft. If cutter operation problems occur, this mark shows whether the alignment of the clamp and the cutter blade shaft has changed.
8. Refer to RRP No. 2 on page 4-16. Replace the electronics cover.
9. Reconnect the AC power cord and turn the printer On (**I**). Enter Configuration Mode and set the printer to Cutter Mode. Save as PERMANENT and turn the printer Off (**O**).
10. Load media and ribbon, press and hold **PAUSE** while turning the printer On (**I**), and run labels through the printer. Test the cutter for proper operation.
11. Test the printer timing by feeding maximum-width label stock through the printer and ensuring a complete cut occurs. If necessary, repeat the retiming procedure.

Replace the Cutter Motor

Remove the Cutter Motor

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**), remove the AC power cord and data cables.
2. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

3. Open the media cover.
4. Refer to RRP No. 3 on page 4-17 and remove the AC/DC power supply.
5. Refer to Figure 4-32. On the electronics side of the printer, disconnect the cutter motor power cable from the cutter PCB connector J4. Loosen the screws securing the cutter PCB. Remove the one screw in the lower right corner of the cutter PCB to remove the cutter motor power lead.
6. Pivot the lower drive arm clockwise until the lower drive arm sensor flag is free of the sensor.
7. Loosen the set screws securing the lower drive arm to the cutter motor shaft.
8. Rotate the slotted link until it is horizontal and the cutter motor mounting screws are accessible and remove the mounting screws.
9. Refer to Figure 4-37. Pull the cutter motor away from the main frame. Remove the motor cable and grommet from the slot in the main frame.

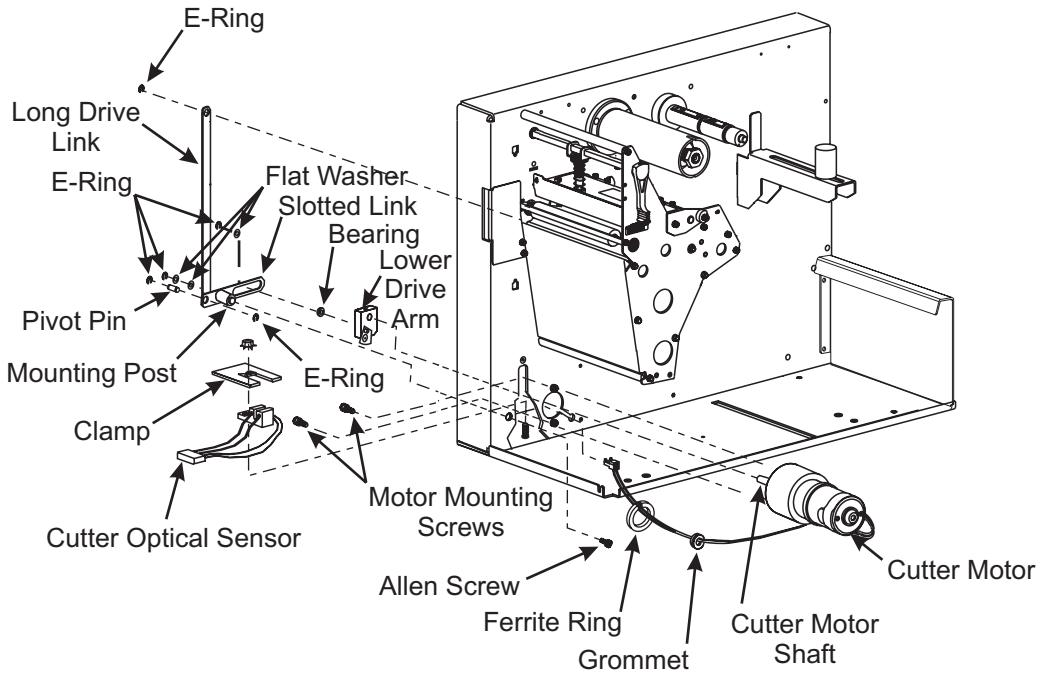


Figure 4-37. Replace the Cutter Motor

Install the Cutter Motor

1. Refer to Figure 4-37. Thread the motor power lead through the slot in the main frame.
2. Install the split grommet onto the motor power lead and into the hole in the main frame.
3. Hold the lower drive arm to allow the cutter motor shaft to slide through the hole in the drive arm as the motor is being installed.
4. Secure the motor to the main frame with the motor mounting screws.
5. Carefully rotate the slotted link counter clockwise until the lower drive arm is vertical and the flag is positioned between the walls of the sensor.
6. Refer to Figure 4-35. Hold the lower drive arm in its vertical position and rotate the motor shaft until the two set screws are aligned with the two flats on the shaft.
7. Ensure the sensor flag is centered between the walls of the sensor and tighten the set screws to 20 inch-pounds (2.3 N•m) of torque.
8. Refer to Figure 4-33. Thread the power lead behind the lower right corner of the cutter PCB. Install the screw in the lower right corner. Tighten all four screws.
9. Connect the cutter motor power lead to cutter PCB connector J4.
10. Reinstall the AC/DC power supply. Ensure all wires are positioned away from any moving parts.
11. Refer to Figure 4-8. Reconnect all cables to the power supply and ensure proper placement and orientation.
12. Refer to RRP No. 2 on page 4-16. Reinstall the electronics cover.
13. Reconnect the AC power cord.

14. Turn the printer On (**I**). Enter Configuration Mode and set the printer to Cutter Mode. Save as PERMANENT and turn the printer Off (**O**).
15. Load media and ribbon, press and hold **PAUSE** while turning the printer On (**I**), and run labels through the printer.

Note • If the media hits either cutter blade or if the cutter does not cut through the label material completely, perform the procedures in Retiming the Upper Drive Arm on page 4-60, before completing the installation.

16. Reconnect the data cables.

Replace the Transmissive Media Sensor

Remove the Sensor

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**), remove the AC power cord and data cables.
2. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

3. Open the media cover.
4. Open the printhead and remove all media and ribbon. Close the printhead.
5. Refer to Figure 4-38. Remove thumbscrews securing the upper media sensor bracket assembly.

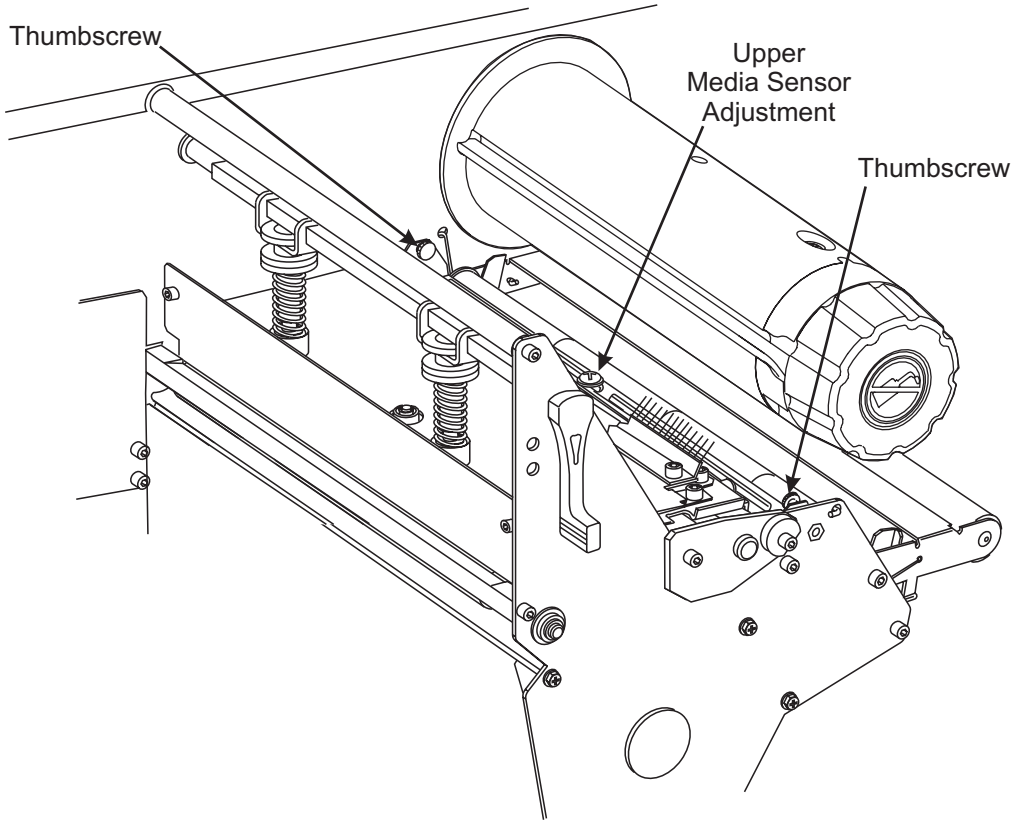


Figure 4-38. Replace the Upper Media Sensor

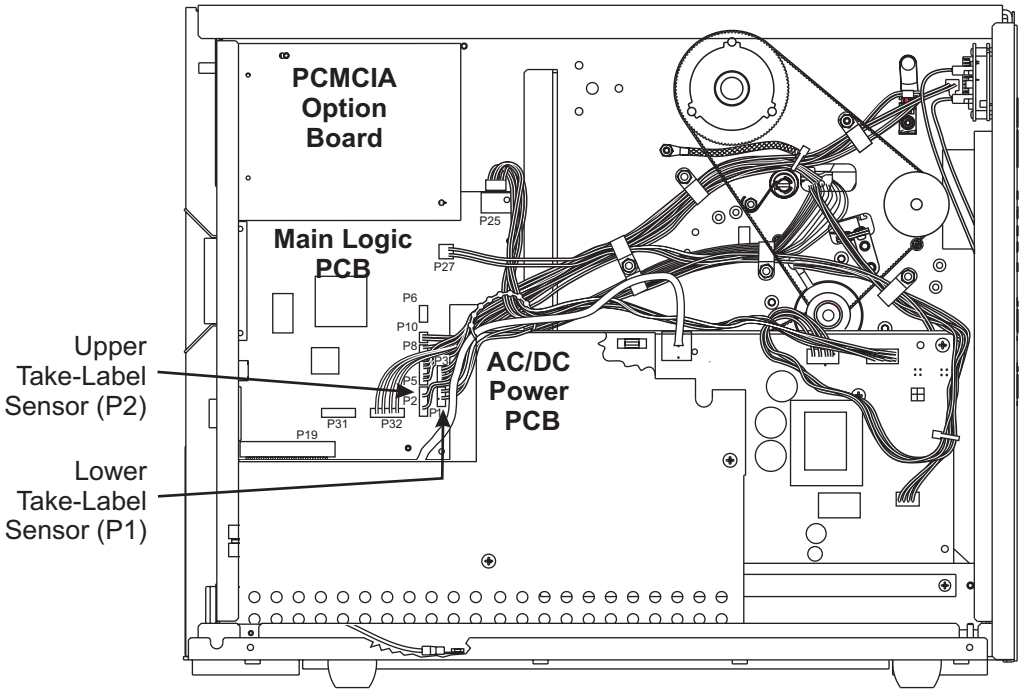


Figure 4-39. Media Sensor Connection

6. Refer to Figure 4-40. Slide the lower media sensor away from the printer main frame to access it. Carefully pry apart the sides of the bracket holding the sensor PCB. The sensor PCB should fall free and dangle from its electrical leads.

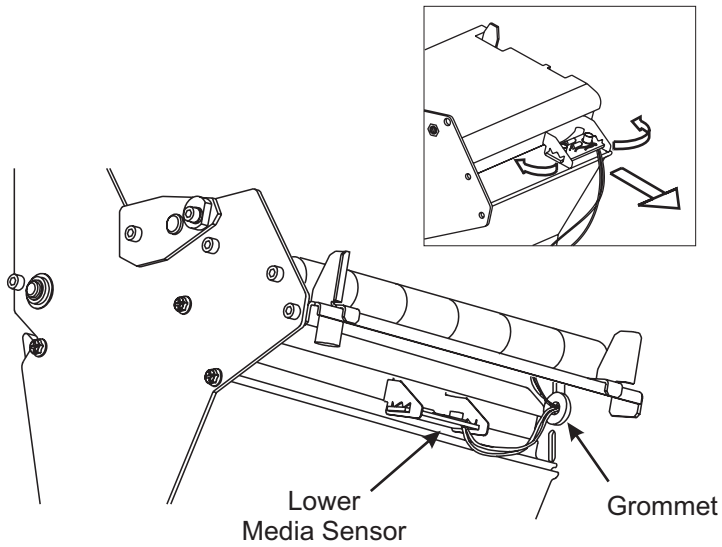


Figure 4-40. Lower Media Sensor and Bracket

7. Refer to Figure 4-39. Locate the electrical leads from the two sensors. Open the cable clamps and follow the sensor leads to the main logic board connectors.
8. Remove these connectors.
9. From the media side of the printer, remove the grommet from the slot in the printer main frame. Gently pull the sensors while guiding the wires through the hole in the main frame.
10. Remove the upper and lower sensors.

Install the Sensor

1. Refer to Figure 4-38. Guide the wires of the new upper and lower media sensors through the main frame and install the split grommet into the main frame.
2. Connect the leads of the sensors to the main logic board, P-8 and P-10.
3. Reinstall the upper sensor bracket and secure it with thumbscrews.
4. Refer to Figure 4-39. Reinstall the pivot pin and dancer spring.
5. Refer to Figure 4-40. Slightly spread the lower media bracket open and install the lower media sensor.
6. On the electronics side of the printer, route the electrical leads through the cable clamps and reinstall a new cable tie.
7. Resecure cable clamps with the nuts.
8. Reinstall the electronics cover.
9. Refer to Position Media Sensors on page 2-18 and adjust the position of the sensors.
10. Reinstall the media and ribbon and close the media cover.
11. Reconnect the data cables and the AC power cord.
12. Turn the printer On (**I**).

Replace the Ribbon Take-Up Pulley

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**) and remove the AC power cord and data cables.
2. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

3. Refer to RRP No. 6 on page 4-25 and remove the main drive belt.

Caution:

Wear protective eyewear when removing E-rings, C-clips, snap rings, and springs. All of these are under tension and could fly off while being removed.

4. Refer to Figure 4-41. Remove the E-ring securing the pulley.

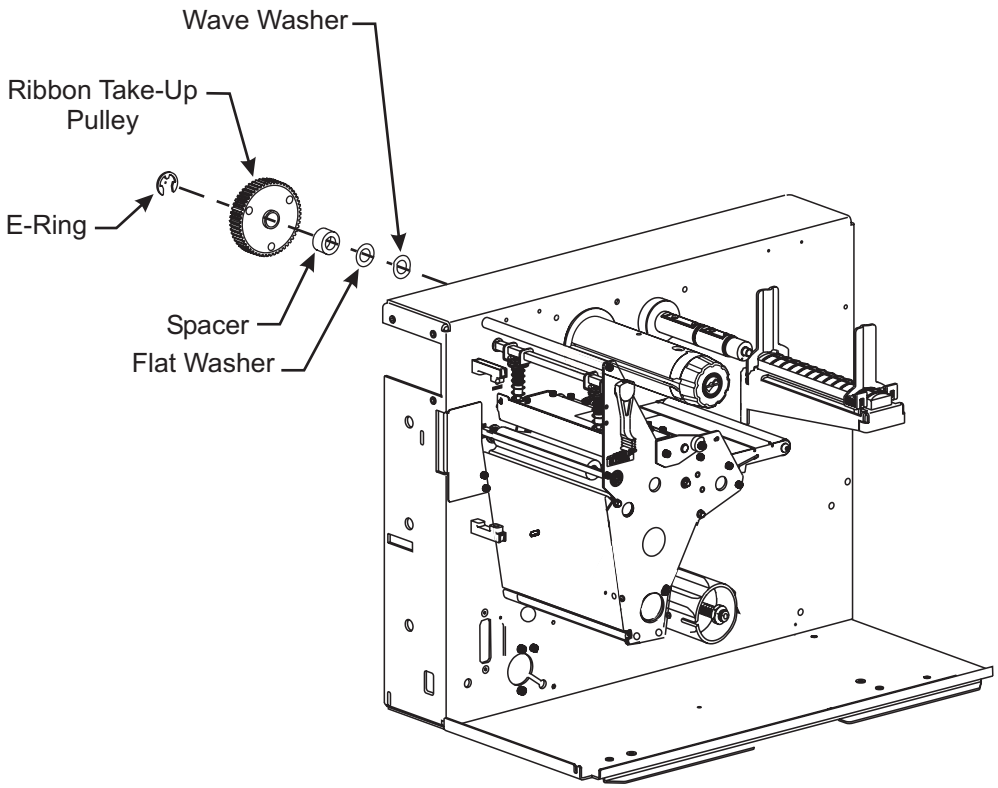


Figure 4-41. Replace the Ribbon Take-up Pulley

5. Slide the ribbon take-up pulley off the shaft.

Note • Do not remove the spacer, flat washer, and wave washer.

6. With the recessed side facing away from the main frame, slide the replacement pulley onto the ribbon take-up shaft.
7. Reinstall the E-ring to secure the pulley.
8. Install the main drive belt.
9. Refer to RRP No. 5 on page 4-23 and adjust the tension on the main drive belt.
10. Reinstall the electronics cover.
11. Reconnect the data cables and the AC power cord.
12. Turn the printer On (**I**).

Replace the Media Take-Up Pulley

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**), remove the AC power cord and data cables.
2. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

3. Refer to RRP No. 3 on page 4-17 and remove the power supply.
4. Refer to RRP No. 6 on page 4-25 and remove the main drive belt.
5. Refer to RRP No. 8 on page 4-28 and remove the rewind drive belt.

Caution:

Wear protective eyewear when removing E-rings, C-clips, snap rings, and springs. All of these are under tension and could fly off while being removed.

6. Refer to Figure 4-42. Remove the E-ring securing the pulley.

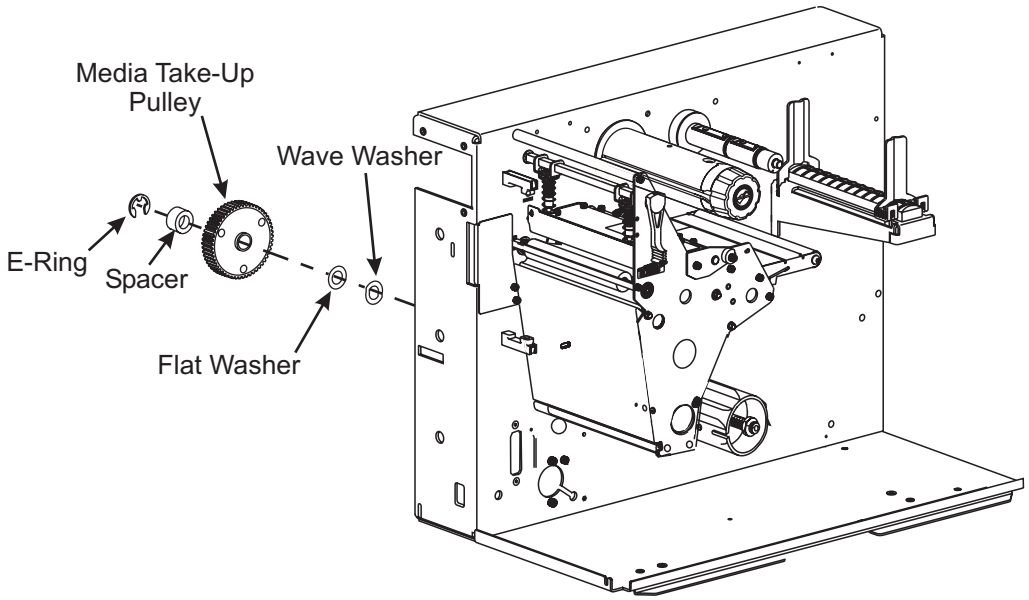


Figure 4-42. Replace the Media Take-Up Pulley

7. Slide the spacer and the pulley off the shaft.

Note • Do not remove the flat washer and wave washer.

8. With the recessed side facing away from the main frame, slide the replacement pulley onto the media take-up shaft.
9. Slide the spacer on the shaft.
10. Reinstall the E-ring.
11. Reinstall the rewind drive belt.
12. Refer to RRP No. 7 on page 4-26 to adjust the tension on the rewind drive belt.
13. Reinstall the main drive belt.
14. Refer to RRP No. 5 on page 4-23 to adjust the tension on the main drive belt.
15. Reinstall the power supply.
16. Reinstall the electronics cover.
17. Reconnect the data cables and the AC power cord.
18. Turn the printer On (**I**).

Replace the Rewind Plate

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**), remove the AC power cord and data cables.
2. Open the media cover.
3. Open the printhead and remove the media and ribbon. Close the printhead.
4. Refer to Figure 4-43 and carefully slide the rewind plate out of the slots in the printhead mechanism and away from the printer.

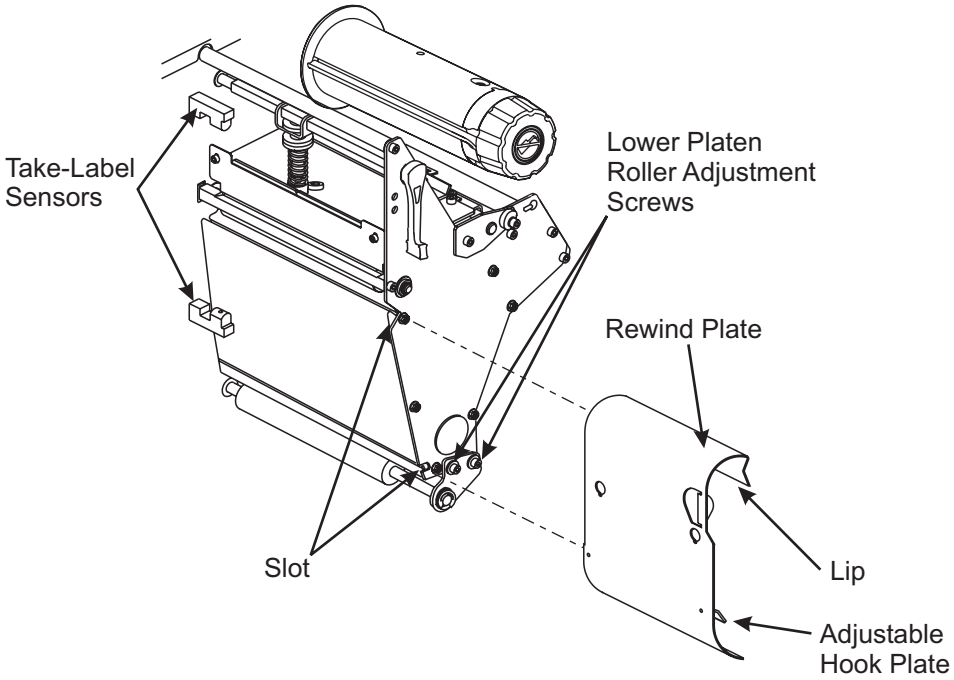


Figure 4-43. Replace the Rewind Plate

5. Engage the top lip and hook plate of the replacement rewind plate into the two mounting slots.
6. Slide the plate in as far as it can go.
7. Open the printhead and reinstall media and ribbon. Close the printhead. Close the media cover.
8. Reconnect the data cables and the power cord.
9. Turn the printer On (**I**).
10. Print test labels and check to see whether the media is tracking properly. If not, refer to Adjust the Media Tracking on page 4-40 and adjust the hook plate on the rewind plate.

Replace the Ribbon Sensor

Remove the Ribbon Sensor

Caution:

This installation must be performed by a qualified service technician.

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**) and remove the AC power cord and data cables.
2. Open the media cover.
3. Open the printhead and remove the media and ribbon. Close the printhead.
4. Refer to Figure 4-44. Locate the spring-loaded printhead mounting screw on top of the printhead assembly. Loosen the mounting screw until it disengages from the printhead.

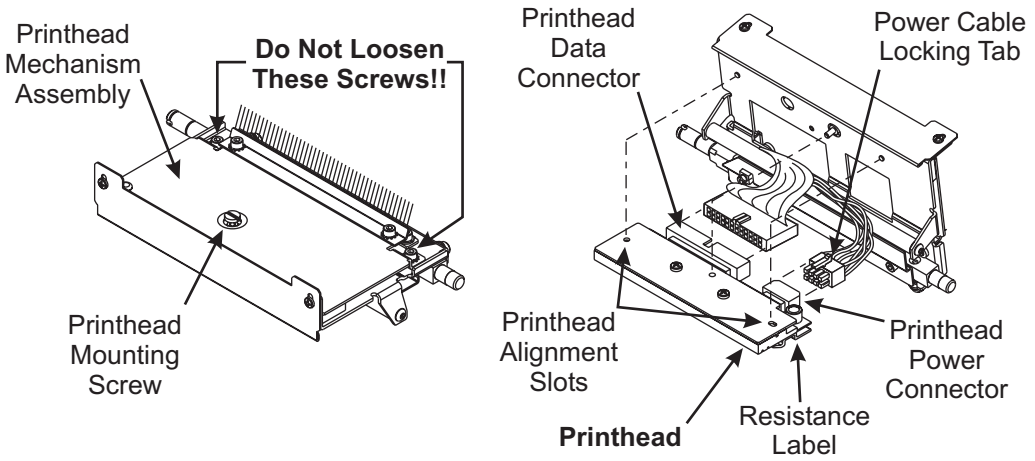


Figure 4-44. Remove and Install the Printhead

5. Slowly open the printhead assembly. The printhead remains on the platen while the rest of the assembly pivots out of the way.

Caution:

The printhead is very delicate and susceptible to damage if not handled carefully. Use particular care to ensure the printhead is not damaged when handling it.

6. Carefully disconnect the printhead data and power connectors from the printhead.
7. Remove the printhead through the front of the printer.
8. Refer to Figure 4-45 and remove the screws securing the guard plate.

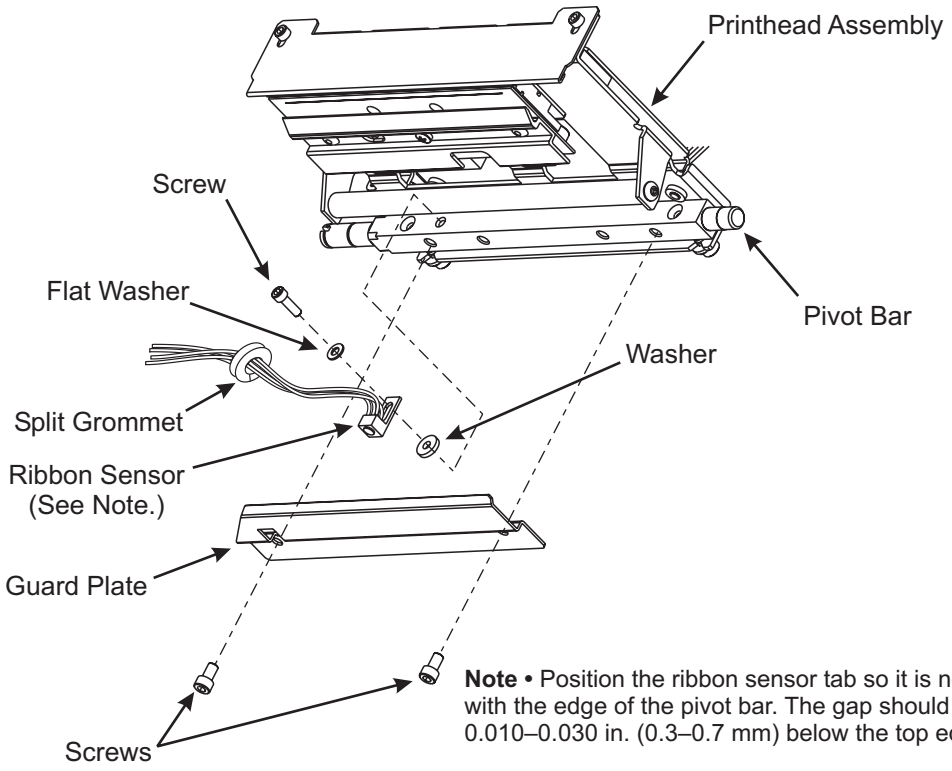


Figure 4-45. Guard Plate and Sensor

9. Pull the data and power cables away from the ribbon sensor.
10. Remove the screw and washer securing the ribbon sensor.
11. Refer to Figure 4-46 and cut the cable tie around the power, data, and ribbon sensor leads.

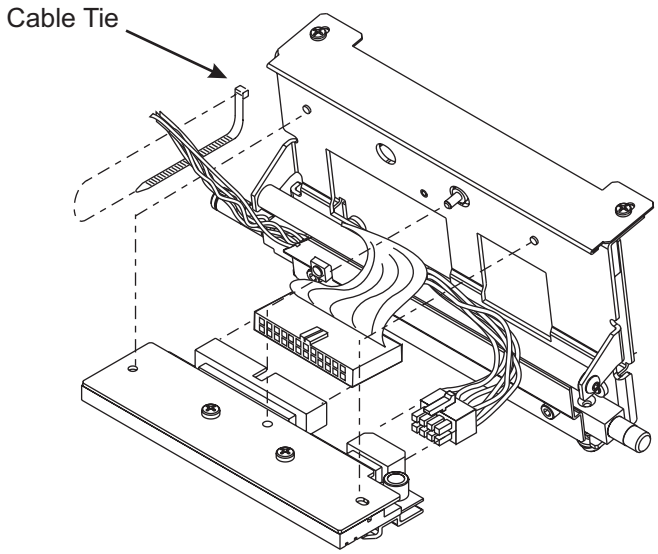


Figure 4-46. Remove and Install the Cable Tie

12. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

13. Refer to Figure 4-47. Locate the electrical wires for the ribbon sensor coming out through a hole in the main frame. There are two twisted wire pairs: black and orange and black and red. Clip the cable tie and open cable clamps as necessary to remove ribbon sensor power wires going to connector P5 on the main logic board.

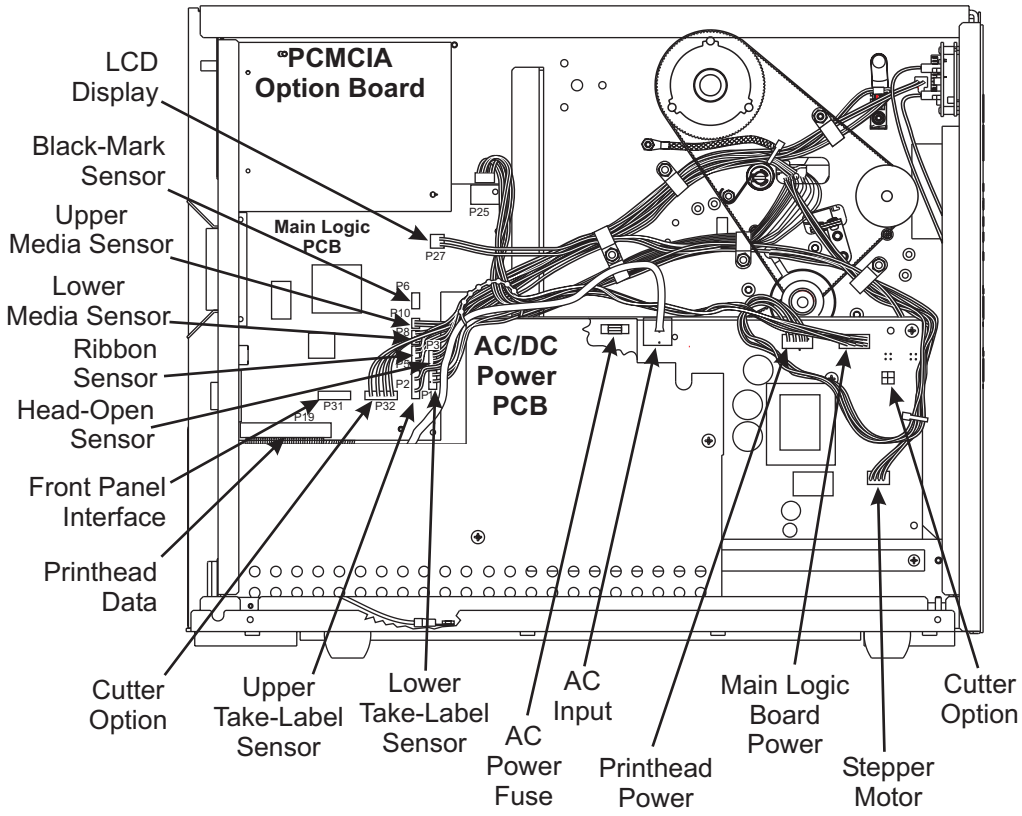


Figure 4-47. MLB Ribbon Sensor Connector

14. Disconnect the ribbon sensor connector at the main logic board. Pull the sensor connector through the grommet at the main frame.

15. Remove the old ribbon sensor.

Install the Ribbon Sensor

1. Feed the power lead from the new ribbon sensor through the grommet in the main frame.

Note • Position ribbon sensor tab so it is not flush with the top edge of the pivot bar. The gap should be 0.020–0.030 inch (0.5–0.7 mm) below top edge.

2. Refer to Figure 4-45 and mount the ribbon sensor to the printhead pivot bar.
3. Orient the guard plate so the cutout aligns with the ribbon sensor. Install the plate with two screws.
4. Move the printhead back into position so you can carefully connect the data and the power cables.
5. Refer to Figure 4-46. Bunch the printhead power and data cables along with the ribbon sensor cable. Install a cable tie around all three cables and the printhead pivot shaft. Snug it up and cut off the excess.
6. Carefully position the alignment slots in the printhead over the alignment posts on the underside of the mounting bracket.
7. Seat the printhead completely and hold it in place. Carefully tighten the mounting screw to secure it to the mounting plate.
8. Refer to Figure 4-48. Use a cleaning swab from the printhead cleaning kit (Zebra part number 01429) and thoroughly clean the gray area of the new printhead.

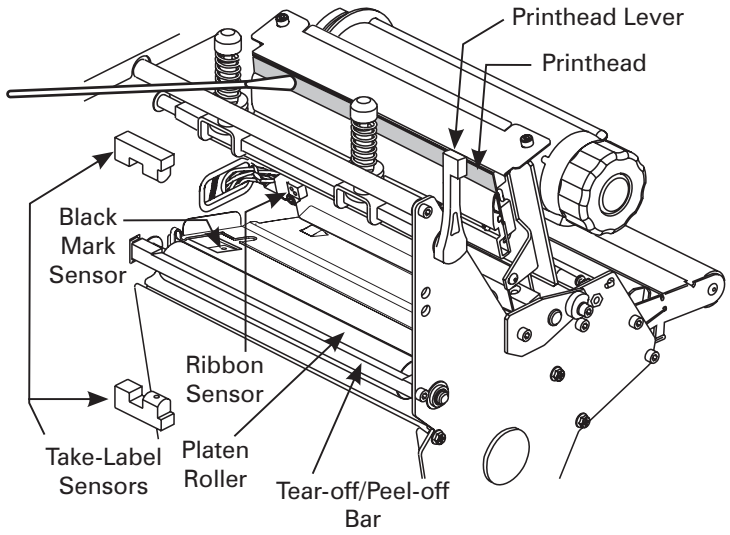


Figure 4-48. Printhead Cleaning

9. Carefully close and open the printhead to ensure there are no obstructions.
10. Route the ribbon sensor cable through the cable clamps. Close and secure the clamps with nuts removed previously.
11. Reinstall the cable tie in the same place as the one removed previously.
12. Reconnect the ribbon sensor wire connector into the main logic board connector P5.
13. Reinstall the media and ribbon. Close the printhead.
14. Close the media cover.

15. Reinstall the electronics cover.
16. Reconnect the data cables and the AC power cord.
17. Turn the printer On (**I**).
18. Refer to Calibrate Media and Ribbon Sensor on page 2-34.
19. If you receive a Ribbon Error, check all the steps of the installation. Ensure the sensor power connector is fully seated in connector P5 on the main logic board.

Replace the Take-Label Sensor

Remove the Sensor

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**) and remove the AC power cord and data cables.
2. Open the media cover.
3. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

4. Cut all cable ties around the sensor cables and remove the sensor cables from the cable clamps.
5. Refer to Figure 4-49 and remove the screws that secure the upper and lower take-label sensors.
6. Remove the take-label sensor connectors from the main logic board P1 and P2.
7. Remove the take-label sensors and cables, carefully pulling the connectors through the main frame.

Install the Sensor

Note • The upper take-label sensor has green/yellow wires.

1. Insert the upper take-label sensor connector and cable through the upper hole in the main frame.

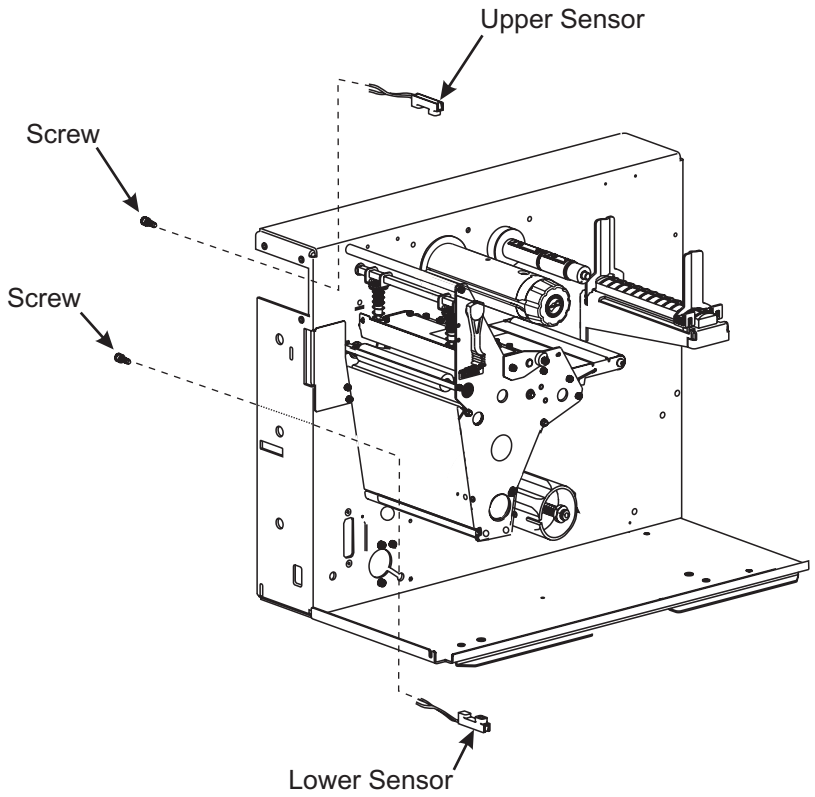


Figure 4-49. Take-Label Sensors

2. Install the sensor with the window facing down. Secure the sensor to the main frame with screw.

Note • The lower take-label sensor has black/red wires.

3. Insert the lower take-label sensor connector and cable through the lower hole in the main frame.
4. Install the sensor with the window facing up. Secure the sensor to the main frame with screw.
5. Refer to Figure 4-50. Route the wires through the cable clamps to the main logic board. Ensure that the wires do not come in contact with any moving parts.
6. Connect the upper take-label sensor connector to P2 on the main logic board and the lower label available sensor connector to P1.

Note • In Peel-Off Mode, if the two sensors are not aligned with each other, the Take-Label LED illuminates and the printer does not operate.

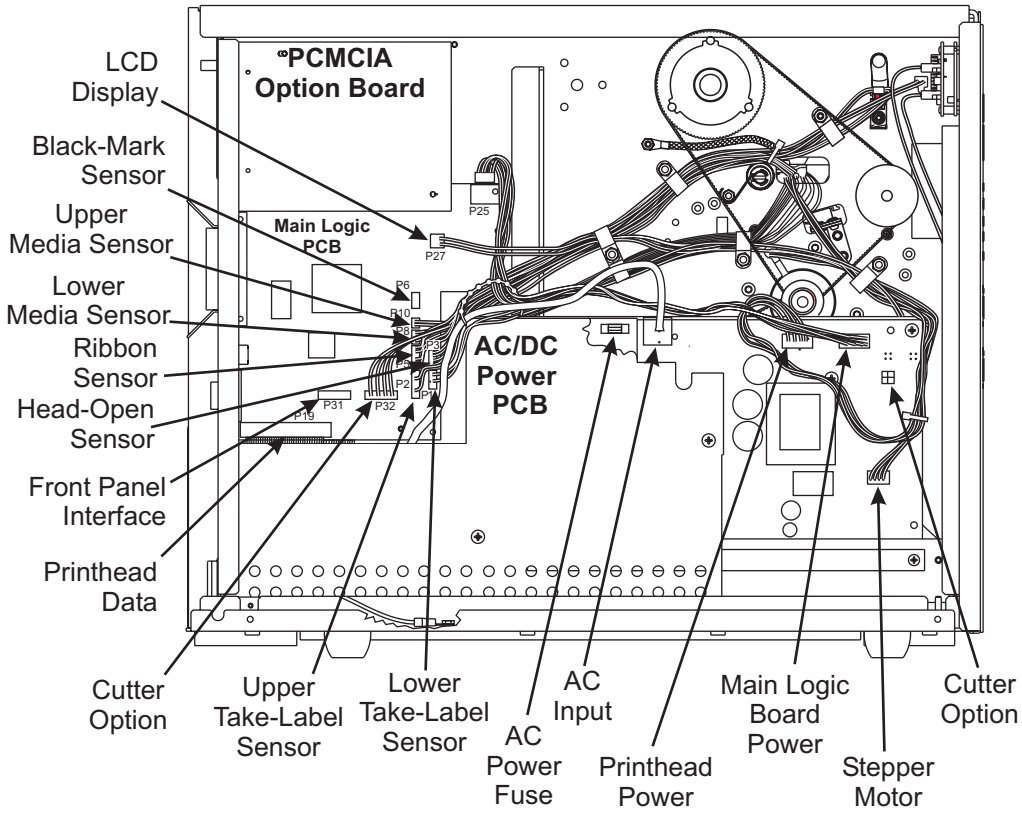


Figure 4-50. Sensor Connector

Replace the DC Stepper Motor

Notes • The stepper motor assemblies for 203 dpi and 300 dpi printers are not the same. Ensure that you have the correct replacement part before beginning this procedure.

Make certain that the DC stepper motor is isolated and identified as the cause of printer nonconformance before beginning this procedure.

These instructions are very extensive. Read the entire procedure first, to get an understanding of all the steps involved. You may want to take notes and label parts as you go to facilitate reassembly.

Remove the DC Stepper Motor

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

Caution:

Wear protective eyewear when removing E-rings, C-clips, snap rings, and springs. All of these are under tension and could fly off while being removed.

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**) and remove the AC power cord and data cables.
2. Open the media cover and remove the media and ribbon.
3. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

4. Refer to RRP No. 3 on page 4-17 and remove the power supply.
5. Refer to RRP No. 6 on page 4-25 and remove the main drive belt.
6. Refer to RRP No. 8 on page 4-28 and remove the rewind drive belt.
7. Refer to Replace the Platen Roller on page 4-44, and remove the upper and lower platen rollers.

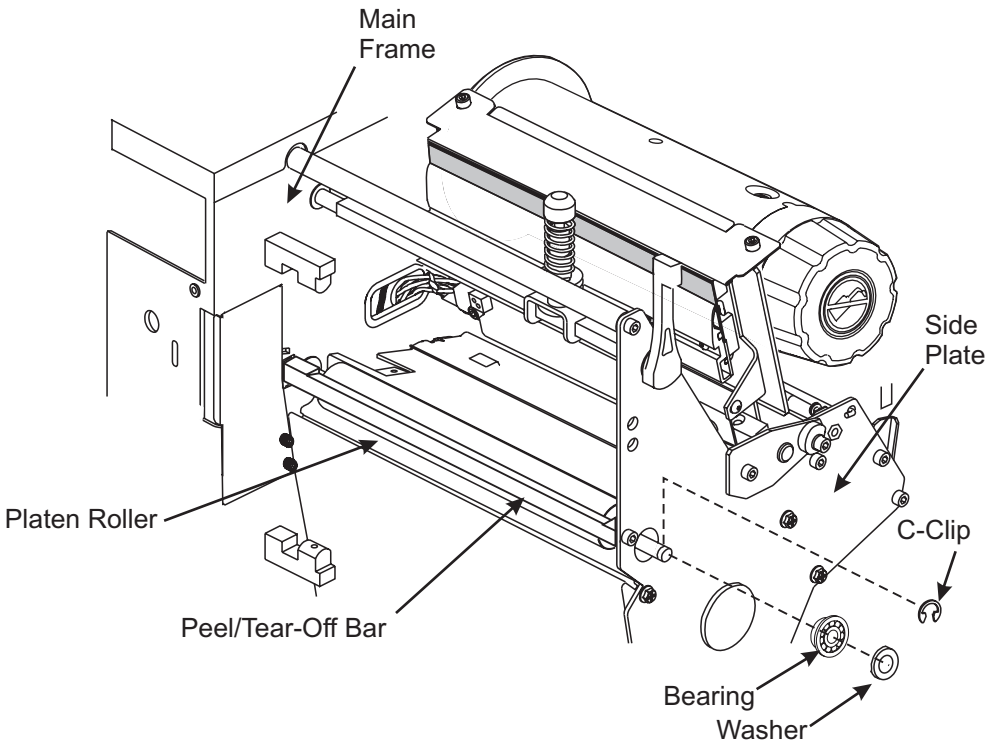


Figure 4-51. Remove the Side Plate

8. Refer to Figure 4-52. Remove and retain screw 12. Remove the printhead lever and the wave washer as shown in Detail A.

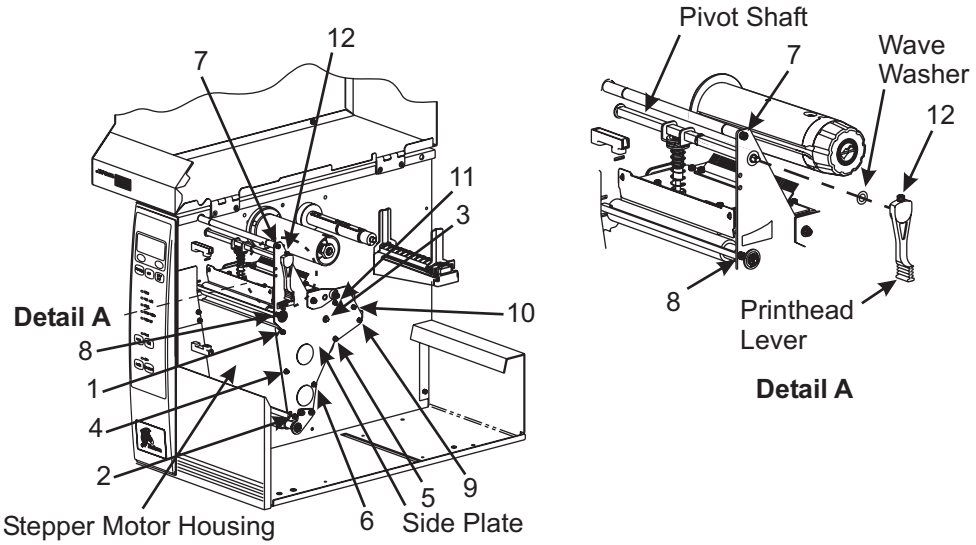


Figure 4-52. Remove and Install the Side Plate

Note • To ensure that the side plate is reinstalled in the exact position, mark two thin lines from the side plate to the stepper motor housing.

9. On the media side of the printer, remove and retain screws 1 through 11 to free the side plate from the motor housing.

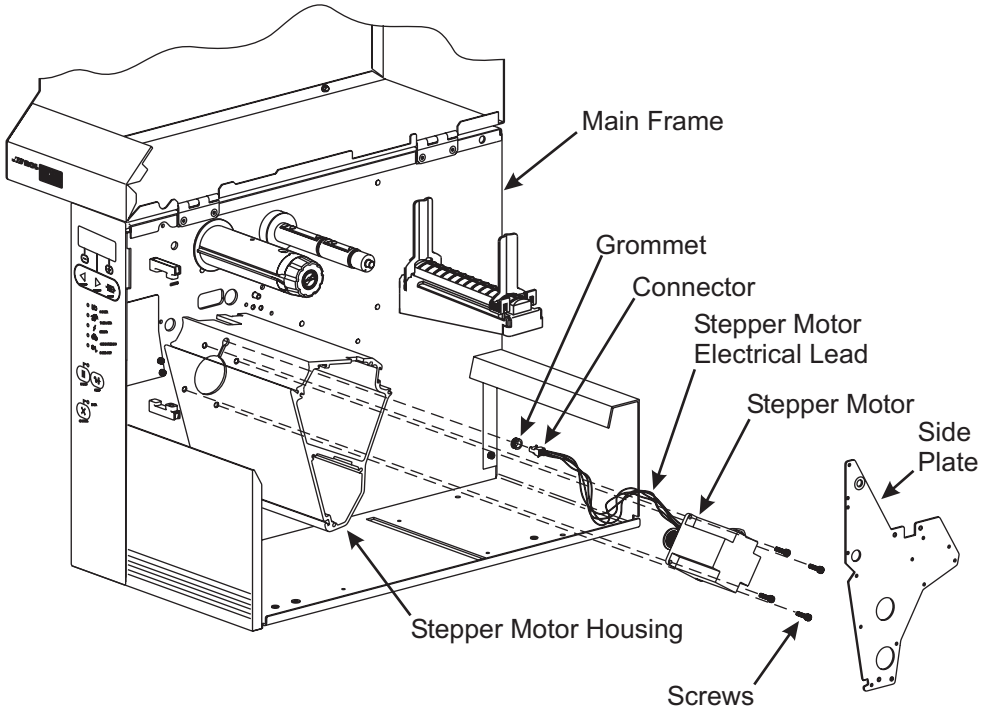


Figure 4-53. Remove and Install the DC Stepper Motor

Note • When removing the side plate, the dancer assembly, upper media sensor bracket, and media guide plate will remain attached to the main frame.

10. Remove the side plate.

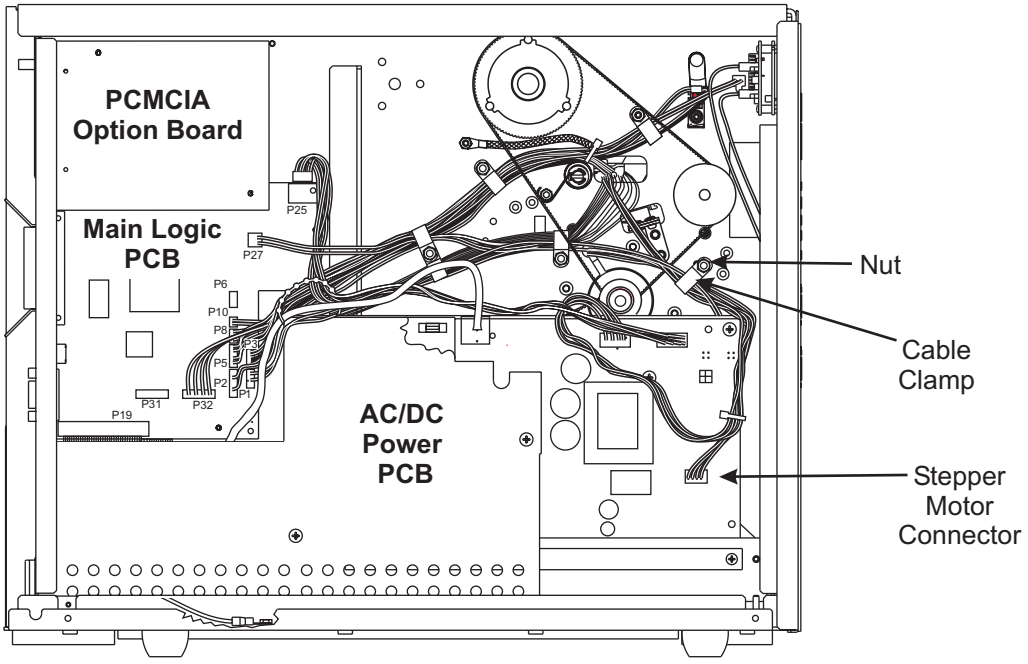


Figure 4-54. Stepper Motor Connection

11. Refer to Figure 4-54. Remove the nut and open the cable clamp securing the stepper motor wires. Disconnect the stepper motor connector from the power supply, J2.

12. Refer to Figure 4-53. Remove and retain the screws securing the motor and remove the motor.

Install the DC Stepper Motor

1. Remove the old grommet and install the new one. Feed the motor power cable through the grommet. Turn the split in the grommet away from the large opening.
2. Secure the motor to the main frame with the screws previously removed. Torque the mounting screws to 15–16 inch-pounds (1.7–1.8 N•m).
3. Insert the bearings for the platen roller and peel roller into the side plate.

Notes • As the side plate is attached, ensure that the print mechanism pivot bar is through the wear plate and that the platen roller, peel roller, dancer assembly roller, and pivot shaft extend through the correct holes in the side plate.

After the side plate is reinstalled, there are many parts that need to be reinstalled and a series of adjustments that need to be made. Do not tighten any screws until all of the screws are installed.

4. Refer to Figure 4-52. Reinstall the side plate to the stepper motor housing by loosely installing screw (**1**).
5. Loosely reinstall screws (**2**) through (**6**).
6. Align the side plate to its original position and tighten screws (**1**) through (**6**) to 16.5–17.0 inch-pounds (1.8–2.0 N•m).
7. Align the remaining rollers, media guide plate, and peel/tear bar with their holes in the side plate. Install screws 7 through 11 and tighten.
8. Reinstall the wave washer and printhead lever onto the pivot shaft and press and hold the toward the side plate. Reinstall screw 12 and tighten.
9. Refer to Figure 4-54. Route the stepper motor electrical lead and connector through the cable clamp and reinstall the nut.
10. Refer to Replace the Platen Roller on page 4-44 and reinstall the platen rollers and pulleys.
11. Refer to RRP No. 8 on page 4-28 and reinstall the rewind drive belt.
12. Refer to RRP No. 6 on page 4-25 and reinstall the main drive belt.
13. Refer to RRP No. 7 on page 4-26 and adjust the tension on the rewind drive belt.
14. Refer to RRP No. 5 on page 4-23 and adjust the tension on the main drive belt.
15. Refer to RRP No. 3 on page 4-17 and reinstall the power supply.
16. Reinstall the electronics cover.
17. Open the printhead and reinstall media and ribbon. Close the printhead.
18. Reconnect the data cables and AC power cord.
19. Turn the printer On (**I**).
20. Refer to the procedures in Printhead Replacement on page 4-32 to achieve acceptable print quality.

Replace the Black-Mark Sensor

Remove the Sensor

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**) and remove the AC power cord and data cables.
2. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

3. Refer to Figure 4-55. Remove the screws securing the black-mark sensor, and remove the sensor.

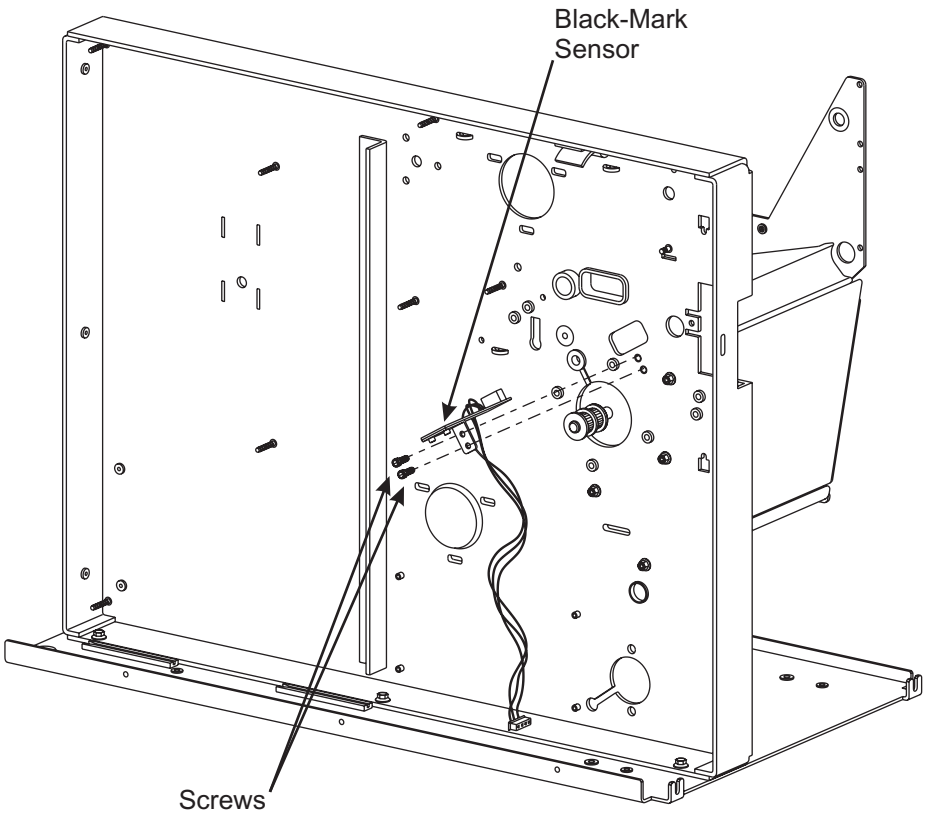


Figure 4-55. Install the Black-Mark Sensor

4. Refer to Figure 4-56. Follow the sensor leads back to connector P6 on the main logic board and disconnect it. Cut cable ties as necessary.
5. Remove the nuts securing the cable clamps.

Install the Sensor

1. Fasten the sensor in position with two screws.
2. Refer to Figure 4-56. Route the sensor wires through the cable clamp to the main logic board. Reinstall the nuts securing the cable clamps. Replace cable ties as necessary.

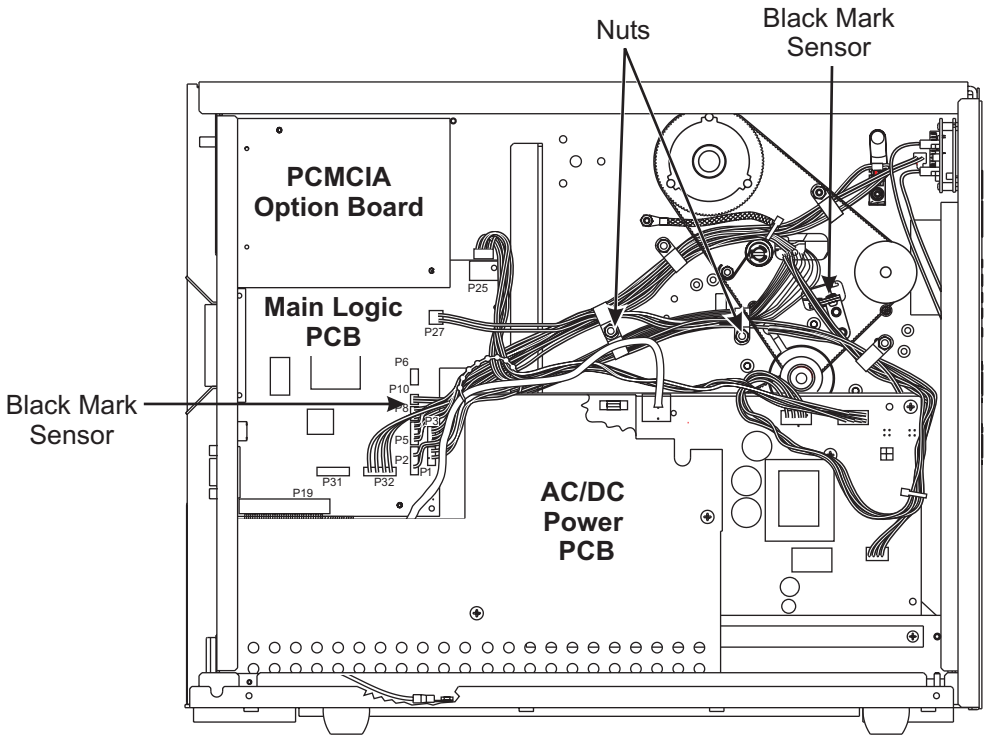


Figure 4-56. Sensor Lead Routing and Connection

3. Reconnect sensor wires to connector P6 on the main logic board.
4. Reinstall the electronics cover.
5. Reinstall the media and ribbon.
6. Reconnect the data cables and the AC power cord.
7. Turn the printer On (**I**).
8. Enter Configuration Mode and select MARK for sensor type.

Options

Install Options

Supply Spindle

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**) and remove the AC power cord and communication cables.
2. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

3. Refer to Figure 4-57. Remove the font card or memory card from the card slot at the rear of the printer by removing the option card shield and pressing the card-release button.
4. Refer to Interface Boards on page 4-96. Remove any optional interface board installed.
5. Refer to RRP No. 3 on page 4-17. Disconnect all ribbon cable and small wire connectors from the main logic board, and remove it.
6. Refer to Figure 4-57. Remove the media hanger mounting screw and washer.
7. Remove the media hanger by lifting it straight up then out from the printer frame.

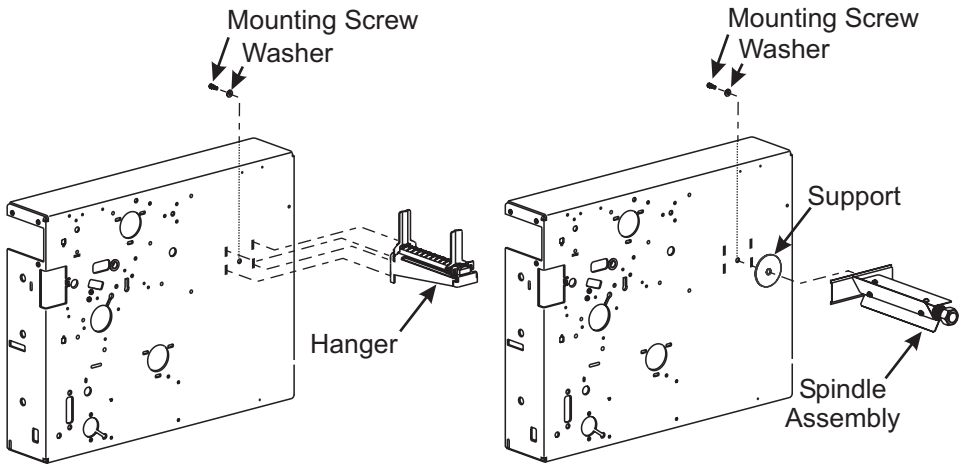


Figure 4-57. Remove Hanger and Install Spindle

8. Install the media supply spindle with support between the shaft and the printer frame.
9. Install the screw and washer onto the end of the spindle shaft and tighten.
10. Reinstall the main logic board mounting plate.

11. Reinstall the main logic board.
12. Reconnect all cables and small wire connectors previously removed.
13. Refer to Figure 4-9 on page 4-19. Reinstall any optional memory or font boards and the option card shield.
14. Reinstall optional interface boards.
15. Reconnect cabling to interface boards.
16. Reinstall the electronics cover.

Adjust Spindle Tension

1. Use adhesive tape to attach a 2 in. (5 cm) wide strip of polyester film (Zebra part number 01776) to an empty core as illustrated. Wind the polyester film around the core about five times in the direction indicated.
2. Measure tension by slowly pulling the film with a spring scale. Pull **only** in the direction shown. The pull rate should typically be 2 in. (50 mm) per second.
3. The spring tension reading should be 300 grams ±50 grams (0.66 in. lb. ±0.11 in. lb). Make adjustments using the tension adjustment nut:
   - Clockwise increases tension.
   - Counterclockwise decreases tension.

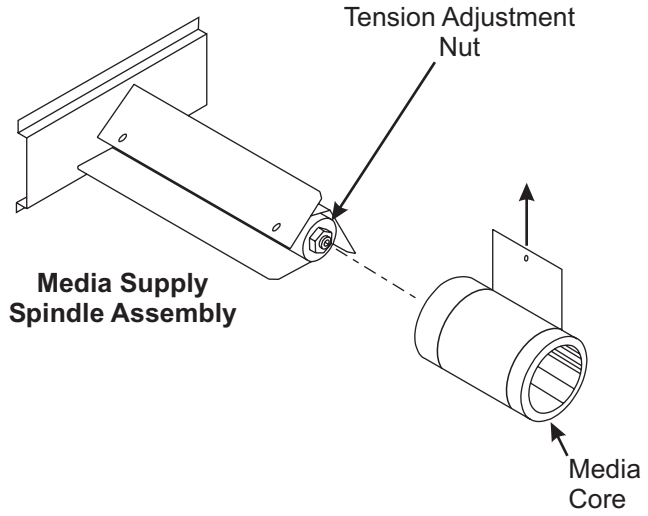


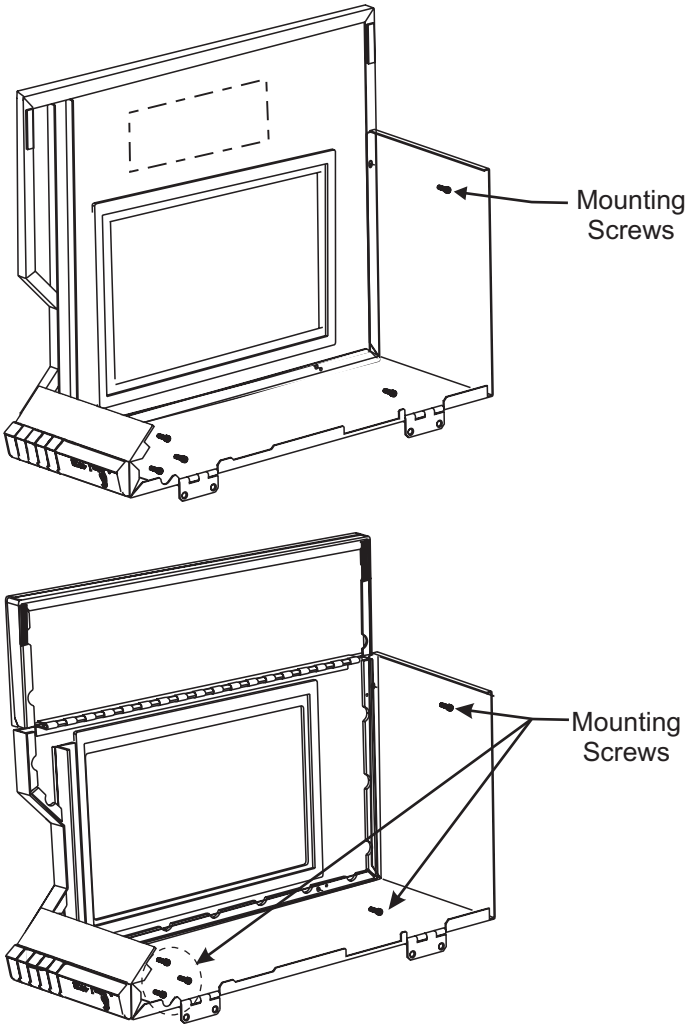
Figure 4-58. Adjust Spindle Tension

4. Recheck the tension after running a full roll of labels.
5. Reinstall the electronics cover.
6. Reinstall the media and ribbon.

Bifold Door

Refer to Figure 4-59.

1. Raise the existing media access door.
2. Remove and retain the mounting screws. (Ensure a good hold on the door when removing the last screws.)
3. Remove the old door.



4. Install new door using the screws removed in step 2.
5. Installation is complete.

Figure 4-59. Install Bifold Door

Rewind Option

The printer must be partially disassembled to install the various parts provided in this kit. Follow the procedures listed below.

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

1. RRP No. 1 on page 4-14. Turn printer power Off (**O**) and disconnect the AC power cord. Remove any communication cables.
2. RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

3. RRP No. 4 on page 4-19. Disconnect all wires and cables attached to the power supply board and remove the power supply.
4. Open the media access door, and remove all media and ribbon.
5. Refer to Figure 4-60. Remove and retain the plastic plug in the lower access hole near the bottom of the print mechanism side plate.

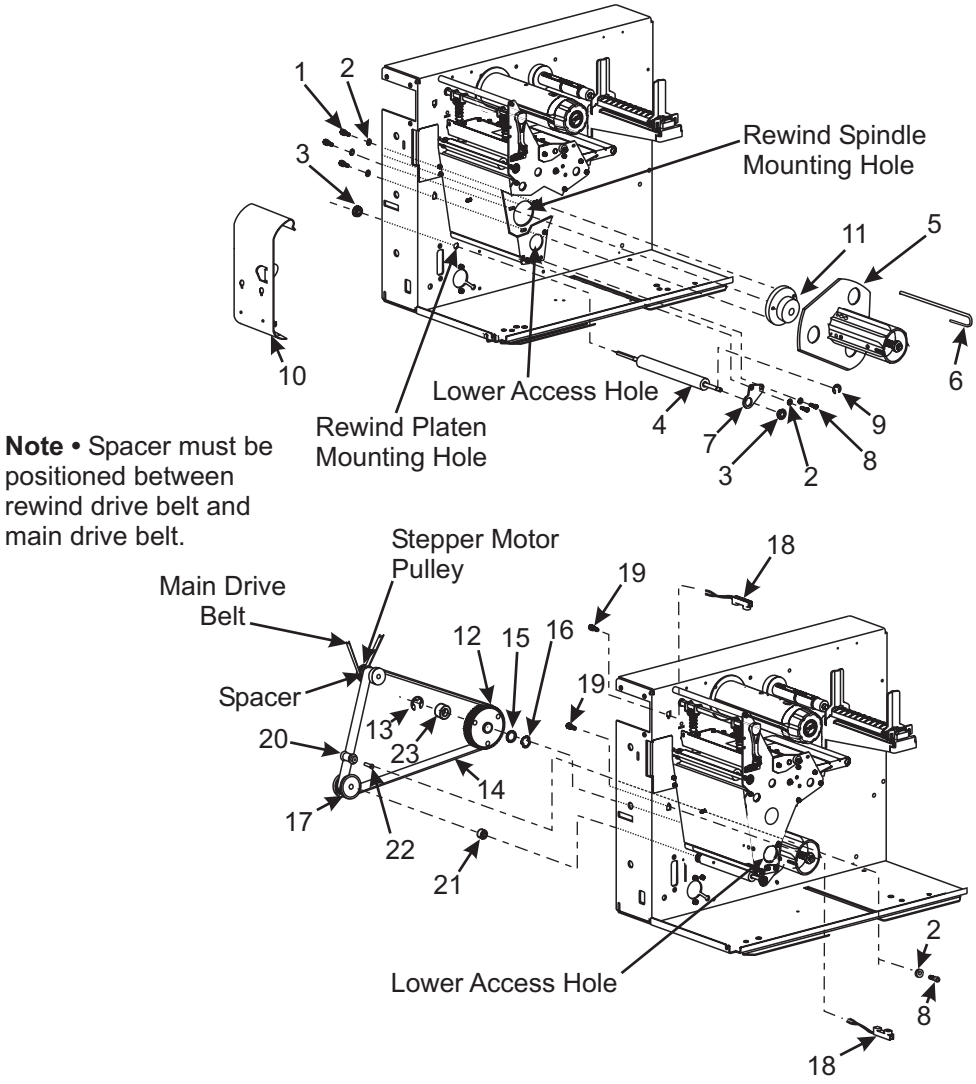


Figure 4-60. Rewind Assembly Installation

Parts List

Table 4-2 lists the parts found in the Media Rewind Option Kits. The last four columns indicate which parts are used in the particular kit for the different printers. Use Table 4-2 and Figure 4-60 to conduct an inventory of the parts before installing the kit. The parts received depend on the kit ordered for a particular printer. Labels on the parts packaged in the kits may not show the M reorder designation shown on some of the part numbers in Table 4-2.

Table 4-2. Parts List

✓	Item	Qty	Part Number	Description
	1	3	**HW30393-006**	Screw, 8-32 (only available in quantities of 25)
	2	6	**HW40193**	Flat Washer,
	3	2	**48688**	Flange Bearing (Part of Platen Roller Kit)
	4	1	**41011M**	Platen Roller Kit
	4	1	**41016M**	Platen Roller Kit (600 dpi)
	5	1	**41155M**	Rewind Spindle Assembly Kit
	6	1	**HW47062-1**	J-Hook (only available in quantities of 5)
	7	1	**40019**	Platen Support Bracket
	8	3	**HW30392-004**	Screw, 6-32 (only available in quantities of 50)
	9	1	**02252**	E-Ring
	10		**41383M**	Rewind Plate Kit
	11	1	**30334-7**	Bearing Housing Assembly Kit
	12	1	**31336M**	RTU/MTU Pulley Assembly Kit
	12	1	**33094-6M**	RTU/MTU Pulley Assembly Kit (600 dpi)
	13	1	**HW30118**	E-Ring (only available in quantities of 25)
	14	1	**45189-2**	Rewind Drive Belt
	14	1	**45189-13**	Rewind Drive Belt (600 dpi)
	15	1	**HW30114**	Washer, Flat (only available in quantities of 25)
	16	1	**HW30115**	Washer, Wave (only available in quantities of 25)
	17	1	**30914M**	Rewind Platen Pulley Kit
	17	1	**47915M**	Rewind Platen Pulley Kit (600 dpi)
	18	1	**46609-4M**	Take-Label Sensors Assembly Kit
	19	2	**HW07435**	Screw, 6-32 (only available in quantities of 100)
	20	1	**30265**	Idler Pulley
	21	1	*N/A*	Spacer (Part of Platen Roller Kits)
	22	1	**30207**	Idler Shaft
	23	1	*N/A*	Spacer (Part of 31336M)
	N/S	1	**11301**	Allen Wrench, Long 7/64 inch

N/A – Not available as separate service item
N/S – Not shown

Bold = Part available for purchase
Light italic = Part not available for purchase, listed and shown for reference only

Install the Rewind Option

1. Refer to Figure 4-60. Place a flat washer (**2**) onto one of the screws (**8**). Use the Allen wrench provided in the kit to place this mounting screw through the lower access hole in the side plate and through the idler pulley mounting slot in the printer main frame. On the electronics side of the printer main frame, attach the idler shaft (**22**) to the mounting screw.
2. Position the idler shaft in the middle of the mounting slot and tighten the mounting screw. Apply a very small amount of grease (provided in kit) to the idler shaft with a toothpick or small screwdriver. Keep excess grease away from other components.
3. Slide the idler pulley (**20**), flat side out, onto the idler shaft.
4. In the lower center portion of the main frame, remove the cover plate from the rewind spindle mounting hole.
5. Slide the bearing housing assembly (**11**) out of the media rewind spindle assembly (**5**).
6. Install the bearing housing assembly on the printer main frame using three screws (**1**) and three flat washers (**2**). Do not tighten the screws at this time.
7. Insert the shaft of the rewind spindle (**5**) through the bearing housing assembly.
8. Place the wave washer (**16**), flat washer (**15**), and pulley, recessed side facing away from the main frame, (**12**) onto the rewind spindle shaft.
9. Slide the spacer (**23**) on the rewind spindle shaft. Press the E-ring (**13**) into the groove in the rewind spindle shaft.
10. Attach the platen support bracket (**7**) to the side plate with two flat washers (**2**) and two screws (**8**). Do not tighten the screws at this time.
11. Remove the plastic plug from the rewind platen mounting hole near the bottom of the main frame.
12. Insert the long end of the rewind platen shaft (**4**) through the rewind platen mounting hole.
13. Place the flange bearing (**3**) over the left end of the rewind platen shaft. Press the bearing into the mounting hole with the flange on the outside (left side) of the main frame.
14. Place the opposite end of the rewind platen shaft through the platen support bracket (**7**).
15. Place the remaining flange bearing (**3**) over the right end of the rewind platen shaft with the flange of the bearing on the outside (right side) of the platen support bracket. Press it into the mounting hole in the platen support bracket and secure with the E-ring (**9**).
16. Use the Allen wrench to tighten the mounting screws that secure the platen support bracket to the side plate. The bracket may need adjustment later.
17. Slide the spacer (**21**) onto the rewind platen shaft.
18. Slide the rewind platen pulley (**17**) onto the rewind platen shaft and align the two pulley set screws with the flat surfaces of the rewind platen shaft.

19. Leave approximately a 0.020 inch (0.5 mm) gap between the E-ring (**9**) and platen support bracket (**7**), and tighten the set screws.

20. Position the rewind plate as shown in Figure 4-61 with the attached hook plate pointing down.

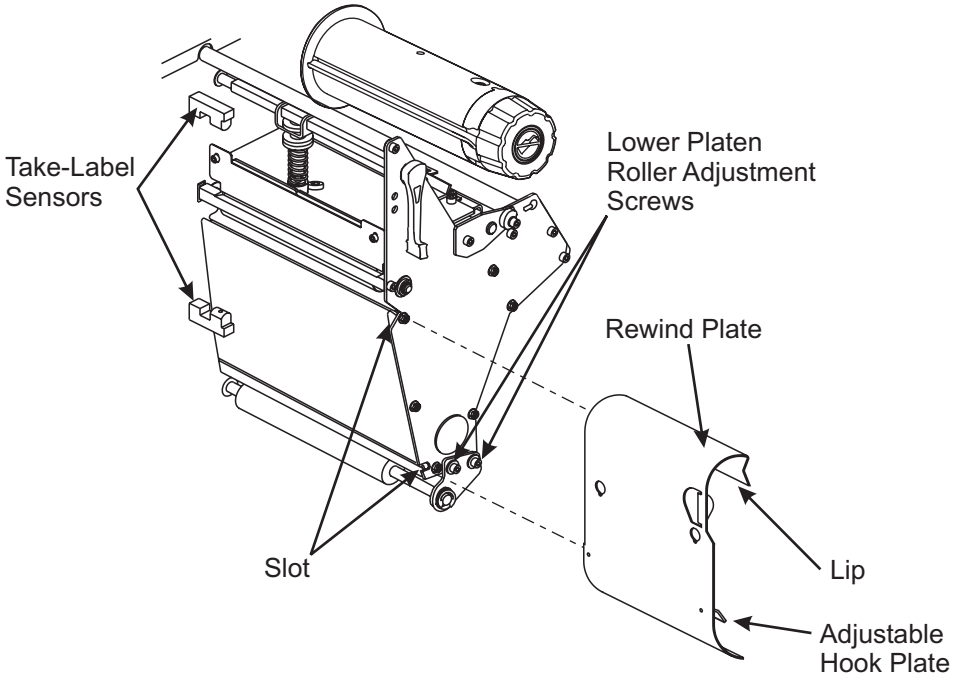


Figure 4-61. Take-Label Sensor Location

21. Insert the hook plate 1/2 inch (13 mm) into the lower opening in the side plate.

22. Align the upper end of the media rewind plate with the corresponding opening in the side plate, then slide the rewind plate in until it stops against the main frame.

Install and Adjust the Drive Belt Tension

Refer to RRP No. 8 on page 4-28 and install the rewind drive belt.

Refer to RRP No. 7 on page 4-26 and adjust the rewind drive belt tension.

Refer to RRP No. 5 on page 4-23 and readjust the main drive belt tension.

Install the Take-Label Sensors

(Do not install on cutter units.)

The Take-Label Sensors are required only in Peel-Off Mode.

Refer to Figure 4-60 and Figure 4-61.

1. Remove the upper and lower take-label sensor cover plates by removing the two socket head cap screws with the Allen wrench.
2. Insert the upper take-label sensor assembly (**18**) (green/yellow wires), connector, and cable through the upper take-label sensor hole in the main frame.
3. Position the sensor with the window facing directly down and use one (**19**) screw to fasten the sensor in place.
4. Insert the lower take-label sensor assembly (**18**) (red/black wires), connector, and cable through the lower take-label sensor hole in the main frame.
5. Position the sensor with the window facing directly up and use one (**19**) screw to fasten the sensor in place.
6. Route the wires through the cable clamps and toward the main logic board, ensuring the wires do not come in contact with any moving parts.
7. Refer to Figure 4-62. Connect the upper take-label sensor connector to P2 on the main logic board and the lower take-label sensor connector to P1.

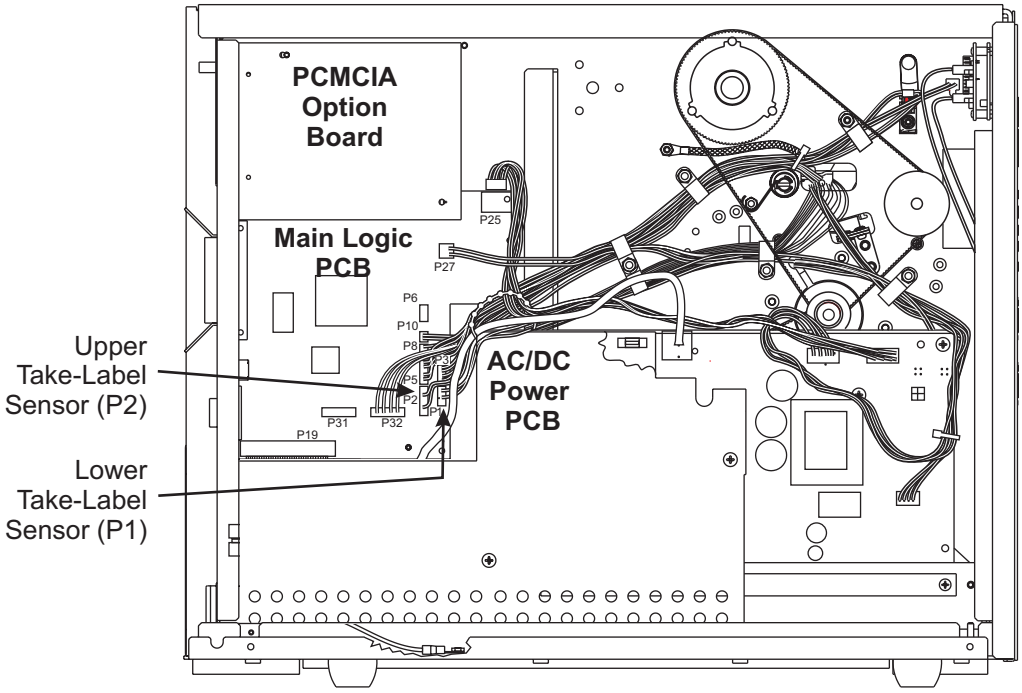


Figure 4-62. Take-Label Sensor Connections

Note • When in Peel-Off Mode, if the two sensors are not aligned with each other, the Take-Label LED lights up and the printer does not operate.

8. Reinstall the power supply assembly.
9. Reinstall the electronics cover.

10. Reconnect the AC power cord and data cable.
11. Restore power and turn the printer On (**I**).

Adjust Rewind Mode

The Rewind Option Kit usually requires some adjustments to prevent printing problems such as ribbon wrinkle, noncentered labels, and tearing of the media. Print a number of test labels and use the following procedures to correct any problems.

Adjust Tracking

Refer to Figure 4-63.

1. If the media walks from side to side or tears or wrinkles against the backing plate on the media rewind spindle, it may be necessary to adjust the position of the rewind plate assembly mounted on the front of the printer or the rewind spindle assembly.
2. Remove the rewind plate assembly from the front of the printer and loosen the nuts securing the hook plate to the rewind plate.
3. Move the outer end of the hook plate up to force the media to wind closer to the large backing plate on the rewind spindle.
   or
   Move the outer end down to force the media away from the backing plate.
4. Reinstall the rewind plate on the front of the printer and print a number of test labels. If problems persist, adjust the hook plate position again.
5. If the media cannot be made to track correctly after making this adjustment, check the distance from the backing plate to the main frame. This dimension is set at the factory and should be 0.550 in. ± 0.020 in. (14 mm ±0.5 mm). If the distance needs to be reset, perform step 6 and 7.
6. Loosen the set screws in the collar located inside the rewind spindle assembly near the backing plate. The set screws are accessible through a single hole in the rewind spindle assembly. Reposition the backing plate as required and retighten the set screws in the collar.
7. Perform the rewind plate assembly adjustment in steps 1 and 2 until the desired results are achieved.

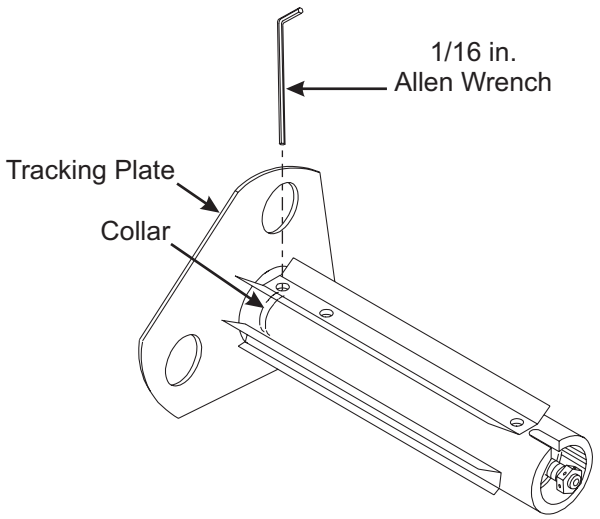


Figure 4-63. Adjust the Rewind Spindle Assembly Position

Adjust Tension

If the liner is wound too tightly on the spindle, it can cause misregistration of labels, tearing, or poor print quality due to smudging. Liner rewound too loosely could jam the printer before completing a roll, or make it impossible to separate the labels from the liner in Peel Mode.

1. Refer to Figure 4-64. Use a spring scale gauge to set the spindle tension. Use adhesive tape to attach a 2 in. wide by 30 in. long (50 mm wide by 170 mm long) strip of polyester film to the spindle in the direction shown.

Table 4-3. Rewind Belt Tension

Printer	Tension
110	1450 ±100 grams

2. Refer to Table 4-3. Insert the spring scale tip through the reinforced hole in the end of the strip and pull slowly and evenly (2 in. [50 mm] per second) in the direction shown. Make this measurement several times to ensure an accurate reading.
3. If required, readjust the tension as described below and recheck the tension setting.
4. To keep the spindle from rotating while turning the adjusting nut, insert the Allen wrench through the access hole at the rear of the rewind spindle to lock the spindle in position.
5. Turn the adjusting nut with fingers or pliers clockwise for more tension, or counterclockwise for less tension.

Caution:

Do not operate printer without at least one set screw tightened.

6. Tighten one of the adjusting nut set screws and retest (step 2).
7. If proper tension is not achieved, loosen the set screw and readjust as needed.
8. When proper tension is obtained, tighten both set screws.
9. Recheck the tension after running a full roll of labels.

Note • Depending on the width of the media and the thickness of the liner, it may be necessary to deviate slightly from the recommended tension setting shown above.

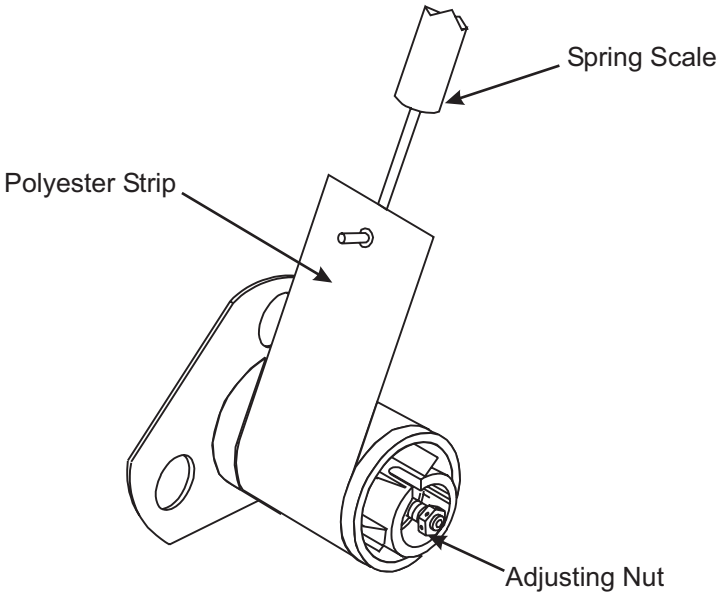


Figure 4-64. Adjust Tension of Rewind Spindle Assembly

Adjust Peel-Off Mode

Lower Roller

If the media walks from side to side, it may be necessary to adjust the position of the lower roller.

Refer to Figure 4-60.

1. Loosen the two screws (8) securing the platen support bracket (7) to the side plate.
2. Moving the bracket toward the rear of the printer forces the media to wind closer to the main frame. Moving the bracket toward the front moves the media away from the main frame. Adjust as required and tighten screws.
3. Perform this adjustment until required results are achieved.

Tension

For liner and label combinations that are particularly difficult, it may be necessary to increase rewind tension in Peel-Off Mode. Follow the same tension adjustment procedures on the previous page used to “Adjust Rewind Mode”.

Interface Boards

Internal PrintServer II

Hardware Description

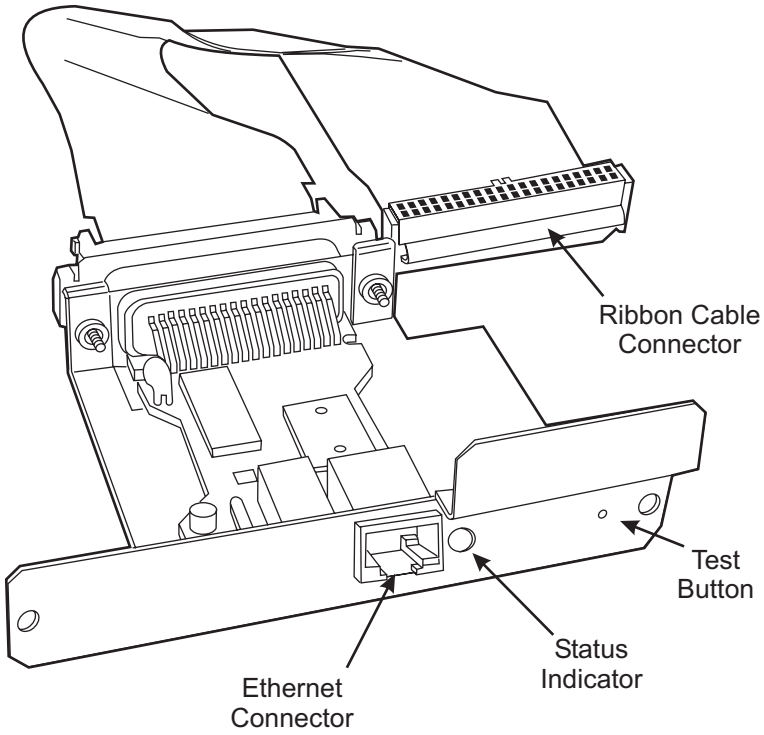


Figure 4-65. Internal PrintServer II

Test Button: This generates a detailed PrintServer II configuration label.

Status Indicator: A bicolored indicator displays the state of the PrintServer II.

Ethernet Connection: Connection for a 10Base-T cable. Connecting the PrintServer II does not interrupt network operation.

Ribbon Connector: The internal PrintServer II is powered by the printer; no additional power source is required.

Note • To print a PrintServer II configuration label from your Zebra printer, a 4 in. wide by 6 in. long (100 mm wide by 150 mm long) label is recommended. If the label is smaller, some information may print outside the label edges. Some of the heading information on the right side of the label will not print. Refer to Figure 4-66 for any missing data.

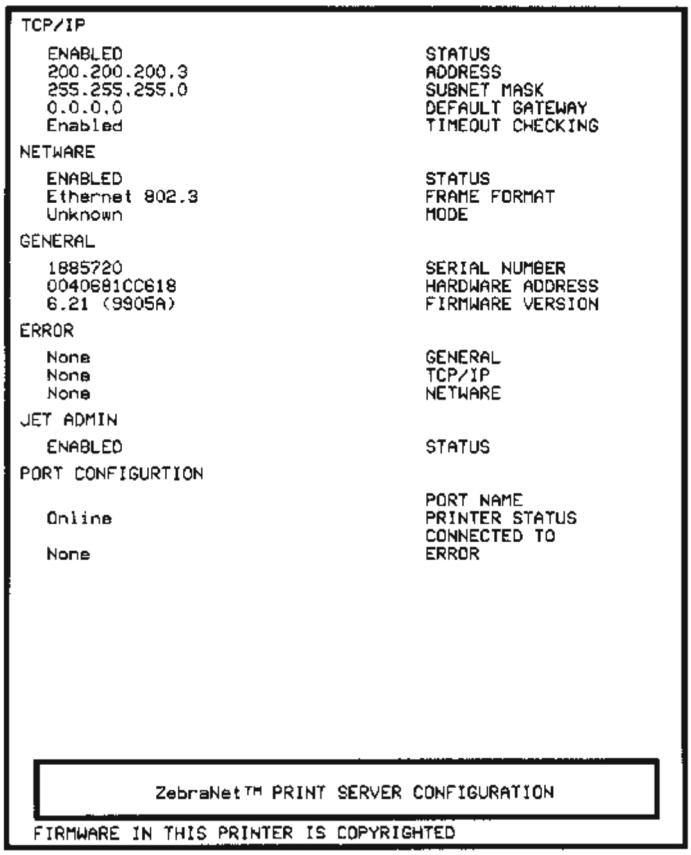


Figure 4-66. Configuration Label PrintServer II

Install the Internal PrintServer II

This section provides the information necessary to install the internal PrintServer II. Read this section completely before performing the installation procedure.

Caution:

The printer electronics are susceptible to static discharge. Before proceeding, it is highly recommended that the technician wear an antistatic wrist strap connected to the printer chassis.

Note • The parallel port on the back of the printer is not operational when the internal PrintServer II is installed. The hardware of the PrintServer II mounting bracket covers the parallel port.

This installation should be performed by a qualified service technician, who must follow the step-by-step procedure provided in these instructions.

After you have finished installing the PrintServer II hardware, refer to the appropriate section of this guide for information on establishing a connection for your network type.

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

1. RRP No. 1 on page 4-14. Turn the printer power Off (**O**) and disconnect the AC power cord. Disconnect any data cables.
2. RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

3. Refer to Figure 4-67. At the rear of the printer, remove the two screws and the blank cover plate or an existing optional interface board positioned next to the main RS-232 and parallel interface connectors.

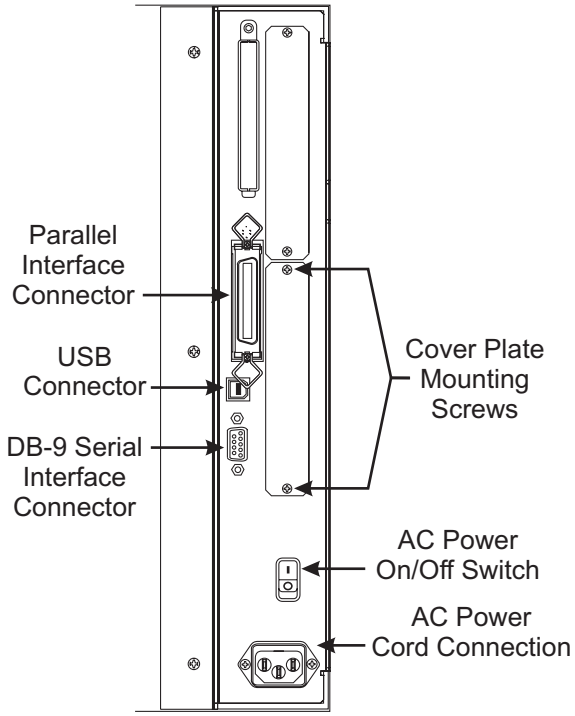


Figure 4-67. Cover Plate Rear View

4. Insert the ribbon cable and PrintServer II device through the mounting slot.
5. Refer to Figure 4-68. Fold the cable and the ferrite bead back over the mounting bracket, and connect the ribbon cable connector into the keyed interface data cable connector P21 on the main logic board. Ensure the connector is properly seated and pin 1 of the interface data cable connector is connected to pin 1 of P21.

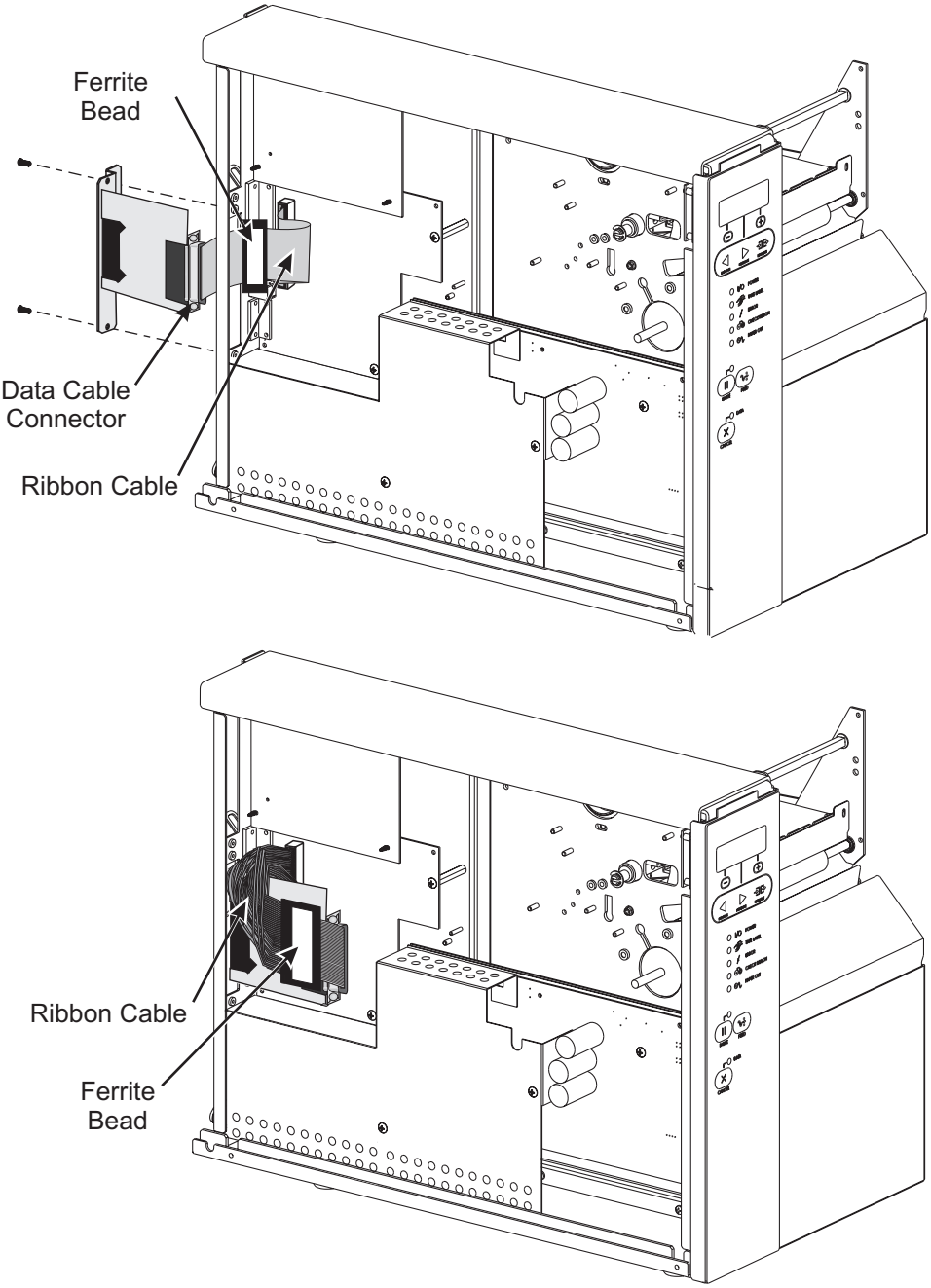


Figure 4-68. Internal PrintServer II Board Installation

6. Secure the PrintServer II interface board in place with the cover plate screws.
7. Check all connectors for firm connections. Reinstall the electronics cover.
8. This kit includes a label printed with the Ethernet MAC hardware address for the PrintServer II. Remove the liner from the label and affix it to the back of the printer.
9. Reconnect the AC power cord and turn the printer On (**I**).

Note • Consult your system administrator before configuring the PrintServer II for your network!

Install External PrintServer II

Hardware Description

Caution:

The printer electronics are susceptible to static discharge. Before proceeding, it is highly recommended the technician wear an antistatic wrist strap connected to the printer chassis.

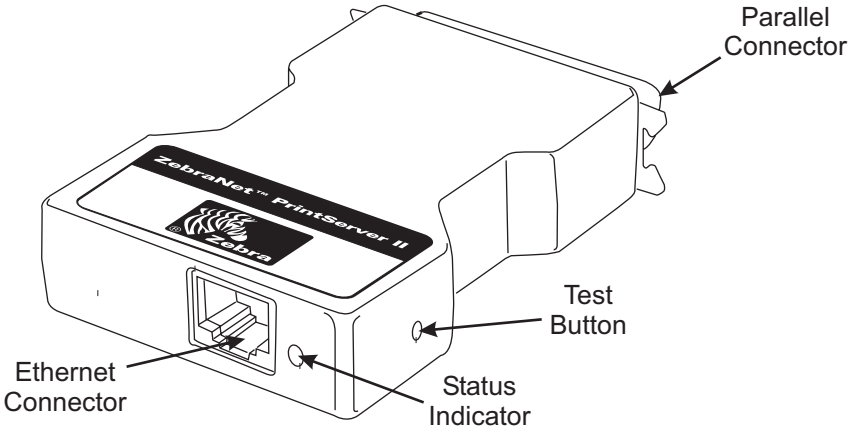


Figure 4-69. External PrintServer II

Test Button: This generates a detailed PrintServer II configuration label.

Status Indicator: A bicolored indicator displays the state of the PrintServer II.

Ethernet Connection: Connection for a 10Base-T cable. Connecting the PrintServer II does not interrupt network operation.

Parallel Connector: The external PrintServer II is powered by the printer; no additional power source is required.

Install the External ZebraNet PrintServer II

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

1. Turn the printer Off (**O**). Install the PrintServer II device directly into the parallel port on the printer and secure with the wire locks.
2. Insert an active 10Base-T cable into the Ethernet connector on the back of the PrintServer II device.
3. Turn the printer power On (**I**). The status indicator blinks orange during the Power-On Self Test phase and changes to green when stabilized.
4. Press the test button on the back of the PrintServer II to print a PrintServer II configuration label.

Note • To print a PrintServer II configuration label from your Zebra printer, a 4 in. wide by 6 in. long (100 mm wide by 150 mm long) label is recommended. If the label is smaller, some information may print outside the label edges. Some of the heading information on the right side of the label will not print. Refer to Figure 4-66 for any missing data.

Twinax Communications Interface Board

Install Instructions

Caution:

The printer electronics are susceptible to static discharge. Before proceeding, it is highly recommended that the technician wear an antistatic wrist strap connected to the printer chassis.

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

1. Refer to RRP No. 1 on page 4-14. Turn the power Off (**O**) and disconnect the AC power cord. Disconnect any data cables.
2. RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

3. Refer to Figure 4-70. At the rear of the printer, remove and retain the two screws and the blank cover plate or existing interface board positioned next to the main RS-232 and parallel interface connectors.

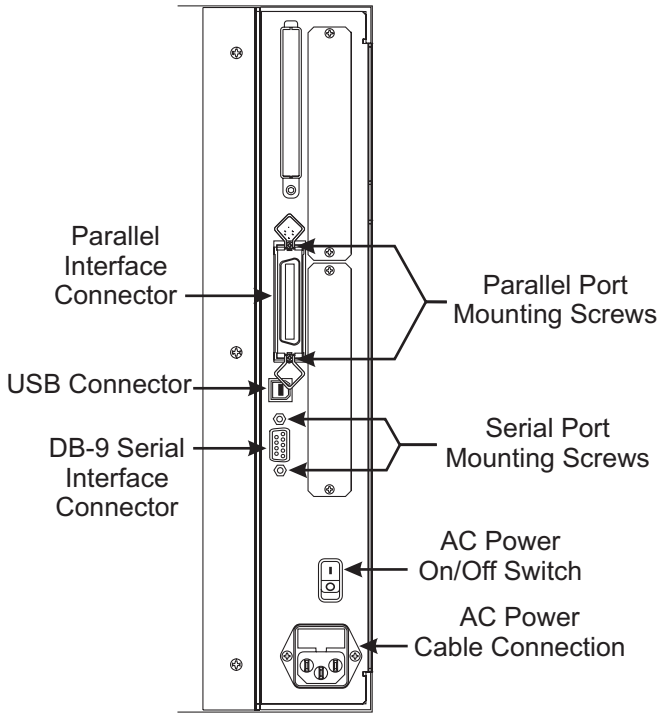


Figure 4-70. Rear View

4. Plug the 40-pin interface data cable into the keyed interface data cable connector P21 on the main logic board.
5. Insert the twinax interface board partially into the mounting slot, then attach the other end of the interface data cable into the data cable connector at the rear of the twinax interface board.
6. Dress the ribbon cable behind the twinax interface board as you slide the board completely into the printer.
7. Fasten the twinax interface board in place with the screws previously removed.
8. Reinstall the electronics cover.
9. Connect the 9-pin twinax adapter cable connector to the mating connector on the interface board.

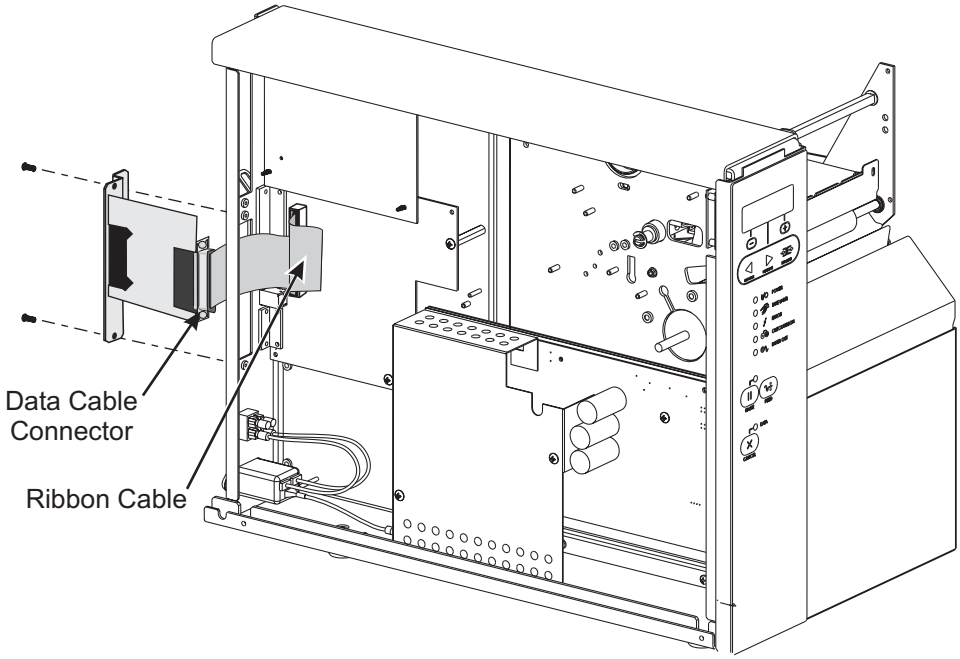


Figure 4-71. Twinax Interface Board Installation

10. Connect the twinax cable from the host computer to the mating connector on the adapter cable.
11. Refer to Table 4-4. Set the DIP switches in the proper positions for the application, then reconnect the AC power cord and turn the printer On (**I**).
12. Ensure that the printer configuration is set to:

Parameter	Setting
Host Port	Twinax/Coax

Table 4-4. Twinax Interface Board DIP Switch Settings

Print Complete	
Switch #1	**Description**
Left	An Operation Complete status message is sent to the host after a label format is completely printed. The host can then send the next label format to be printed.
Right	Enables the Early Print Complete function. The host can send additional print jobs to the Zebra printer without waiting for the actual completion of the current print job. The printing status sent to the host reflects the label formats received, not the ones completed.

EBCDIC Buffer Print	
Switch #2	**Description**
Left	Normal operation (received EBCDIC data is translated to ASCII Data).
Right	Received EBCDIC data print as large characters that are readable hex equivalents. Use only for troubleshooting the printer in Diagnostic Mode.

Printer Emulation Selections		
Switch #3	**Switch #4**	**IBM Printer Configured**
Left	Left	5256 Model 3
Left	Right	5225 Model 4
Right	Left	5224 Model 2
Right	Right	4212 Model 2

Default Language Selections				
Switch #5	**Switch #6**	**Switch #7**	**Switch #8**	**Language Selected**
Left	Left	Left	Left	0—Multinational
Left	Left	Left	Right	1—USA/Canada (Factory setting)
Left	Left	Right	Left	2—Austria/Germany
Left	Left	Right	Right	3—Belgium
Left	Right	Left	Left	4—Brazil
Left	Right	Left	Right	5—Canada (French)
Left	Right	Right	Left	6—Denmark/Norway
Left	Right	Right	Right	7—Finland/Sweden
Right	Left	Left	Left	8—France
Right	Left	Left	Right	9—Italy
Right	Left	Right	Left	A—Japan
Right	Left	Right	Right	B—Japan (English)
Right	Right	Left	Left	C—Portugal
Right	Right	Left	Right	D—Spain
Right	Right	Right	Left	E—Spanish-Speaking
Right	Right	Right	Right	F—United Kingdom

Note • The language character sets 1 — US/Canada and B — Japan (English) are the same. The character sets for D — Spain and E — Spanish-Speaking are the same.

Table 4-4. Twinax Interface Board DIP Switch Settings (Continued)

Cable Address Switch Settings			
Switch #9	**Switch #10**	**Switch #11**	**Address Selected**
Left	Left	Left	0 — (Factory Setting)
Left	Left	Right	1
Left	Right	Left	2
Left	Right	Right	3
Right	Left	Left	4
Right	Left	Right	5
Right	Right	Left	6
Right	Right	Right	7— (Use in Diagnostic Mode Only)
Star Panel Overdrive			
Switch #12	**Description**		
Left	Normal Operation		

13. Send a sample label format from the host computer to the printer to test for proper operation.

After setting the DIP switches, turn the printer Off (**O**) and On (**I**). With the exception of DIP switch #2, the printer monitors the positions of the DIP Switches only during the Power-On Self Test.

The EBCDIC Buffer Print function is enabled whenever DIP Switch #2 is placed in the right position.

Coax Communications Interface Boards

Caution:

The printer electronics are susceptible to static discharge. Before proceeding, it is highly recommended the technician wear an antistatic wrist strap connected to the printer chassis.

Install

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

1. Refer to RRP No. 1 on page 4-14. Turn the power Off (**O**) and disconnect the AC power cord. Disconnect the data cable.
2. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

3. Refer to Figure 4-70. At the rear of the printer, remove and retain the two screws and the blank cover plate or existing interface board positioned next to the main RS-232 and parallel interface connectors.

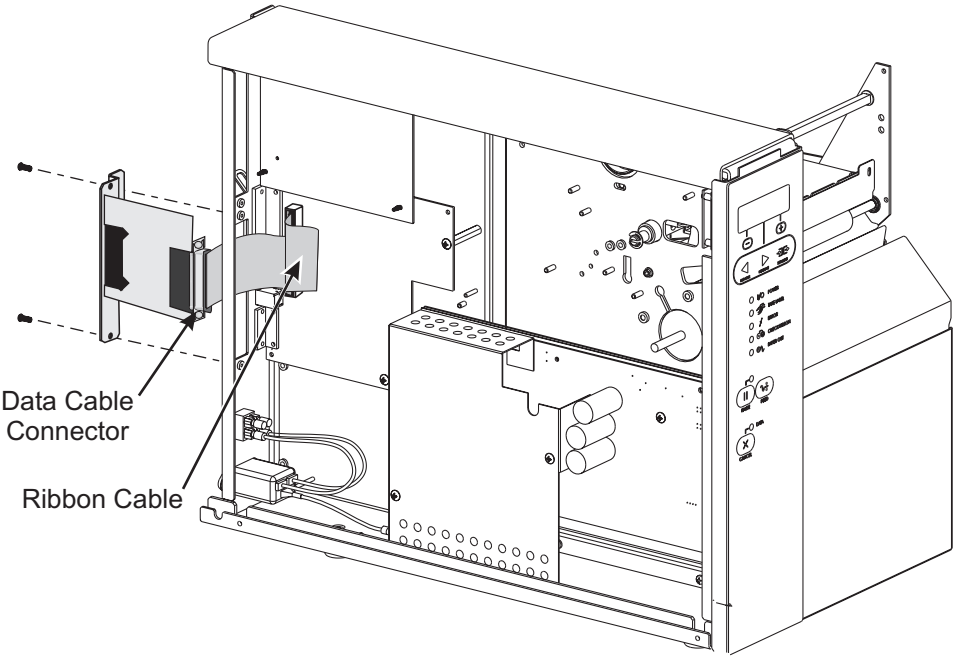


Figure 4-72. Coax Communications Interface Board Installation

4. Plug the 40-pin interface data cable into the keyed interface data cable connector P21on the main logic board.

5. Insert the coax interface board partially into the mounting slot, then attach the other end of the interface data cable into the data cable connector at the rear of the coax interface board.
6. Dress the ribbon cable behind the coax interface board as you slide the board completely into the printer.
7. Fasten the coax interface board in place with the screws removed in step 2.
8. Reinstall the electronics cover.
9. Connect the 9-pin coax adapter cable connector to the mating connector on the interface board.
10. Connect the coax cable from the host computer to the mating connector on the adapter cable.
11. Set the DIP switches in the proper positions for the application refer to Table 4-5, then reconnect the power cord and turn printer On (**I**).
12. Ensure that the printer configuration is set to:

Parameter	Setting
Host Port	Twinax/Coax

13. Send a sample label format from the host computer to the printer to test for proper operation.

Table 4-5. Coax Interface Board DIP Switch Settings

Test Mode				
Switch #1	**Description**			
Left	Normal label printing operation.			
Right	When printer power is applied, the coax interface performs a self test. A self test label printout lists the coax interface software revision, the selected language, results of the RAM/ROM tests, and a sample Code 39 bar code.			
EBCDIC Buffer Print				
Switch #2	**Description**			
Left	Normal operation (received EBCDIC data is translated to ASCII Data).			
Right	Received EBCDIC data prints as large characters that are readable hex equivalents. Use only for troubleshooting the printer in Diagnostic Mode.			
Default Language Selections				
Switch #3	**Switch #4**	**Switch #5**	**Switch #6**	**Language Selected**
Left	Left	Left	Left	0—Multinational
Left	Left	Left	Right	1—USA/Canada (Factory setting)
Left	Left	Right	Left	2—Austria/Germany
Left	Left	Right	Right	3—Belgium
Left	Right	Left	Left	4—Brazil
Left	Right	Left	Right	5—Canada (French)
Left	Right	Right	Left	6—Denmark/Norway
Left	Right	Right	Right	7—Finland/Sweden
Right	Left	Left	Left	8—France
Right	Left	Left	Right	9—Italy
Right	Left	Right	Left	A—Japan
Right	Left	Right	Right	B—Japan (English)
Right	Right	Left	Left	C—Portugal
Right	Right	Left	Right	D—Spain
Right	Right	Right	Left	E—Spanish-Speaking
Right	Right	Right	Right	F—United Kingdom

Note • The language character sets 1 — US/Canada and B — Japan (English) are the same. The character sets for D — Spain and E — Spanish-Speaking are the same.

Table 4-5. Coax Interface Board DIP Switch Settings (Continued)

Test Mode		
Intervention Required Message		
Switch #7	**Description**	
Left	Inhibits the sending of the Intervention Required (IR) status message.	
Right	When a printer error condition is monitored by the coax interface for a period of at least 10 minutes, an Intervention Required (IR) status message is sent to the host.	
Switch #8	**Description**	
Left	An Operation Complete status message is sent to the host after a label format is completely printed. The host can then send the next label format to be printed.	
Right	Enables the Early Print Complete function. The host can send additional print jobs to the printer without waiting for the completion of the current print job. The printing status sent to the host reflects the label formats received, not the ones completed.	
Buffer Size Selection		
Switch #9	**Switch #10**	**Description**
Left	Left	3564 Byte buffer
Left	Left	3440 Byte buffer
Left	Right	1920 Byte buffer
Left	Right	960 Byte buffer
Switch #11	Not Active	
Switch #12	Not Active	

After setting the DIP switches, turn the printer Off (**O**) and On (**I**). With the exception of DIP switch #2, the printer monitors the positions of the DIP Switches only during the Power-On Self Test.

The EBCDIC Buffer Print function is enabled whenever DIP Switch #2 is placed in the right position.

Applicator Interface Port

Caution:

The printer electronics are susceptible to static discharge. Before proceeding, it is highly recommended that the technician wear an antistatic wrist strap connected to the printer chassis.

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**) and disconnect the AC power cord data cable.
2. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

3. Refer to Figure 4-70 and remove the screws and the blank cover plate (or the interface board and cables) installed next to the PCMCIA memory card slot. (Save the screws.)
4. Attach the power cable to J5 on the applicator circuit board, then connect interface data cable to J4 as needed.
5. Refer to Figure 4-73. Insert the applicator circuit board and cable partially into the mounting slot. Connect the other end of the interface data cables to one of the open serial data connectors on the main logic board P30–P36 and the power cable to one of the open connectors (J5) on the power supply board.
6. Slide the applicator circuit board completely into the mounting slot, and secure it with the screws previously removed.
7. Reinstall the electronics cover.
8. Reinstall the AC power cord and turn the printer On (**I**).

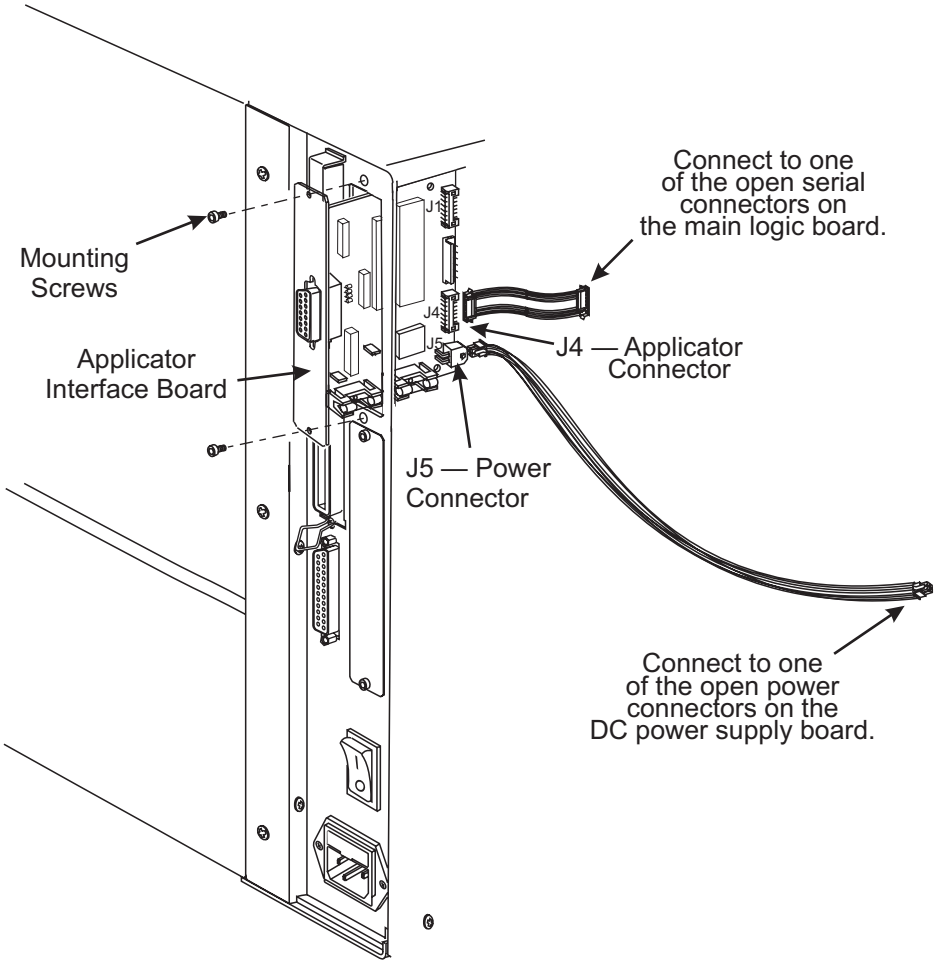


Figure 4-73. Applicator Installation

Optional Cutter Kit

Adding the Cutter Option (Zebra part number 41353) to this printer requires the installation of several parts and assemblies and should be performed only by a qualified service technician.

The service technician must follow all of the step-by-step procedures provided in these instructions.

Table 4-6. Cutter Parts List

✓	Item	Qty	Part Number	Description
	1	4	**HW30391-003**	Screw 4-40 (only available in quantities of 25)
	2	1	**49730M**	Cutter Option Circuit Board
	3	1	**49604-010**	Cutter Power Cable
	4	1	**49600-012**	Cutter Data Cable
	5	1	**31313**	Sensor Clamp
	6	1	**01822**	Nut
	7	1	**46618M**	Cutter Optical Sensor Assembly
	8	1	*N/A*	Cutter Module Assembly
	9	4	**HW30392-004**	Screw 6-32 (only available in quantities of 50)
	10	1	**46224**	Grommet
	11	1	**30374M**	Cutter Motor Assembly
	12	2	**30394-005**	Screws (Motor Mounting)
	13	1	**47385**	Cutter Catch Tray Kit
	14	1	**30405-006**	Screw, 1/4-20 × 0.38
	15	1	**HW02133**	E-Ring (only available in quantities of 50)
	16	1	*N/A**	Drive Link Assembly
	17	1	**30449**	Allen Wrench, 5/64 in.
	18	1	**44632‡**	Ferrite Core

N/A = Not available as a separate part (listed for identification purposes only).

* See the parts breakdown in “Maintenance and Assembly Drawings” on page 5-29.

Bold=Part available for purchase
Light italic = Part not available for purchase, listed and shown for reference only

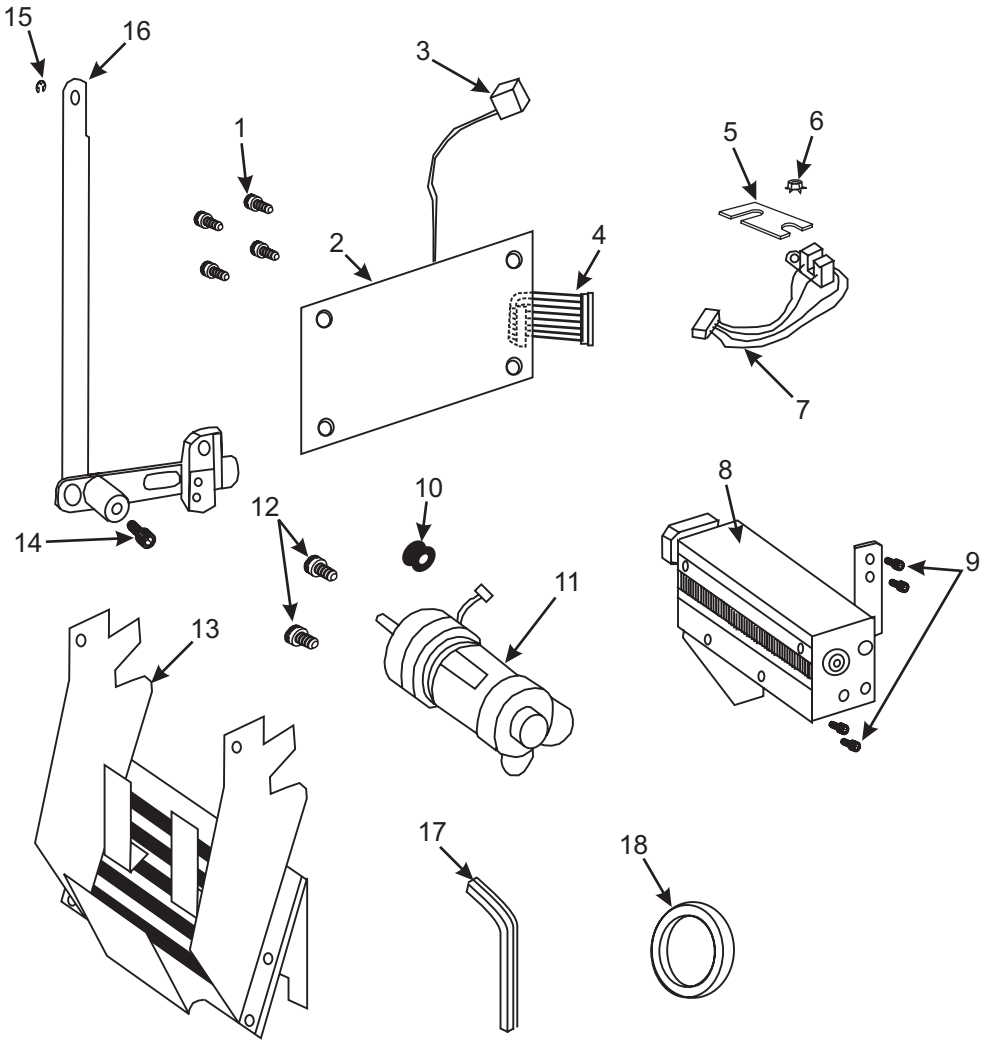


Figure 4-74. Part Identification Cutter Option

Note • Refer to Table 4-6. The lock washer, nut, E-ring, and screws are not shown.

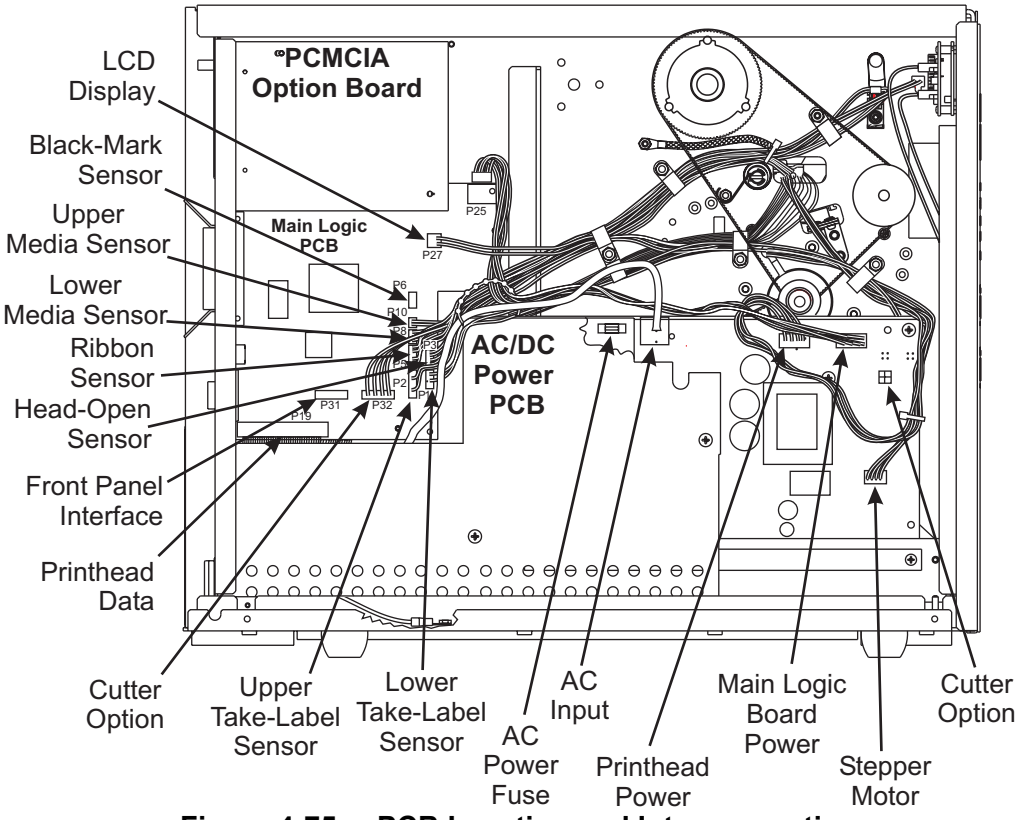


Figure 4-75. PCB Location and Interconnections

Disassemble the Printer

The printer must be partially disassembled to install the parts in this kit.

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**) and remove the power cord. Disconnect the printer communications cable.
2. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

This installation must be performed by a qualified service technician.

3. Refer to RRP No. 3 on page 4-17. Note and remove all connectors from the AC/DC power supply assembly.

Note • For part identification, see Table 4-6.

Install the Cutter Motor

Note • The cover plates and cover plate mounting screws are not reused.

1. Refer to Figure 4-76. Open the media access door. Remove the cutter assembly cover plate.
2. Remove the cutter motor cover plate.

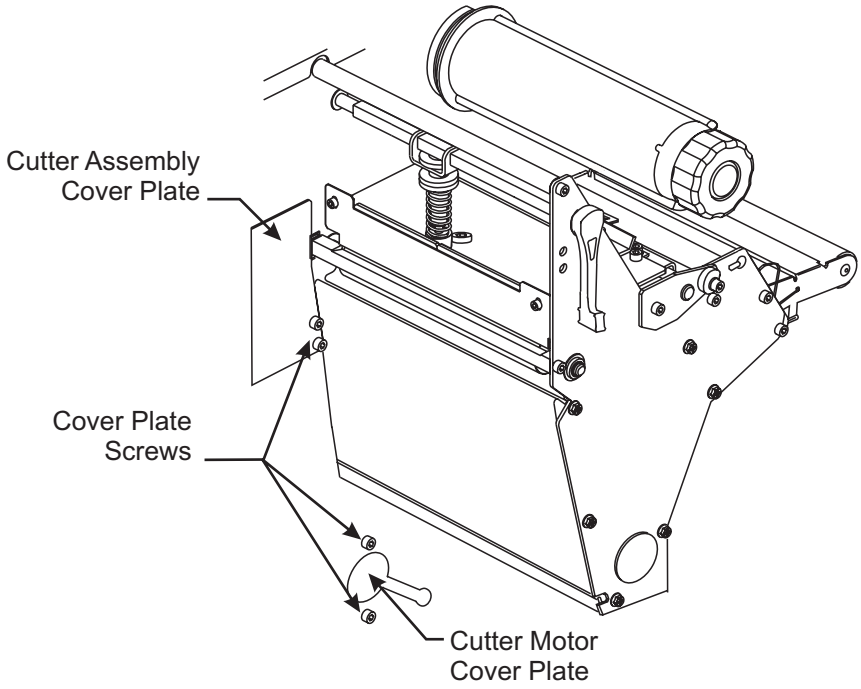


Figure 4-76. Cover Plate Locations

3. Refer to Figure 4-77. Pass the cutter motor leads through the slit in the rubber grommet (**10**). Insert the grommet into the slot located in the lower right area of the motor mounting hole and slide it into the small hole. The electrical connector must be on the electronics side of the printer. Rotate the grommet so the cut is facing away from the motor.
4. With the motor shaft going through the main frame install the cutter motor in the main frame align the holes in the motor with the mounting holes in the main frame.
5. Secure the motor to the main frame using the two motor mounting screws (**12**).

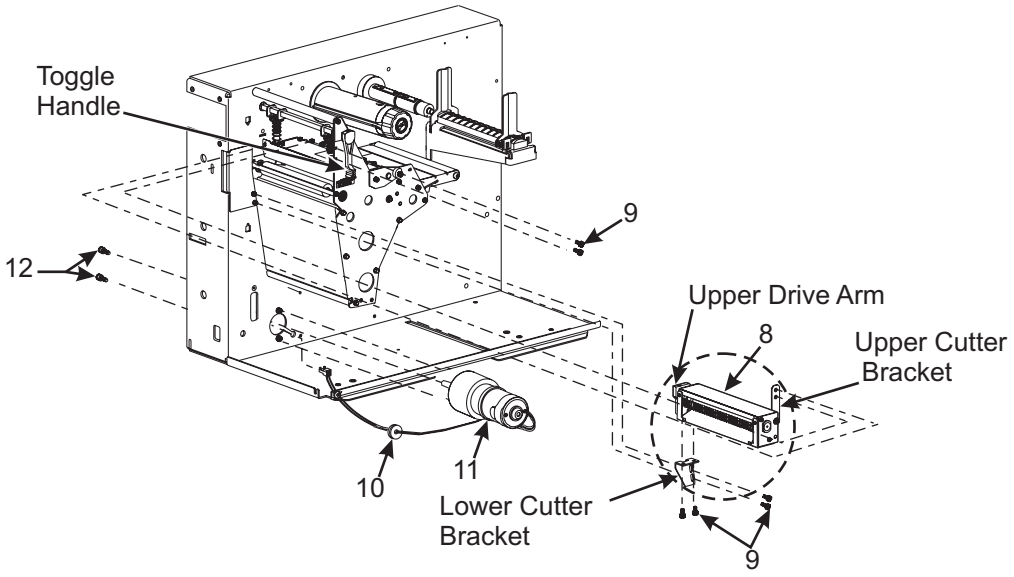


Figure 4-77. Mechanical Side Assembly

Install the Cutter Mechanical Assembly

1. Refer to Figure 4-77. Locate the cutter mechanism. The upper cutter bracket at the right rear corner of the cutter is placed in a horizontal position for shipping. Loosen the mounting screw and rotate the bracket to a vertical position and snug up the screw. Do not tighten.
2. Under the left end of the cutter, loosen the two screws that secure the lower cutter bracket to the cutter support bracket.
3. Refer to Figure 4-78. Install the cutter mechanism partially into the main frame Position the upper cutter bracket so the threaded holes are inside the side plate and aligned with the two holes in the side plate near the toggle handle.

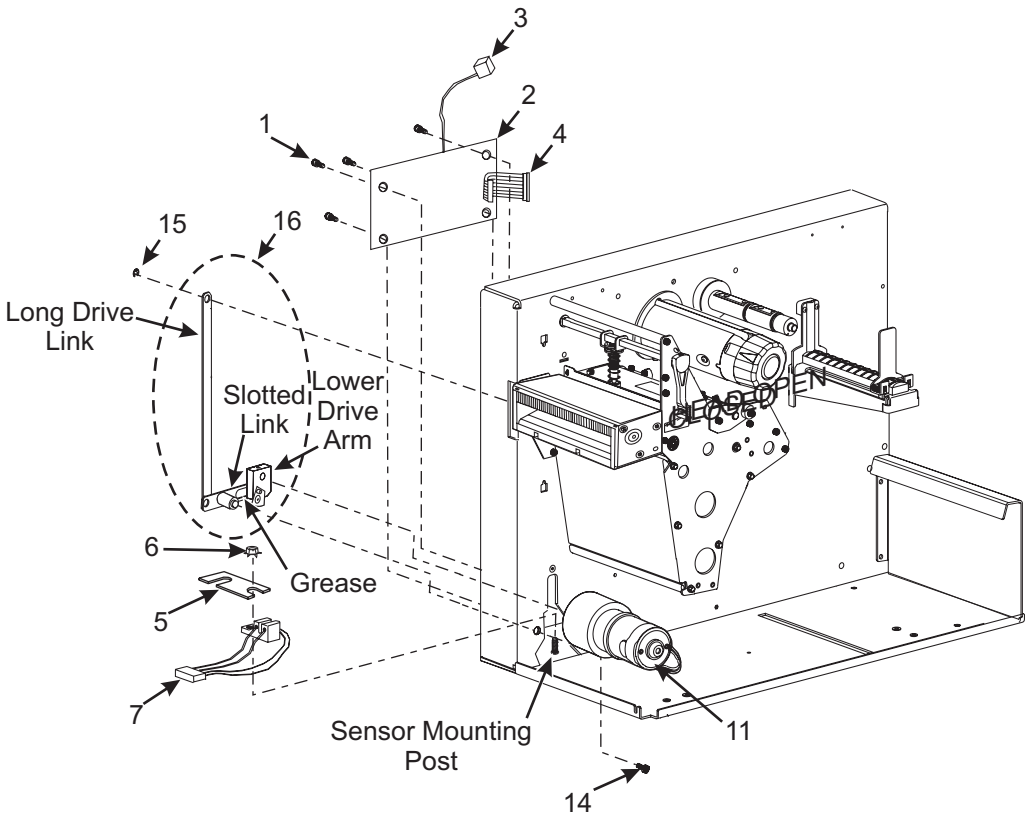
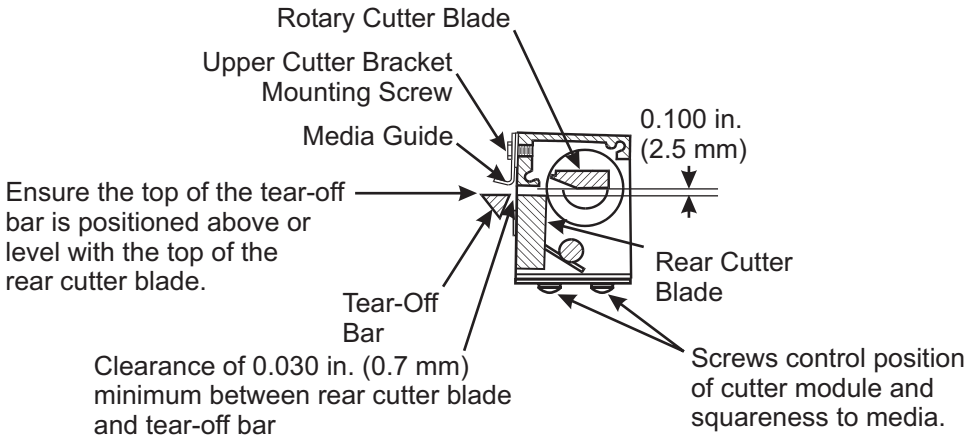


Figure 4-78. Linkage and Circuit Board Installation

4. Loosely attach the upper bracket to the side plate with two screws (**9**).
5. Align the slots in the lower cutter bracket with the threaded holes in the main frame and loosely attach the bracket with two screws (**9**).
6. Refer to Figure 4-79. Open the printhead and observe the position of the tear-off bar (in front of the platen roller) and the rear cutter blade. Align the rear cutter blade parallel to the outer edge of the tear-off bar across the entire width of the media path. The cutter mechanism must be positioned as far forward as possible while maintaining parallelism with the tear-off bar. This should prevent interference of the rear cutter blade with the tear-off bar. Tighten all mounting screws.



Relative position of the rotary cutter blade when the drive link assembly is stopped by the optical sensor, when the power is On (**I**) in Cutter Mode.

Figure 4-79. Position Cutter Mechanical Assembly

Notes • While tightening the upper cutter bracket mounting screw, be careful not to change the position of the media guide. If the media guide moves out of position, set its height so the lower edge is flush with the rear opening in the cutter mechanism.
The lower cutter blade is held in position by two springs. If these springs touch the tear bar or other printer parts, the lower cutter blade will not float properly and will cause excessive wear and premature failure of the cutter blades.

7. Check the clearance between the back of the cutter mechanism and the tear bar by inserting a screwdriver from the front of the cutter mechanism and press the top of the lower cutter blade toward the printer. The blade should move a minimum of 0.030 in. (0.7 mm). If necessary, loosen the four screws on the bottom of the cutter module and reposition the cutter mechanism away from the tear-off bar.

Note • For part identification, refer to Table 4-6.

Install the Drive Link Assembly

Refer to Figure 4-78.

1. Remove the screw from the mounting post on the drive link assembly (**14**). Attach the mounting post to the main frame using the screw just removed (**14**).
2. The upper drive arm is pre-assembled to the cutter module. Place the long drive link of the drive link assembly (**16**) over the connecting post on the upper drive arm and secure it with the E-ring (**15**).
3. Attach the lower drive arm of the drive link assembly (**16**) to the cutter motor shaft. Loosen the screws to ensure the lower drive arm rotates freely on the motor shaft.
4. Apply a small amount of grease to the slot in the drive link assembly (**16**) where the bearing will ride. Remove any excess grease to avoid damaging the optical sensor.

Install the Cutter Circuit Board and Optical Sensor

Caution:

The printer electronics are susceptible to static discharge. Before proceeding, it is highly recommended that the technician wear an antistatic wrist strap connected to the printer chassis.

1. Refer to Figure 4-80. Attach the power cable (**3**) to J2 on the cutter circuit board.
2. Attach the data cable (**4**) to J1 on the cutter circuit board.
3. Locate the four standoffs on the printer frame where the cutter board will be mounted.

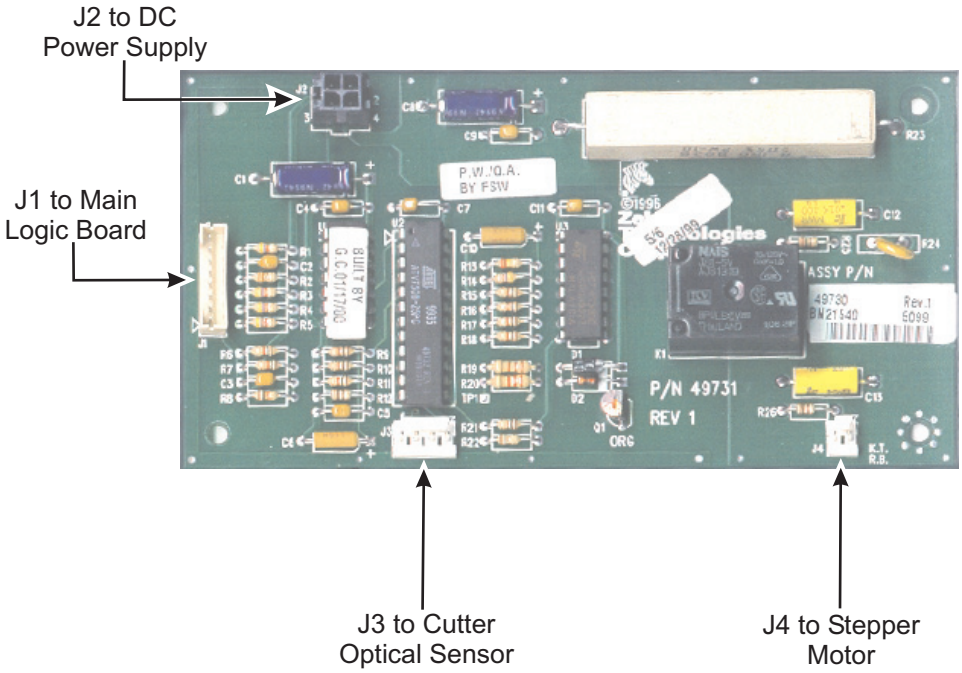


Figure 4-80. Cutter Option Circuit Board

4. Route the cutter motor leads between the two right-hand standoffs and out under the bottom of the circuit board.
5. Position the cutter circuit board over all four standoffs.
6. Install screw (**1**) through the lower right-hand circuit board mounting hole. Do not tighten at this time.
7. Install the three remaining mounting screws (**1**) and tighten all four screws.
8. Refer to Figure 4-81. Wind the motor leads around the ferrite core.

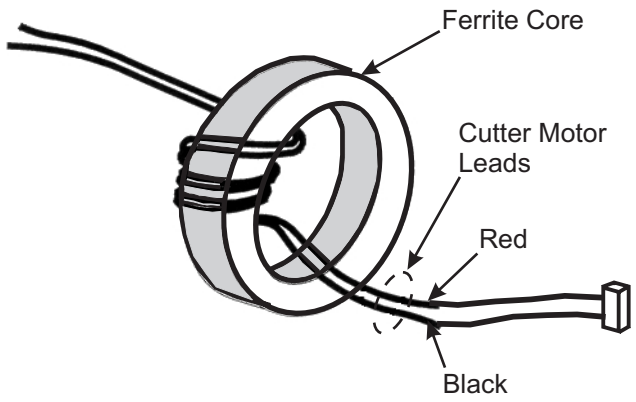


Figure 4-81. Cutter Motor Leads

9. Pass the cutter board power cable along the bottom of the printer frame toward the main logic board.
10. Plug the motor leads into the cutter motor connector J4 on the cutter circuit board with the black lead to the left. To minimize interference between components, wedge the top of the ferrite core under the cutter board relay.

11. Refer to Figure 4-74. Install the cutter optical sensor assembly (**7**) on the sensor mounting post. The sensor part of the assembly should be mounted toward the printer frame.
12. Place the sensor clamp (**5**) over the sensor and start the nut (**4**) on the post. Do not tighten the nut at this time.
13. Route the sensor leads under the clamp and toward the rear of the printer, and lightly tighten the nut to hold the wires in position. Be careful not to pinch the wires.
14. Refer to Figure 4-80. Plug the cutter sensor leads into the cutter opto connector J3 on the cutter circuit board.
15. Check the installation and ensure that no wiring touches any moving parts.
16. Refer to Align the Lower Drive Arm on page 4-59 and align the lower drive arm.
17. Refer to Retiming the Upper Drive Arm on page 4-60 to time the upper drive arm.
18. Refer to RRP No. 3 on page 4-17 and reinstall the AC/DC power supply.
19. Refer to RRP No. 2 on page 4-16 and reinstall the electronics cover.
20. Reconnect the AC power cord.
21. Turn the printer On (**I**). Enter Configuration Mode and set the printer to Cutter Mode. Save as PERMANENT and turn the printer Off (**O**).
22. Load media and ribbon, press and hold **PAUSE** while turning the printer On (**I**), and run labels through the printer.
23. Test the cutter for proper operation.

Printhead Test Option Kit

Access the Printer

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

Caution:

This installation must be performed by a qualified service technician.

Caution:

The printer electronics are susceptible to static discharge. Before proceeding, it is highly recommended that the technician wear an antistatic wrist strap connected to the printer chassis.

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**) and remove the power cord. Disconnect the printer communications cable.
2. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

3. Refer to Figure 4-82. Remove the three nuts securing the cable clamps. Remove and discard the one cable clamp noted in Figure 4-82.

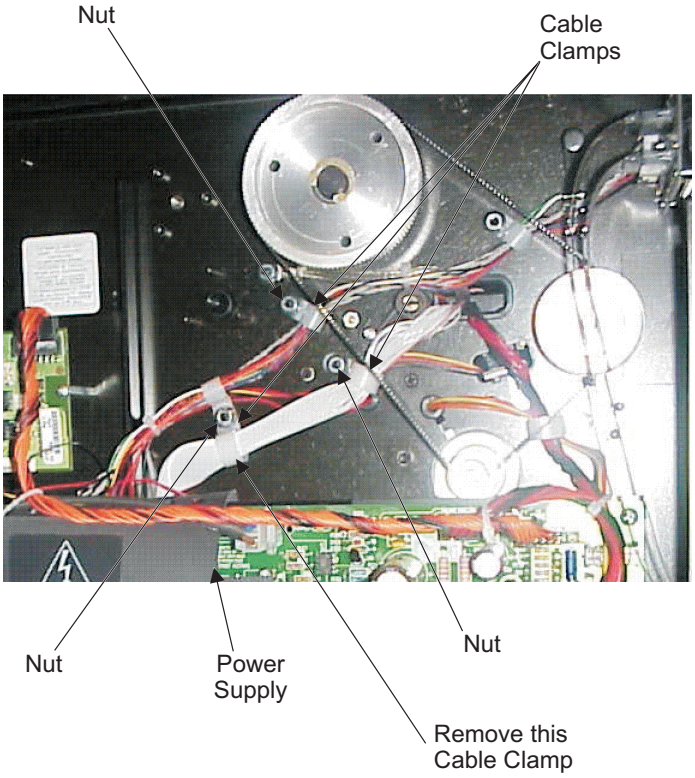


Figure 4-82. Cable Clamps

Install the Printhead Test Option

1. Refer to Figure 4-83. Install the three spacers supplied in the kit onto the three studs the nuts were on, leaving the three cable clamps under the spacers.
2. Route the printhead data cable as shown. Insert a cable tie through the cable clamp, around the spacer and printhead data cable, and then tighten the cable tie.

Note • Route the printhead data cable, as shown in Figure 4-83, is extremely important. Lock-ups and scrambled displays may result if the printhead data cable is routed incorrectly.

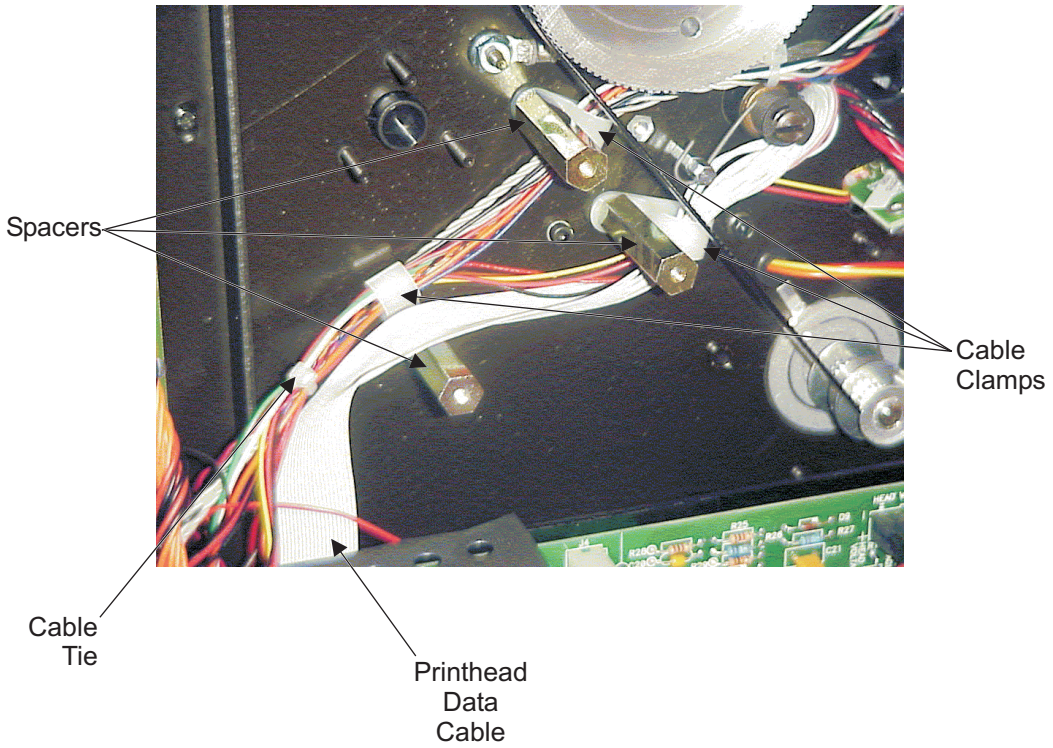


Figure 4-83. Locate Spacers

3. Refer to Figure 4-84. Install the Printhead Test Option Board using the three screws supplied in the kit.

Note • Ensure all connectors are facing out.

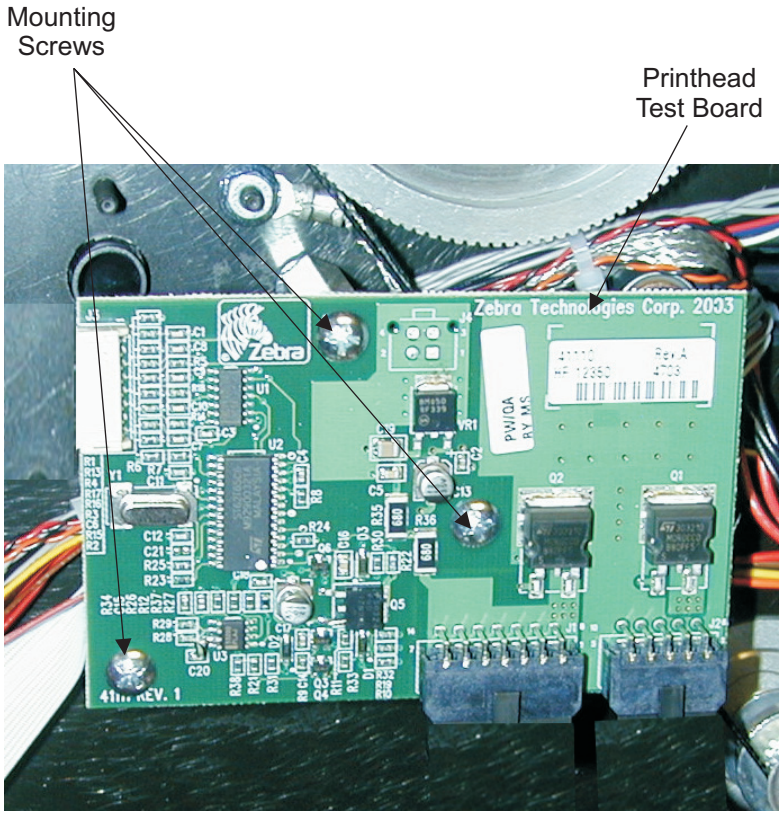


Figure 4-84. Install the Printhead Test Board

4. Refer to Figure 4-85. Cut and discard the cable ties and unplug the printhead power cable from the power supply (J3).

Note • Make a note of all the wires and locations of the cable ties; you will have to replace them later.

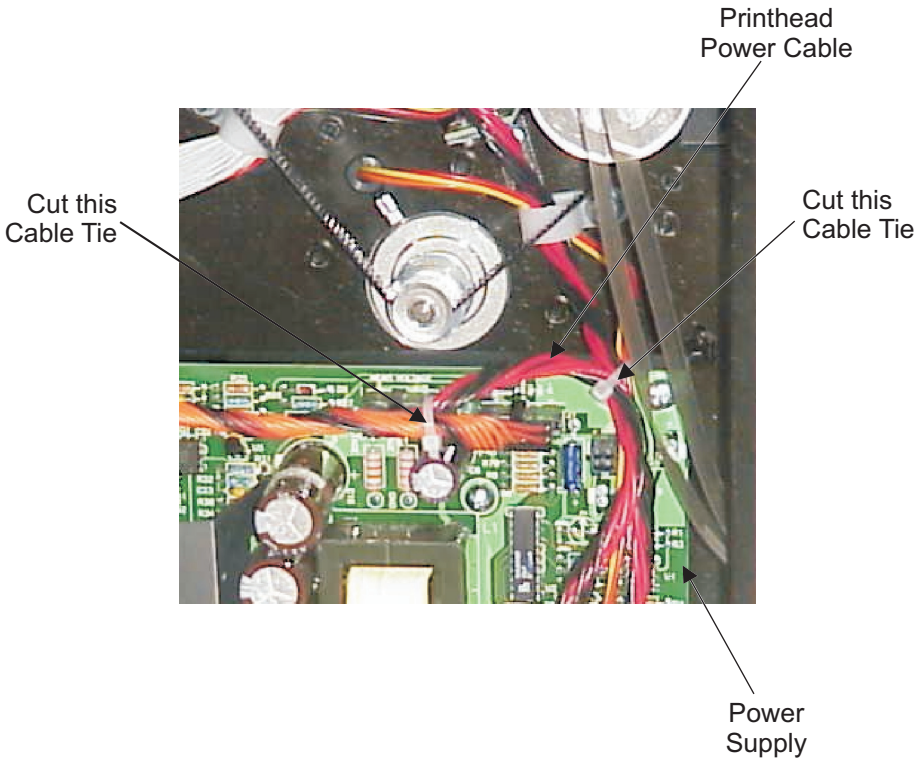


Figure 4-85. Remove the Printhead Power Cable

5. Refer to Figure 4-86. Install the printhead power cable into connector J2 of the printhead test board.
6. Install the large connector of the supplied short power cable into J1 of the printhead test board.
7. Install the small connector of the short power cable into the head voltage connector (J3) on the power supply board.
8. In front of J3 on the power supply board, install a cable tie around the printhead power cable, the short power cable, and the main logic board power cable as shown in Figure 4-86.

9. In the upper right corner of the power supply board, install a cable tie through the hole in the board and around the printhead power cable and the stepper motor power cable, then tighten the cable tie.

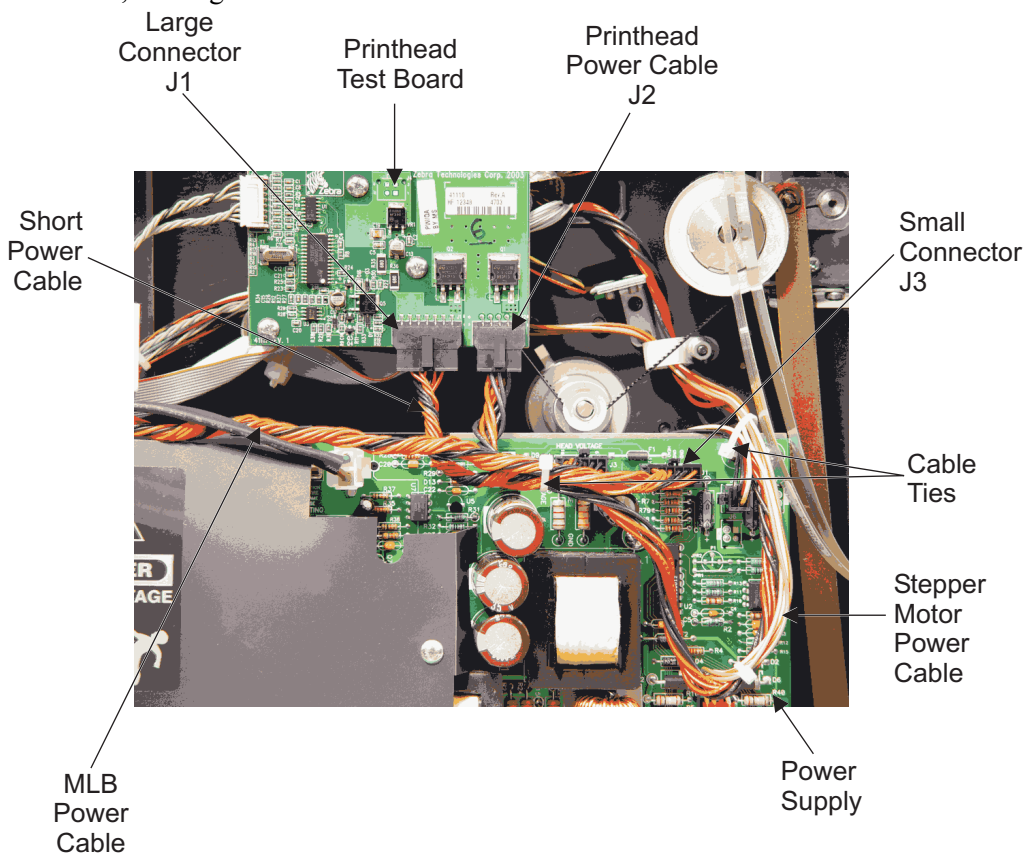


Figure 4-86. Install Short Power Cable

10. Refer to Figure 4-87. Connect the SPI (Serial Peripheral Interface) cable to J3 of the printhead test board.

11. Thread the other end of the cable through the cable tie in the upper left corner of the power supply board.

Note • If the connector of the SPI cable will not go through the cable tie, you can open the cable tie, then close and loosely tighten it.

12. Connect the open end of the SPI cable to the SPI connector P35 on the main logic board (MLB).

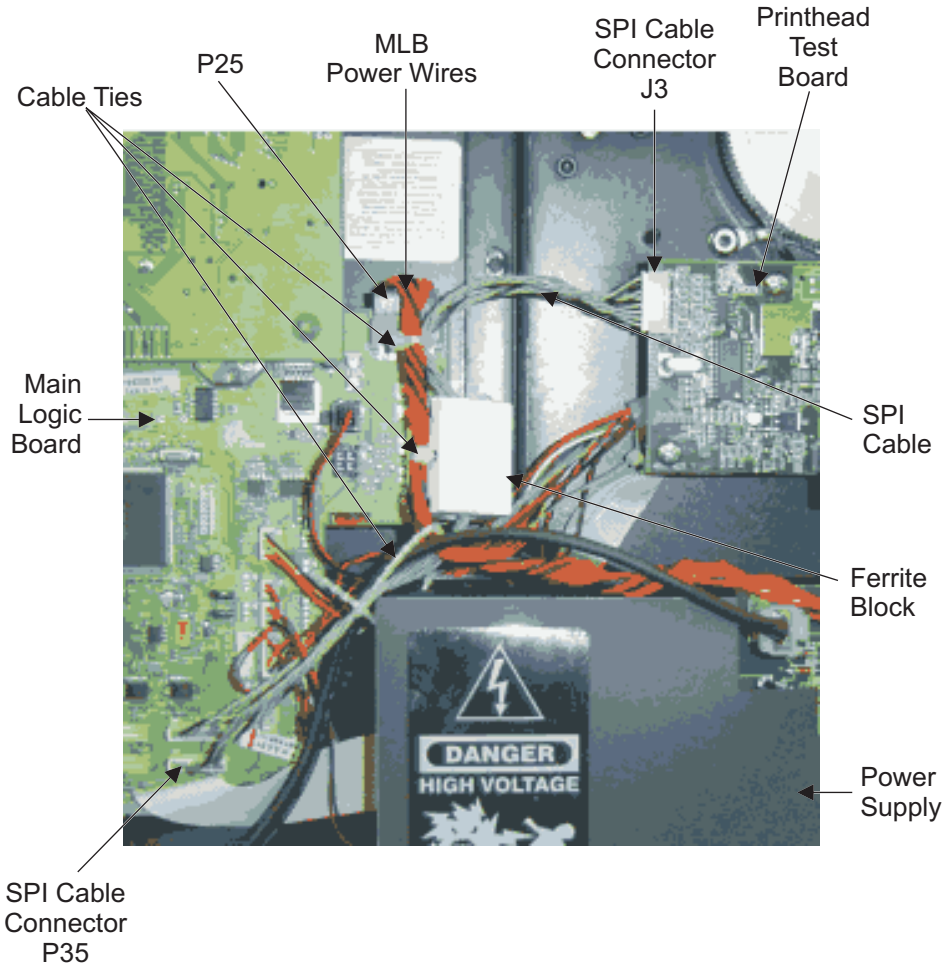


Figure 4-87. Install SPI Cable

13. In front of connector P25 of the MLB, bundle the SPI cable and MLB power wires as shown, then install a cable tie around them.
14. Attach the ferrite block to the MLB power wires as shown in Figure 4-87, using the cable tie attached to the ferrite block.
15. Open the ferrite block by lifting the lock assembly. Insert all wires of the SPI cable into the ferrite block, then close it, ensuring it snaps in the locked position.
16. Refer to RRP No. 2 on page 4-16 and reinstall the electronics cover.
17. Reinstall the AC power cord and data cables.

18. Refer to Figure 4-88. Press and hold **CANCEL** while turning On (**I**) the printer. A configuration label will print. Verify that the printhead test board has been recognized by checking the label for HEAD TEST COUNT being printed.

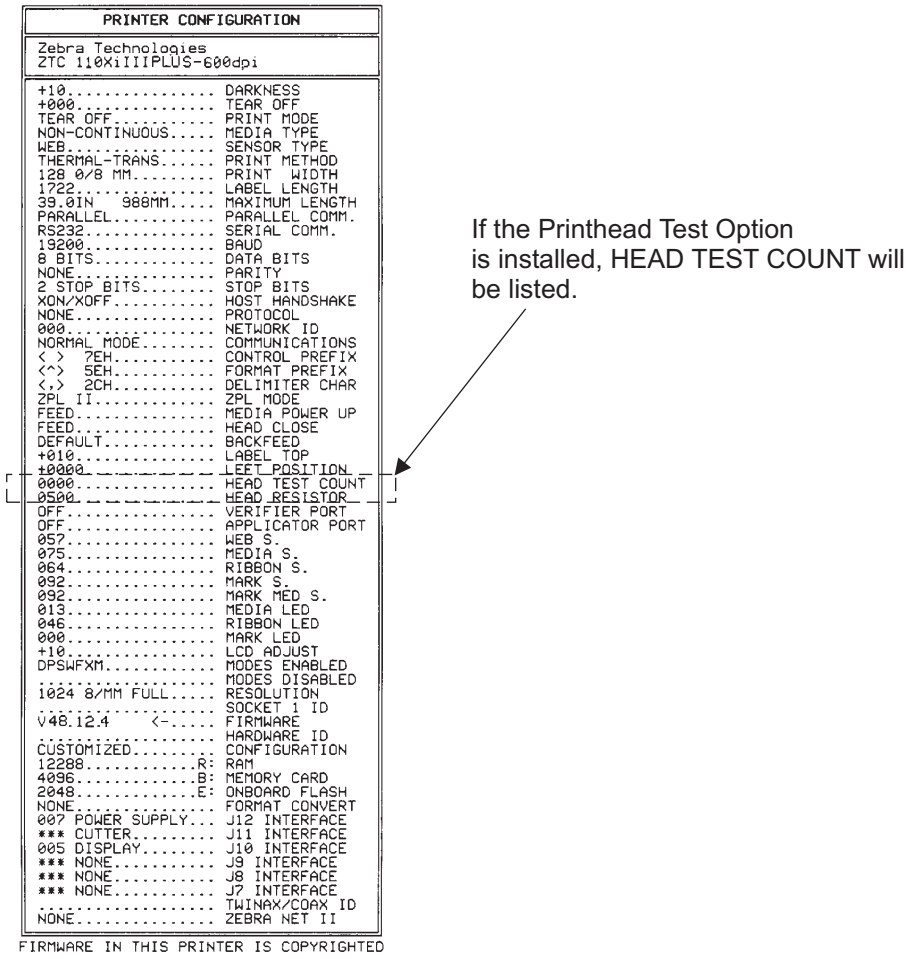


Figure 4-88. Configuration Label

Configuration Mode

The 110*Xi*III*Plus*, 600 dpi, with the printhead test option must have the printhead resistance entered into the configuration of the printer. See Remove the Printhead on page 4-29 and Install the Printhead on page 4-30.

Wireless PCMCIA and PCMCIA Option Board Assemblies

Access the Printer

Caution:

Unless indicated otherwise, turn the printer Off (**O**) and disconnect the printer from the power source before performing the following maintenance.

Caution:

This installation must be performed by a qualified service technician.

Caution:

The printer electronics are susceptible to static discharge. Before proceeding, it is highly recommended that the technician wear an antistatic wrist strap connected to the printer chassis.

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**) and remove the power cord. Disconnect the printer communications cable.
2. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Removing the Existing PCMCIA or Wireless PCMCIA Option Board Assemblies

1. Refer to Figure 4-9 on page 4-19. Remove the option card (if installed) from the card slot located at the rear of the printer.

The *Xi*III*Plus* has used two different means of securing the PCMCIA board to the main logic board (MLB).

PCMCIA Standoffs

Refer to Figure 4-89.

1. **Two plastic locking standoffs:**

   Remove the screw securing the PCMCIA/wireless board to a metal standoff on the printer chassis.

   a. Remove the screw securing the PCMCIA/wireless board to a metal standoff on the printer chassis.
   b. Disconnect the PCMCIA/wireless board from two plastic standoffs.
   c. Gently pull the PCMCIA/wireless board away from the MLB to disconnect the two connectors, P24 and P23, on the MLB.
   d. Replace the two plastic locking standoffs with two screws, spacers, and nuts. Refer to Figure 5-5 on page 5-15 and Table 5-5 on page 5-14.
   e. To install the new hardware, refer to Figure 4-90.

2. **Two screws, spacers, and nuts:**
   a. You must remove the MLB and PCMCIA/wireless boards from the printer together, and then separate them.
   b. Remove the screw securing the PCMCIA/wireless board to a metal standoff on the printer chassis.

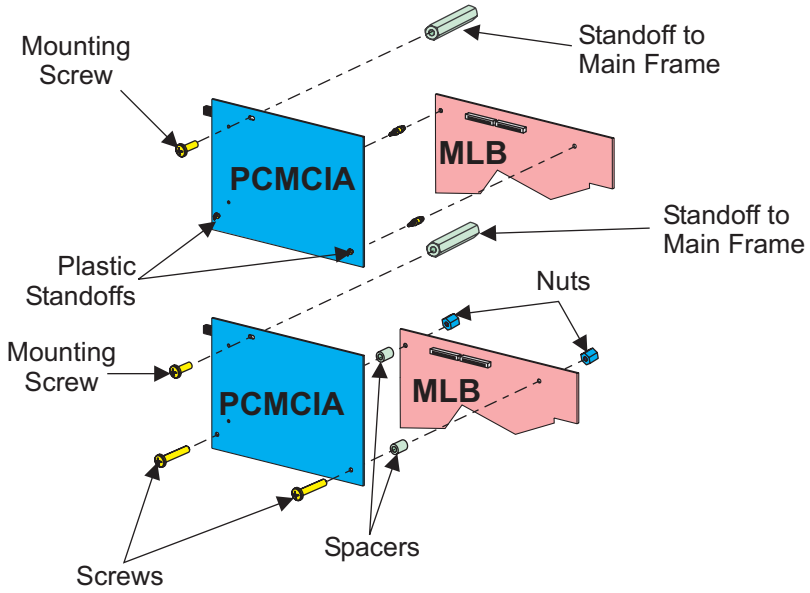


Figure 4-89. Standoffs

Install the Wireless PCMCIA or PCMCIA Option Board Assemblies

1. Refer to Figure 4-90. Align the two connectors on the wireless PCMCIA or PCMCIA Option board assemblies with P23 and P24 on the MLB and then push them together.

2. Slide one of the new spacers between the PCMCIA Option board and the MLB at either one of the mounting holes.

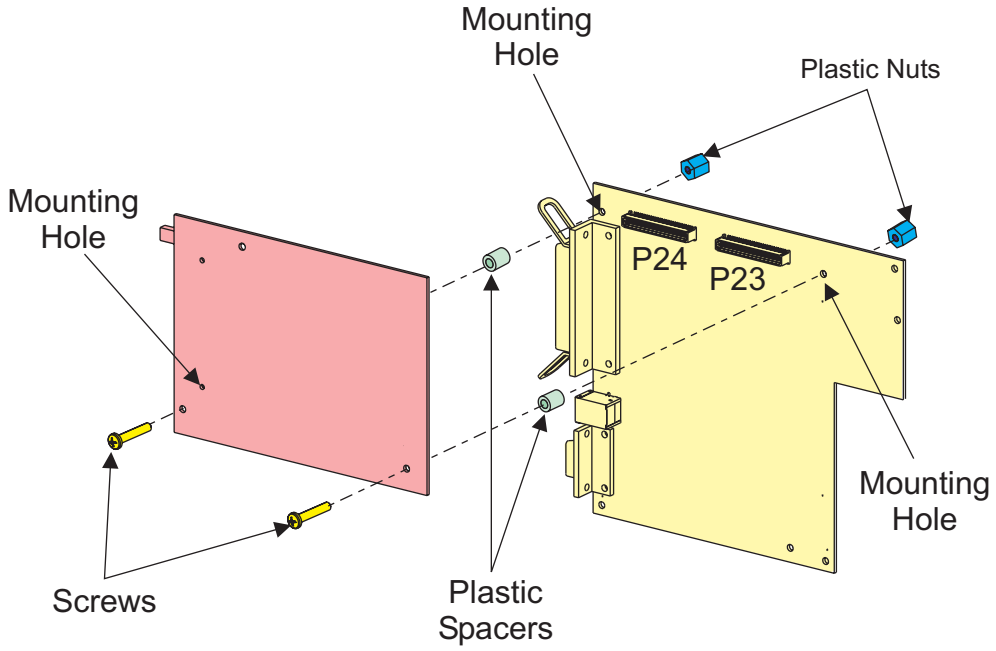


Figure 4-90. Install Spacers

3. Insert one of the screws through the mounting hole in the wireless PCMCIA board, spacer, and MLB.
4. Secure the screw with one of the plastic nuts.
5. Repeat steps 2, 3, and 4 for the other mounting hole.
6. Ensure that the PCMCIA option board is seated into the MLB connectors.
7. Install the PCMCIA Option board using the hardware previously removed.
8. Refer to Figure 4-9 on page 4-19. Reinstall the option card, if installed, back into the card slot in back of the printer.
9. Refer to RRP No. 2 on page 4-16 and reinstall the electronics cover.
10. Ensure the printer is turned Off (**O**) and reconnect the AC power cord.
11. Turn the printer On (**I**).

RFID Antenna Module Assembly

Remove the Antenna Module Assembly

Note • RFID kits are available for Zebra Authorized Service Providers only.

Note • Retain all parts removed during disassembly, unless otherwise directed.

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**) and remove the power cord. Disconnect the printer communications cable.
2. Open the media door, unlatch the printhead lever, and remove media and ribbon from the printer.
3. Refer to RRP No. 2 on page 4-16 and remove the electronics cover.

Caution:

The printer electronics are susceptible to static discharge. Before proceeding, it is highly recommended that the technician wear an antistatic wrist strap connected to the printer chassis.

4. Refer to Figure 4-91. Remove the three printhead support access panel screws and remove the panel.

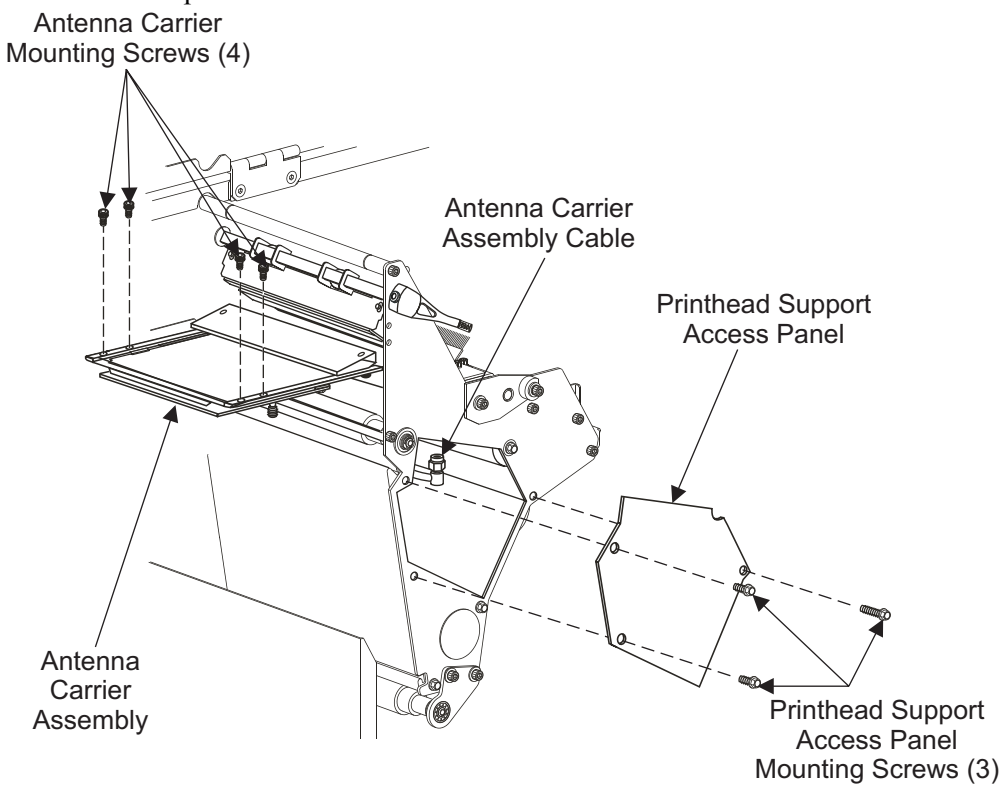


Figure 4-91. Remove/Install the Antenna Carrier Assembly

5. Disconnect the cable from the antenna carrier assembly.

6. From the front of the printer, remove the two antenna carrier assembly mounting screws.
7. Remove the antenna carrier assembly from the front of the printer.

Install the New Antenna Carrier Assembly

1. Refer to Figure 4-91. Install the new antenna carrier assembly by sliding the back of the assembly in first, then secure it using the mounting screws previously removed.
2. Connect the cable to the antenna carrier assembly.
3. Reinstall the mounting screws that secure the printhead support access panel to the printhead support.
4. Refer to RRP No. 2 on page 4-16 and reinstall the electronics cover.
5. Open the media door and reinstall media and ribbon.
6. Reconnect the data cables and AC power cord.
7. Turn the printer On (**I**).

RFID Power PC Board Assembly

Remove the RFID Power PC Board Assembly

Note • RFID kits are available for Zebra Authorized Service Providers only.

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**) and remove the power cord. Disconnect the printer communications cable.
2. Refer to RRP No. 2 on page 4-16 and remove the electronics cover

Caution:

The printer electronics are susceptible to static discharge. Before proceeding, it is highly recommended that the technician wear an antistatic wrist strap connected to the printer chassis.

3. Refer to Figure 4-92. Disconnect all connectors from the power PC board assembly.

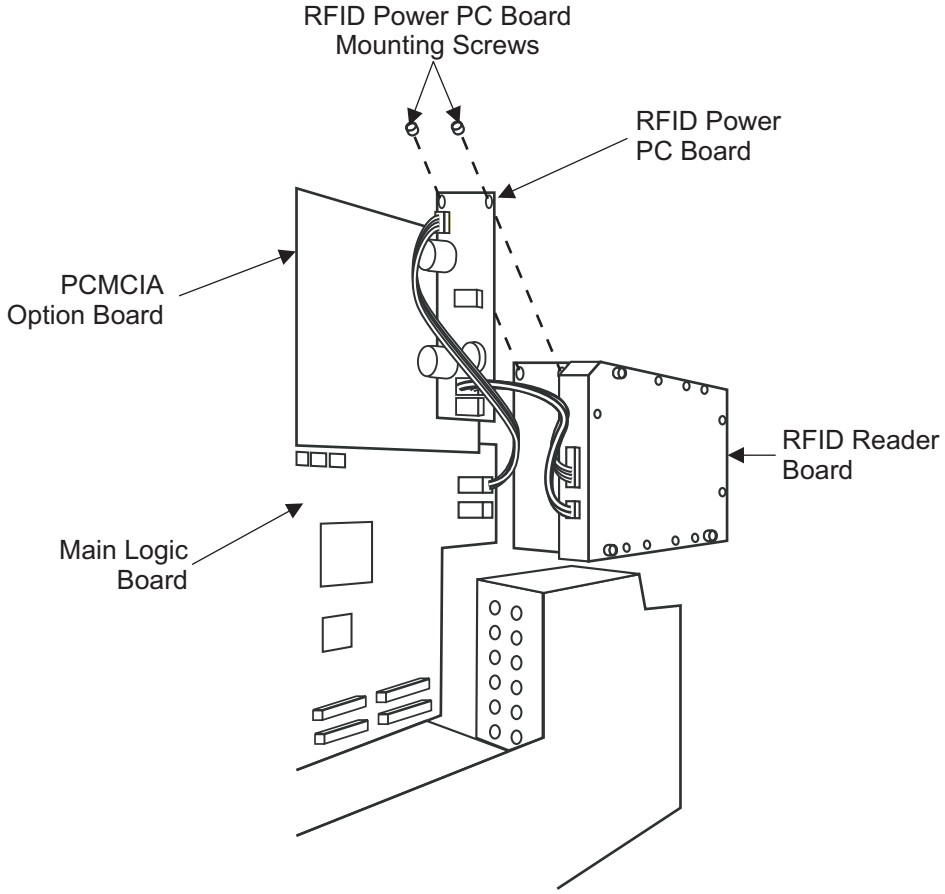


Figure 4-92. Remove and Install the Power PC Board Assembly

4. Loosen and remove the power PC board assembly mounting hardware. Retain the mounting hardware.
5. Remove the power PC board assembly from the printer.

Install Power PC Board Assembly

1. Refer to Figure 4-92. Mount the new power PC board assembly onto the printer using the previously removed mounting hardware.
2. Connect the harness from the main logic board and the harness from the reader PC board assembly to the new power PC board assembly.
3. Refer to RRP No. 2 on page 4-16 and reinstall the electronics cover.
4. Reconnect the data cables and AC power cord.
5. Turn the printer On (**I**).

RFID Reader Board

Remove the RFID Reader Board

Note • RFID kits are available for Zebra Authorized Service Providers only.

1. Refer to RRP No. 1 on page 4-14. Turn the printer Off (**O**) and remove the power cord. Disconnect the printer communications cable.
2. Refer to RRP No. 2 on page 4-16 and remove the electronics cover

Caution:

The printer electronics are susceptible to static discharge. Before proceeding, it is highly recommended that the technician wear an antistatic wrist strap connected to the printer chassis.

3. Refer to Figure 4-93. Disconnect the reader board harness from J2 on the power PC board assembly.

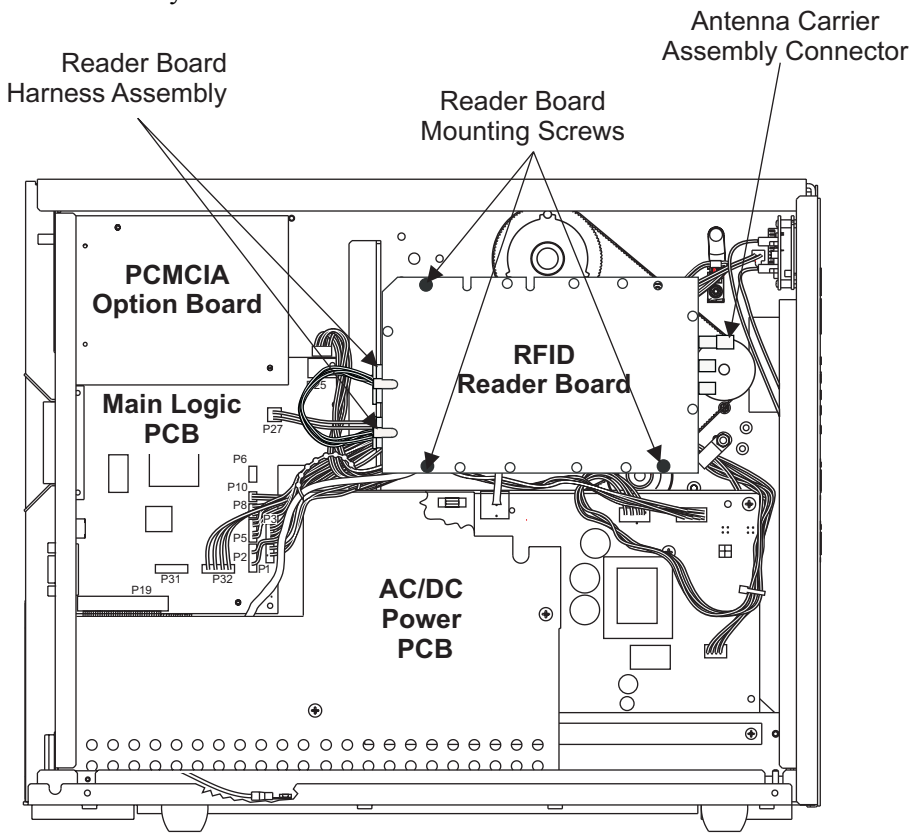


Figure 4-93. Remove and Install the Reader Board Assembly

4. Disconnect the antenna carrier assembly cable from the reader board assembly by twisting it off.
5. Loosen and remove the three reader board assembly mounting screws. Retain the mounting screws.
6. Remove the reader board assembly from the printer.

Install Reader PC Board Assembly

1. Remove the harness connectors from the old reader board assembly and connect them to the new reader board assembly.
2. Refer to Figure 4-93. Mount the new reader board assembly onto the printer using the previously removed mounting hardware.
3. Reconnect the antenna carrier assembly cable to the reader board assembly.
4. Refer to RRP No. 2 on page 4-16 and reinstall the electronics cover.
5. Reconnect the data cables and AC power cord.
6. Press and hold CANCEL while turning the printer On (**I**).
7. Release CANCEL after the DATA light turns off (approximately five seconds).

8. Refer to Figure 4-94. A configuration label prints, showing the RFID reader board is connected properly.

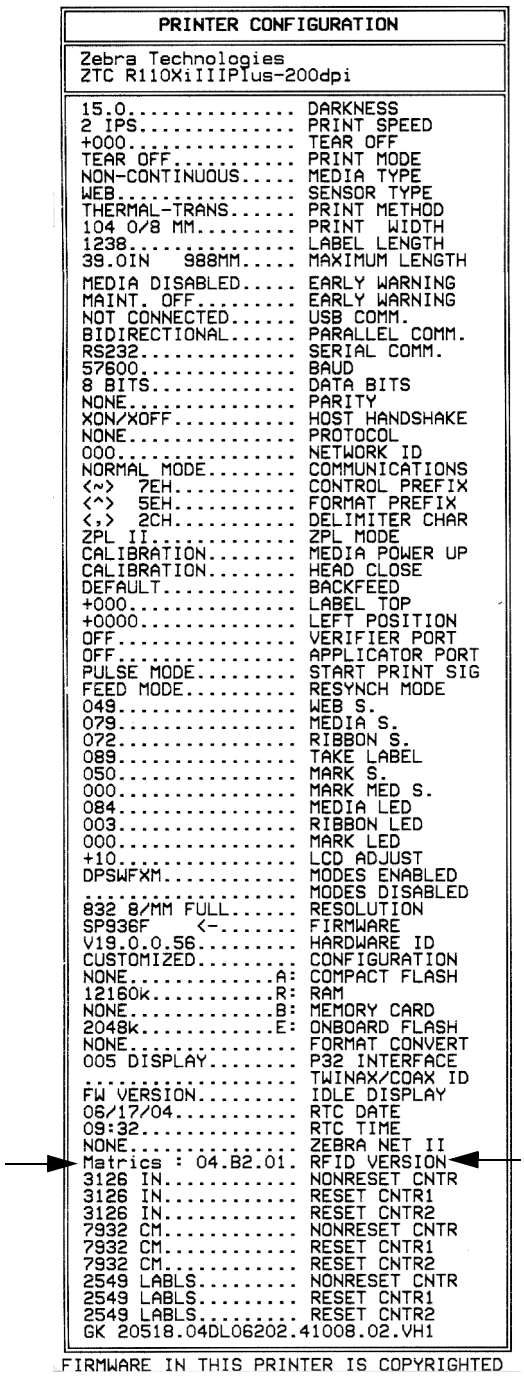


Figure 4-94. Configuration Label

Section 5
Maintenance and Assembly Drawings

Description

Use the mechanical assembly drawings when troubleshooting or replacing components and use the associated parts list when ordering replacement parts. Item parts that do not have associated part numbers are not available and need to be ordered using the next highest assembly number.

All parts shown in bold face are purchasable. All parts shown in light face italic are not purchasable, but may be available as part of a maintenance kit. Hardware shown in light face are not available as an individual part, but may be purchased as part of a hardware kit.

110*Xi*III*Plus*™

List of Figures

List of Tables

Table 5-1. Final Assembly Mechanical

Item	Part Number	Description	Qty
1	**46937**	Media Door with Window	1
1	**47077M**	Media Door Kit, Bi-fold with Window	1
2	**HW30392-004**	Screw, 6-32 × 0.25, Phillips head (only available in quantities of 50)	10
3	**47098**	Media Load Label	1
4	**01861**	Supplies Label	1
5	**46396-006**	Screw, 6-32 × 0.37, Phillips head	2
6	**30407-008**	Screw, 6-32 × 0.5, 3/64 Allen	4
7	**HW44114**	Screw, M4.2 × 8 Hilo (only available in quantities of 50)	10
8	**HW44356**	Washer, 0.198, 0.75 0.085 (only available in quantities of 25)	2
9	**32036M**	PCB Panel Maintenance Kit	1
10	**41021M**	Media Cover Maintenance Kit	1
11	**41002**	Name Plate	1
12	**22021**	Membrane Switch	1
13	**22492M**	Panel with Membrane Switch Maintenance Kit	1
14	**33036-5**	Front Cover	1
15	**32043M**	LCD, Back Light Maintenance Kit	1
16	**01130**	Nut, 6-32	3
17	**HW01152**	Washer (only available in quantities of 25)	3
18	**41003**	Lower Media Trim Panel	1
19	**HW30256-B**	Thumb Nut, 6-32 × 0.50 Brass (only available in quantities of 25)	2
20	**41042**	Front Cover Bracket	1
21	**41049**	Support Bracket	1

Bold=Part available for purchase
Italic=Part not available for purchase, listed and shown for reference only

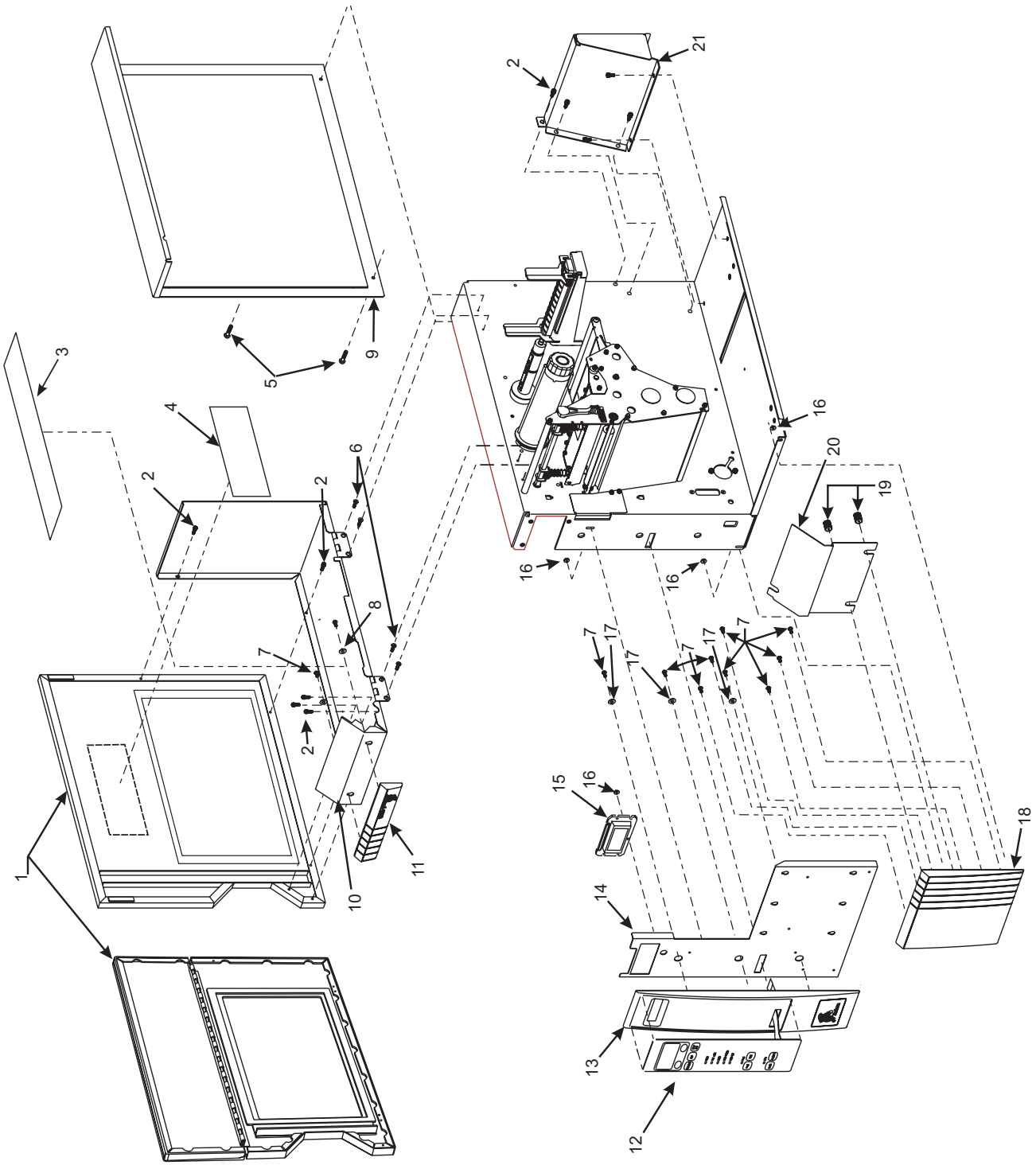


Figure 5-1. Final Assembly Mechanical

Table 5-2. Final Assembly Electrical

Item	Part Number	Description	Qty
1	**41008M**	Main Logic Board Maintenance Kit	1
2	**01130**	Hex Washer Head Nut, 6–32	5
3	**01117**	Cable-Clamp, 0.312	4
4	**06222**	Cable-Clamp, 0.50	2
5	**31336M**	RTU/MTU Pulley Maintenance Kit (203/300 dpi)	1
	33094-6M	RTU/MTU Pulley Maintenance Kit (600 dpi)	1
6	**45189-5**	Conductive Belt, 0.080P 235T (203/300 dpi)	1
	45189-12	Conductive Belt, 0.080P 245T (600 dpi)	1
7	**Q06020**	Cable-Tie, 0.09W × 3.62L	1
8	**40355M**	Platen Pulley Assembly Maintenance Kit (203/300 dpi)	1
	33079-6M	Platen Pulley Maintenance Kit (600 dpi)	1
9	**38226M**	Reflect Media Sensor Maintenance Kit	1
10	**46199M**	Stepper Motor w/Pulley Maintenance Kit (300 dpi)	1
	46198M	Stepper Motor w/Pulley Maintenance Kit (203 dpi)	1
	33084M	Stepper Motor Pulley Maintenance Kit (600 dpi)	1
11	**45189-2**	Conductive Belt, 0.080P 255T (203/300 dpi)	1
	45189-13	Conductive Belt, 0.080P 265T (600 dpi)	1
12	*33128*	CPU Power Cable	1
13	*33141*	Printhead Power Cable (203/300 dpi)	1
	47640	Printhead Power Cable (600 dpi)	1
14	**30914M**	Peel-Off Pulley Maintenance Kit (203/300 dpi)	1
	47915M	Peel-Off Pulley Maintenance Kit (600 dpi)	1
15	**33050M**	AC/DC Power Supply Maintenance Kit (203/300 dpi)	1
	41055M	AC/DC Power Supply Maintenance Kit (600 dpi)	1
16	*41070*	Shield	1
17	**46396-006**	Screw	2
18	**31336M**	Pulley Ribbon Take-up/Media Take-up Maintenance Kit	1
19	*33127-12*	AC Power Cable	1
20	**49616-5.0**	Fuse, 5 A 5 × 20 Fast Blow	1
21	**04393**	Beaded Cable-Tie	1
22	**33037M**	PCMCIA Board Maintenance Kit	1
22	**79094**	Wireless PCMCIA Board	1
23	**41110M**	Printhead Test Maintenance Kit (Not Illustrated)	1

Bold=Part available for purchase
Italic=Part not available for purchase, listed and shown for reference only

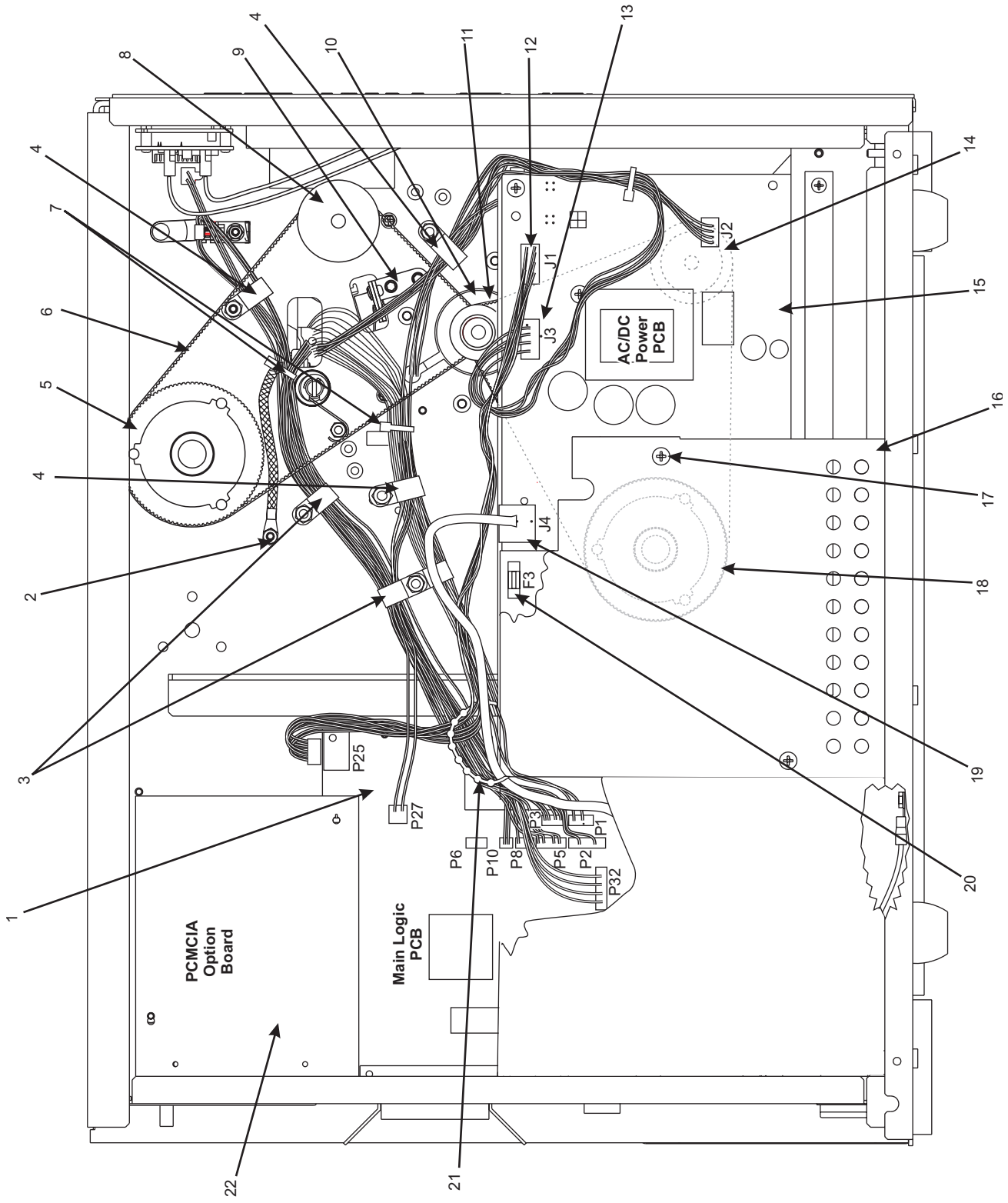


Figure 5-2. Final Assembly Electrical

Table 5-3. Print Mechanism Assembly 110*Xi*III*Plus* (View 1)

Item	Part Number	Description	Qty
1	**HW30392-004**	Screw, 6–32 × 0.25 (Available in quantities of 50)	13
2	**REF**	Tri Mount Shoulder	1
3	**46352M**	Flag Maintenance Kit	1
4	**01130**	Nut, 6–32 Hex Washer Head	1
5	**22613M**	Head Open Switch Assembly Maintenance Kit	1
6	**30266**	Head Lift Spring Stop	1
7	**40462**	Media Take-up Sensor Cover	2
8	**HW06268**	Lock Washer #6 (Available in quantities of 25)	3
9	**HW30392-006**	Screw, 6–32 × 0.37 (Available in quantities of 25)	2
10	**HW48023**	Bearing, 0.313 × 0.190 × 0.375 (Available in quantities of 25)	1
11	**47009-11**	Roller, 0.37 0.312 × 5.437	1
12	**30007-12**	Roller, Shaft 0.185 × 5.5	1
13	**HW44001**	Self-Tap Screw, M3.5 × 11mm with 5mm Head (Available in quantities of 25)	11
14	**40355M**	Platen Pulley Maintenance Kit	1
	33079-6M	Platen Pulley Maintenance Kit (600 dpi)	1
15	**22004-2**	Spacer	1
16	**38226M**	Reflective Media Sensor Maintenance Kit	1
17	**30007-12**	Roller Shaft 0.185 × 5.500 (600 dpi printers only)	1
18	**48011-9**	Roller 5.440 (600 dpi printers only)	1
19	**HW30256-B**	Thumb Nut (Available in quantities of 25)	1
20	**41305M**	Media Guide Assembly	1
21	**30033**	Adjustable Media Guide	1
22	**46267**	Hole Plug, 0.5 Diameter × 0.125 thick	12
23	**46091**	Grommet, for a 1.25 × 0.625 cutout	1
24	**30023**	Cutter Cover Plate	1
25	**46224**	Rubber Grommet, 0.312 × 0.34 × 0.109	1
26	**46199M**	Stepper Motor and Pulley Maintenance Kit (300 dpi)	1
	46198M	Stepper Motor and Pulley Maintenance Kit (203 dpi)	1
	33084M	Pulley Maintenance Kit (600 dpi)	1
27	**HW30393-006**	Screw, 8–32 × 0.37 (Available in quantities of 25)	4
28	**49688**	Flanged Ball Bearing, 0.5 × 0.250 × 0.125	2
29	**HW30105**	Nylon Bearing, 0.312 × 0.251 × 0.078 (Available in quantities of 25)	1
30	**HW46105**	Nylon Bearing, 0.312 × 0.251 × 0.140 (Available in quantities of 25)	1
31	**41028**	Peel/Tear-Off Bar	1
32	**41011M**	Platen Roller Maintenance Kit (203/300 dpi)	1
	41016M	Platen Roller Maintenance Kit (600 dpi)	1
33	**02252**	Crescent Ring, 0.250 Yel	2

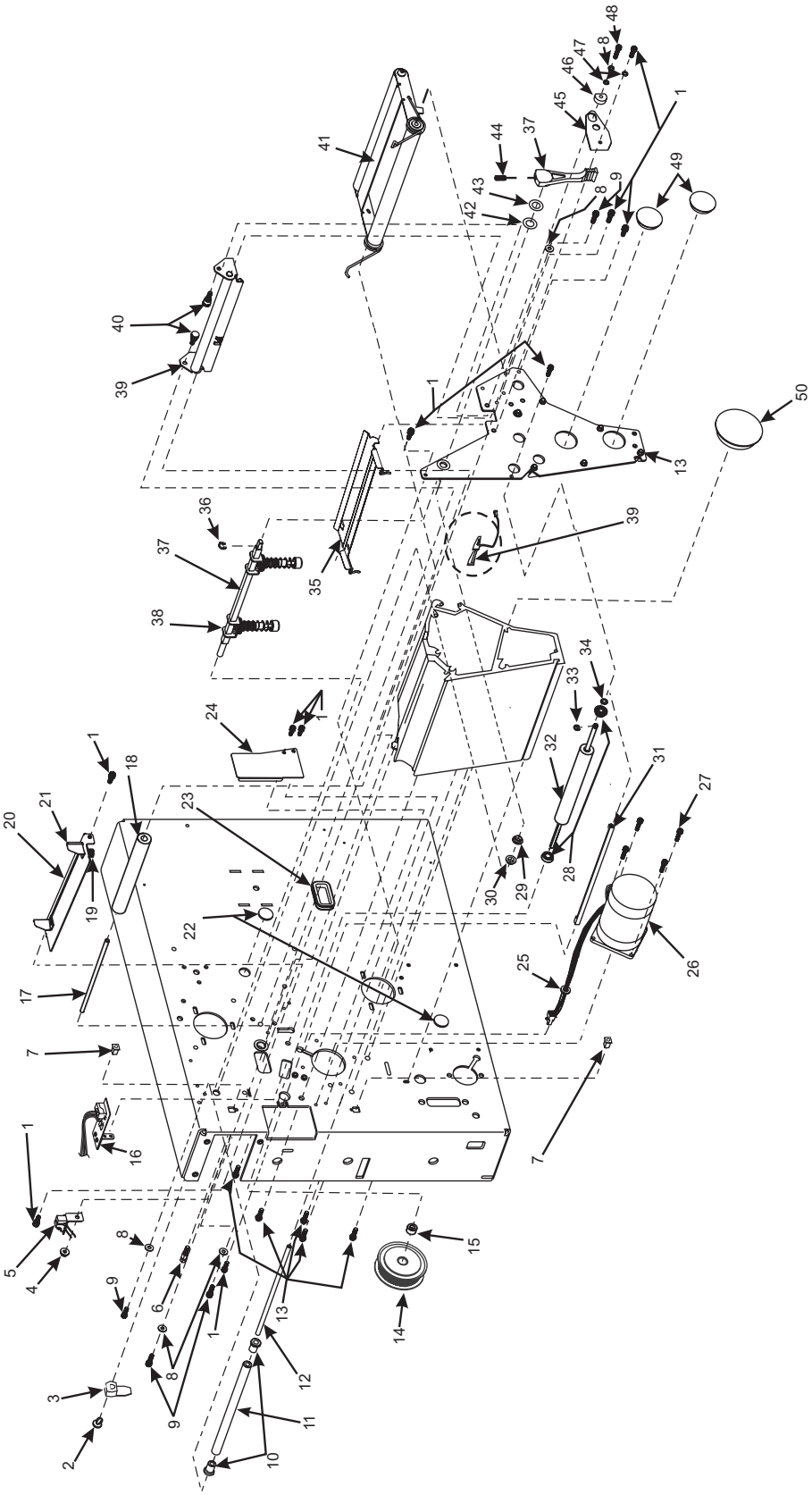


Figure 5-3. Print Mechanism (View 1)

Table 5-3. Print Mechanism Assembly 110*Xi*III*Plus* (View 1) (Continued)

Item	Part Number	Description	Qty
34	**HW30247**	Washer, 0.420 × 0.260 × 0.0747	1
35	**41043**	Upper Media Guide (Snap Plate) (203/300 dpi)	1
	41015	Upper Media Guide (Snap Plate) 600 dpi	1
36	**Q10019**	E-Ring, Ext, 0.250	1
37	**41022M**	Pivot Bar Maintenance Kit	1
38	**35099M**	Toggle Assembly Maintenance Kit	2
39	**41302M**	Media Sensor Maintenance Kit (Includes Upper and Lower Sensor)	1
40	**HW48411**	Thumb Screw (Available in quantities of 10)	2
41	**41691M**	Dancer Arm Assembly Maintenance Kit, w/Springs (200 and 300 dpi only)	1
42	**33189**	Washer	1
43	**HW07229**	Wave Washer, 0.49 × 0.33 × 0.0075 (Available in quantities of 50)	1
44	**30391-006**	Set Screw	1
45	**40248**	Shaft Wear Plate	1
46	**40154**	Eccentric Pin	1
47	**30956**	Flat Washer 0.207 × 0.146 × 0.030	2
48	**HW30392-008**	Screw, 6-32 × 0.50 (Available in quantities of 25)	1
49	**30826**	Hole Plug	2
50	**30255**	Hole Plug	1

Bold=Part available for purchase
Italic=Part not available for purchase, listed and shown for reference only

NOTES:

Table 5-4. Print Mechanism (View 2)

Item	Part Number	Description	Qty
1	HW30118	E-Ring Ext, 0.500 × 0.042 (only available in quantities of 25)	1
2	31336M	RTU/MTU Pulley Maintenance Kit (203/300 dpi)	1
2	33094-6M	RTU/MTU Pulley Maintenance Kit (600 dpi)	1
3	46909	Spacer, 0.75 × 0.52 × 0.36	1
4	HW30114	Flat Washer, 0.76 × 0.51 × 0.03 (Available in quantities of 25)	1
5	HW30115	Wave Washer, 0.740 × 0.520 × 0.080 (Available in quantities of 25)	1
6	HW06250	E-Ring EXT, 0.312 Yel (Available in quantities of 25)	1
7	HW40027	Torsion Spring (Available in quantities of 25)	1
8	HW30106	Crescent Ring, External, 0.312 (Available in quantities of 25)	1
9	HW30393-006	Screw, 8–-32 × 0.37 (Available in quantities of 25)	6
10	HW40193	Flat Washer, 0.406 × 0.172 × 0.048 (Available in quantities of 25)	3
11	30405-006	Cap Screw, 1/4–20 × 0.75	1
12	HW30466	Washer, 0.26 × 0.63 × 0.06 (Available in quantities of 25)	1
13	41253M	Media Supply Spindle Maintenance Kit, 3–Inch (Optional)	1
13	41254M	Media Supply Spindle Maintenance Kit, 40mm (Optional)	1
14	HW30239	Washer, Crescent, 0.415 × 323 × 0.062 (Available in quantities of 25)	1
15	41151M	Spindle Ribbon Supply Maintenance Kit	1
16	41150M	Enhanced Ribbon Take-Up Upgrade Kit	1

Bold=Part available for purchase
Italic=Part not available for purchase, listed and shown for reference only

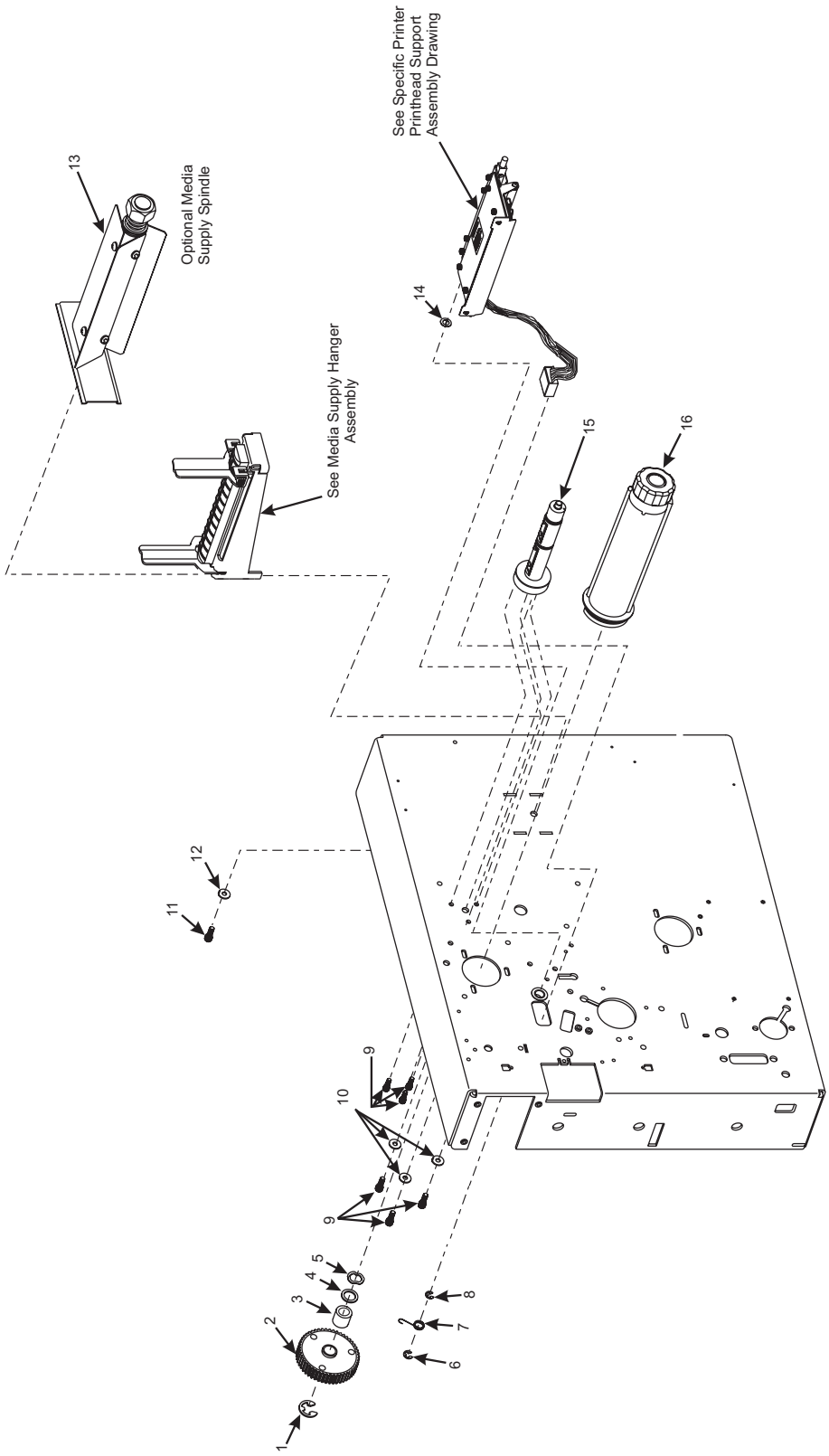


Figure 5-4. Print Mechanism (View 2)

Table 5-5. Print Mechanism (View 3)

Item	Part Number	Description	Qty
1	**33037M**	PCMCIA Card Socket Maintenance Kit	1
1	**79094**	Wireless PCMCIA Board	1
2	**HW22416**	Standoff 4-40 Hex	2
3	**HW01155**	Lock Washer, #6 (only available in quantities of 100)	4
4	**41008M**	Main Logic Board Maintenance Kit	1
5	**07696**	Screw, 4-40 × 0.31	2
6	**46392-006**	Truss Head Phillips Screw 6-32 × 0.37	7
7	**HW30391-003**	Screw, 4-40 × 0.19 (only available in quantities of 25)	4
8	**49013**	Option Board Cover	1
9	*46646*	Locking Spacer	1
10	**30236**	Screw, 4/40 × 0.25	3
11	*33123*	Power Switch	1
12	*33124*	Power Entry and Ground Wire	1
13	*33127-012*	Power Switch Cable	1
14	**33050M**	Power Supply Maintenance Kit	1
15	*41070*	Shield	1
16	**46396-006**	Screw, 6-32 × 0.37	2
17	**01130**	Nut, 6-32	2
18	*33059*	Insulation Pad	1
19	**46396-012**	Screw, 6-32 × 0.75	1
20	**HW07435**	Hex Lock Screw, 6-32 × 0.37 (only available in quantities of 25)	4
21	**HW46015**	Bumper (only available in quantities of 25)	4
22	*45798-010*	Screw, 4-40 x 10	2
23	*33291*	Spacer, 0.250 x 0.140 x 0.313	2
24	**78114**	Nut, 4-40 x 0.25 x 0.25	2

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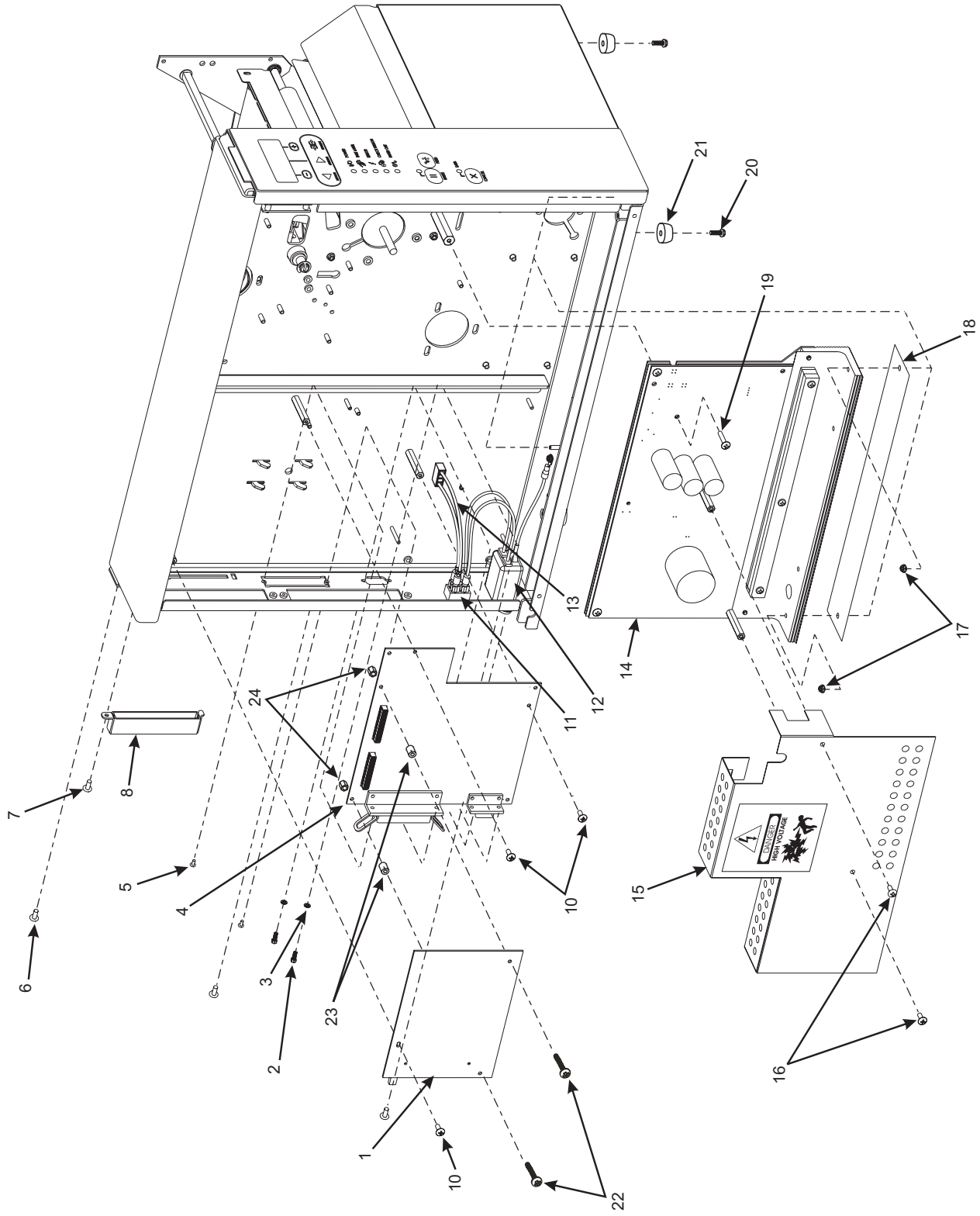
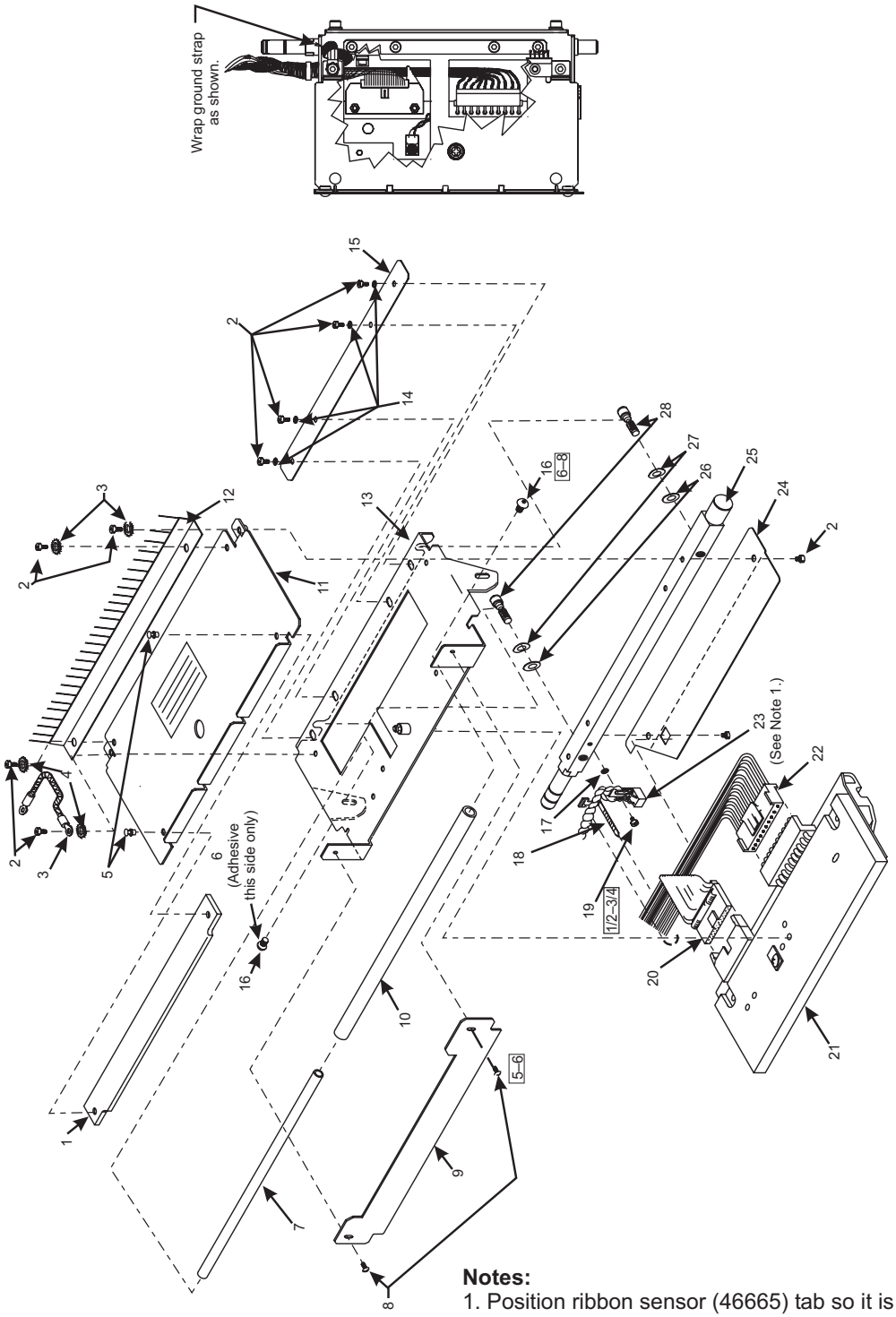


Figure 5-5. Print Mechanism (View 3)

Table 5-6. Printhead Support Assembly*)*

Item	Part Number	Description	Qty
1	**41019**	Pressure Pad (200 and 300 dpi)	1
	47181	Pressure Pad (600 dpi)	1
2	**HW30392-004**	Screw, 6-32 × 0.25 (only available in quantities of 50)	10
3	**30781**	Printhead Ground Cable	1
4	**HW01159**	Flat Washer, 0.250 × 0.125 × 0.028 (only available in quantities of 100)	4
5	**HW48182**	Snap Rivet, 0.138 × 0.08 Plastic (only available in quantities of 10)	2
6	**30314R**	Adhesive	1
7	**30007-13**	Roller Shaft, 0.185 × 4.878 (200 and 300 dpi)	1
	30007-5	Roller Shaft, 0.187 × 4.105 (600 dpi)	1
8	**46882-003**	Screw, 4-40 × 3/16	2
9	**41017**	Ribbon Strip Plate (200 and 300 dpi)	1
	47017	Ribbon Strip Plate (600 dpi)	1
10	**48099-14**	Roller, 0.332 x 0.212 x 4.082 (200 and 300 dpi)	1
	48099-2	Roller, 0.332 × 0.212 × 4.050 (600 dpi)	1
11	**41009**	Pressure Plate (200 and 300 dpi)	1
	47212	Pressure Plate (600 dpi)	1
12	**41069**	Static Brush (200 and 300 dpi)	1
	47099	Static Brush (600 dpi)	1
13	**41010**	Head Mounting Bracket (200 and 300 dpi)	1
	47105	Head Mounting Bracket (600 dpi)	1
14	**HW06268**	Washer, #6 Lock (only available in quantities of 25)	4
15	**41068**	Washer Plate (200 and 300 dpi)	1
	30013	Washer Plate (600 dpi)	1
16	**HW30402-006**	Screw, 6-32 × 0.37 (only available in quantities of 25)	2
17	**30494**	Washer, 0.320 × 0.119 × 0.062	1
18	**Q06020**	Cable-Tie, 0.09 W × 3.62 L	1
19	**HW30236**	Screw, 4-40 × 0.25 (only available in quantities of 25)	1
20	**33129**	Printhead Data Cable (200 and 300 dpi)	1
	33028	Printhead Data Cable (600 dpi)	1
21	**41000M**	Printhead Maintenance Kit (200 dpi)	1
	41001M	Printhead Maintenance Kit (300 dpi)	1
	47500M	Printhead Maintenance Kit (600 dpi)	1

Bold=Part available for purchase
Italic=Part not available for purchase, listed and shown for reference only



Notes:
1. Position ribbon sensor (46665) tab so it is not flush with top edge of pivot bar.
   Gap 0.010 inch min./0.030 inch max. (0.26 mm/0.77 mm) below top edge.
2. Screw tightening torques unless otherwise specified to be 10–12 inch pounds (1.1–1.3 N•m).
   Other values appear in boxes in inch pounds.

Figure 5-6. Printhead Support Assembly

Table 5-6. Printhead Support Assembly (Continued)

Item	Part Number	Description	Qty
22	*33141*	Printhead Power Cable (200 and 300 dpi)	1
	47640	Printhead Power Cable (600 dpi)	1
23	**46665M**	Ribbon Sensor Maintenance Kit	1
24	**41014**	Guard Plate (200 and 300 dpi)	1
	47014	Guard Plate (600 dpi)	1
25	*41062*	Head Pivot Bar (200 and 300 dpi)	1
	41034	Head Pivot Bar (600 dpi)	1
26	**HW40193**	Flat Washer 0.406 × 0.172 × 0.048 (only available in quantities of 25)	2
27	**HW40194**	Curved Washer, 0.344 × 0.172 × 0.006 (only available in quantities of 25)	2
28	**HW46481-1**	Adjustment Screw M3.5 (only available in quantities of 5)	2

Bold=Part available for purchase
Italic=Part not available for purchase, listed and shown for reference only

Table 5-7. Media Supply Hanger

Item	Part Number	Description	Qty
1	**41153M**	Media Hanger Maintenance Kit	1
2	**48417**	Bearing Block	2
3	*22395*	Outer Edge Guide	1
4	**22152M**	Link and Pad Maintenance Kit	1

Bold=Part available for purchase
Italic=Part not available for purchase, listed and shown for reference only

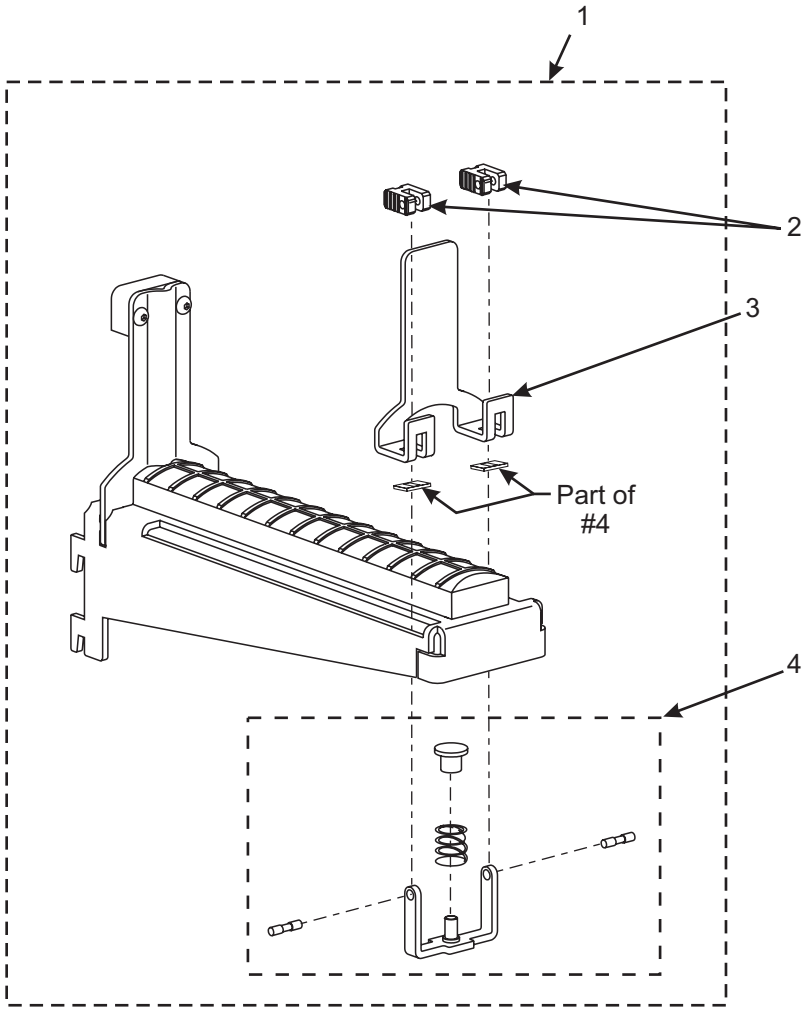


Figure 5-7. Media Supply Hanger

Table 5-8. Optional Media Supply Spindle

Item	Part Number	Description	Qty
1	**HW30140**	Screw, 6–32 × 0.125 (only available in quantities of 25)	6
2	**46068**	Compression Spring	1
3	**HW46397-625**	Locking Nut, 5/8 × 18	1
4	**HW30466**	Washer, 0.26 × 0.63 × 0.06 (only available in quantities of 10)	1
5	**30395-012**	Screw, 1/4–20 × 0.75	1
6	**48253M**	Media Supply Spindle 3–inch Spindle Complete Maintenance Kit	1
	48044M	40 mm Spindle Complete Maintenance Kit	1

Bold=Part available for purchase
Italic=Part not available for purchase, listed and shown for reference only

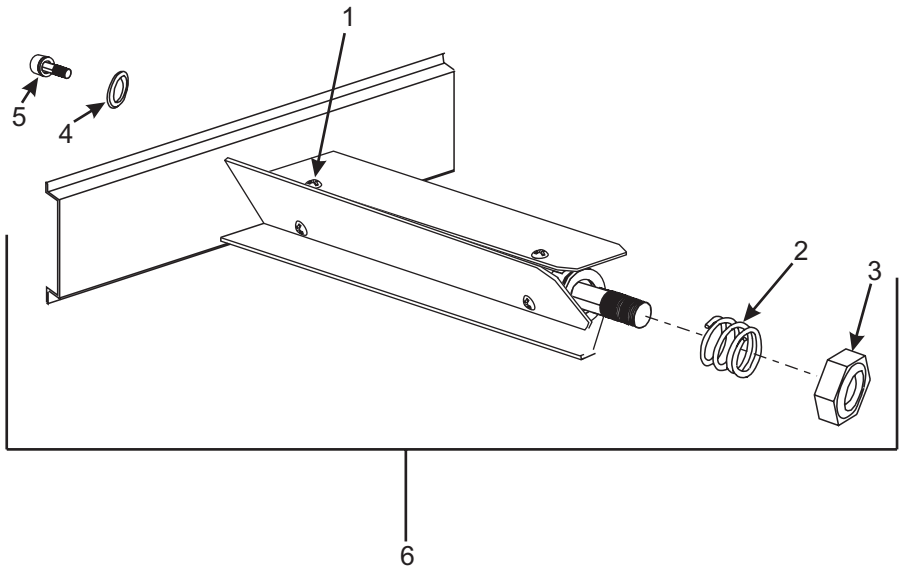


Figure 5-8. Optional Media Supply Spindle

Table 5-9. Ribbon Take-Up Spindle

Item	Part Number	Description	Qty
1	**46350**	Enhanced RTU Upgrade Kit	1
2	**48251M**	Spindle and Clutch Assembly Kit	1
3	**47276**	Compression Spring	1
4	**46397-500**	Thin Hex Nut Locking	1
5	**48251-2M**	End Cap and Release Bar Maintenance Kit	1

Bold=Part available for purchase
Italic=Part not available for purchase, listed and shown for reference only

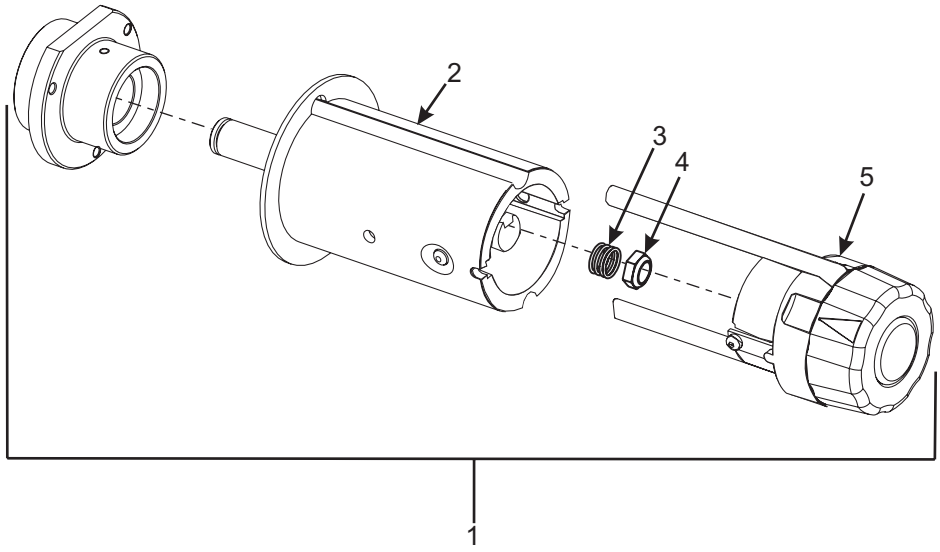


Figure 5-9. Ribbon Take-Up Spindle Assembly

Table 5-10. Communication Options

Item	Part Number	Description	Qty
1	**48924**	Field Upgrade IBM Twinax Kit	1
2	**48752**	PCB IBM Twinax Assembly	1
3	**30757**	Ribbon 40 Option Signal Cable	1
4	**30753**	Cable IBM Twinax Assembly	1
5	**48925**	Field Upgrade IBM Coax Kit	1
6	**48761**	PCB IBM Coax Assembly	1
7	**30757**	Ribbon 40 Option Signal Cable	1
8	**48753**	Coax Ext. IBM Cable	1
9	**48631**	ZebraNet Wireless Card Socket/without ZebraNet PrintServer II	1
9	**48632**	ZebraNet Wireless Card Socket/with ZebraNet PrintServer II internal	1
9	**48633**	ZebraNet Wireless Card Socket/with ZebraNet PrintServer II external	1
10	**46610**	PCB RF Option	1
11	*48636*	ZebraNet Wireless Setup Disk	1
12	*48626*	Straight Through Ethernet Cable, 7 feet	1
13	*48627*	Crossover Ethernet Cable, 7 feet	1
14	**49604-016**	Power Distribution Cable	1
15	**48602**	RJ45 1 to 1 10 Base T Cable, 12 inches	1
16	**46692**	ZebraNet II External Kit Upgrade	1
17	**46689**	ZebraNet II Internal Kit Upgrade	1
18	**46709**	Cable Tape ZebraNet II	1
19	**47210**	Strip Grommet, 2-1/8	1
20	*46686A*	10 Base T PrintServer I I Internal	1
21	**27095M**	UHF RFID Reader Board Maintenance Kit (Multi-Protocol) (Not Illustrated) RFID kits are available for purchase through Zebra Authorized Service Providers only.	1
21	**23055M**	RFID Reader Board Maintenance Kit (Matrics) (Not Illustrated) RFID kits are available for purchase through Zebra Authorized Service Providers only.	1
22	**23020M**	RFID Antenna Maintenance Kit (Matrics) (Not Illustrated) RFID kits are available for purchase through Zebra Authorized Service Providers only.	1
22	**27060M**	RFID Antenna Maintenance Kit (Multi-Protocol) (Not Illustrated) RFID kits are available for purchase throughZebra Authorized Service Providers only.	1
23	**23060M**	RFID Power Board Maintenance Kit (Matrics) (Not Illustrated) RFID kits are available for purchase through Zebra Authorized Service Providers only.	1

Bold=Part available for purchase
Italic=Part not available for purchase, listed and shown for reference only

Table 5-10. Communication Options (Continued)

Item	Part Number	Description	Qty
24	**27056**	Coupler Cable (Multi-Protocol) (Not Illustrated) RFID kits are available for Zebra Authorized Service Providers only.	1
25	**27059-09**	Interface Cable (Multi-Protocol) (Not Illustrated) RFID kits are available for Zebra Authorized Service Providers only.	1
26	**49604-010**	Power Supply Cable (Multi-Protocol) (Not Illustrated) RFID kits are available for Zebra Authorized Service Providers only.	1
27	**41110M**	Printhead Test Option Kit (Not Illustrated)	1

Bold=Part available for purchase
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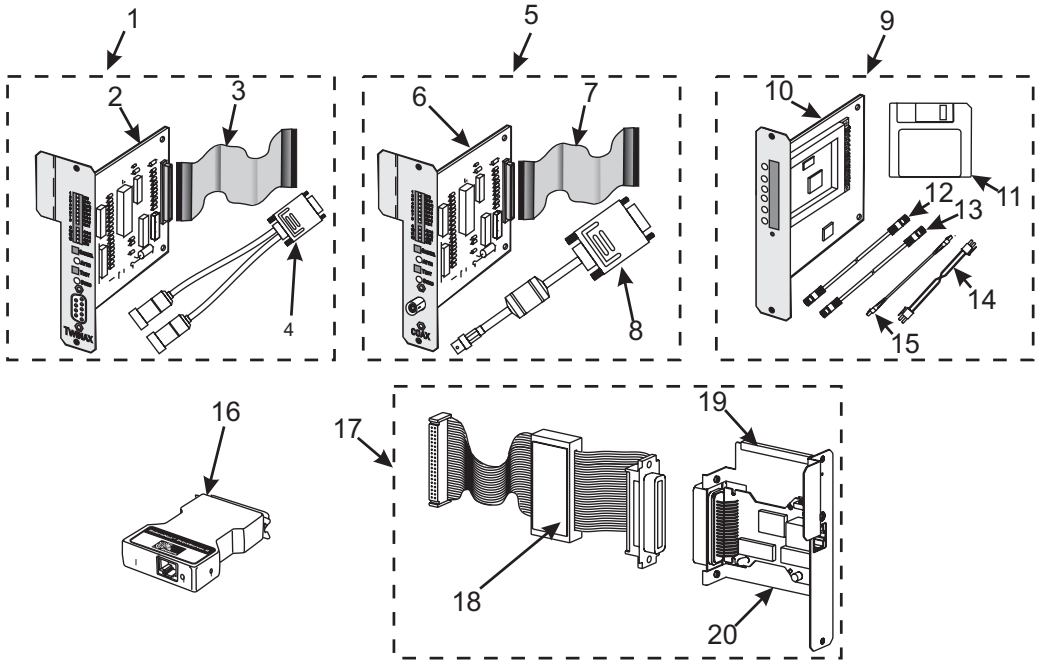
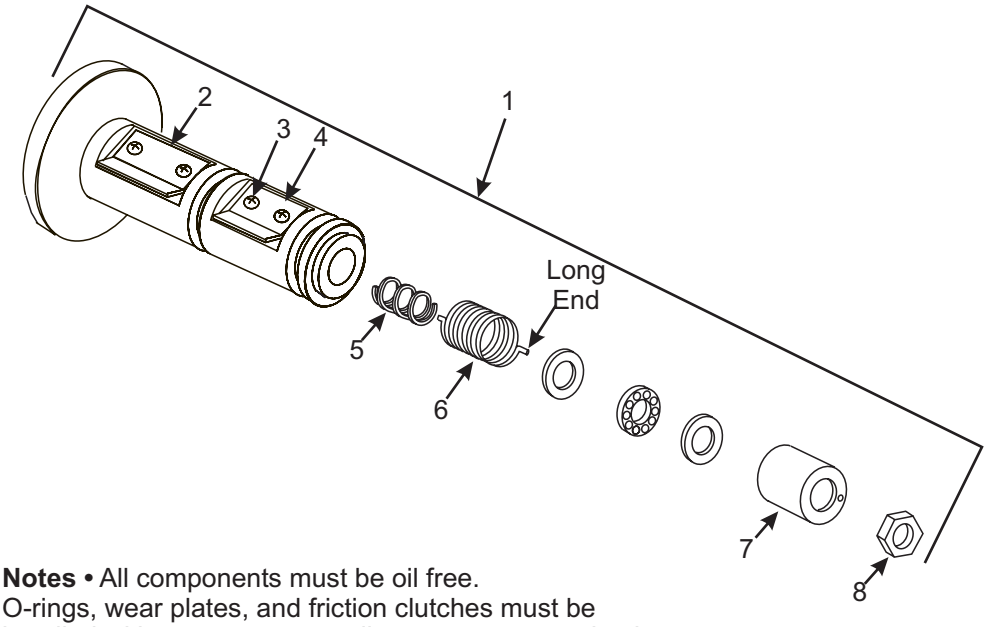


Figure 5-10. Communication Options

Table 5-11. Ribbon Supply Spindle Assembly

Item	Part Number	Description	Qty
1	**41151M**	Ribbon Supply Spindle Maintenance Kit	1
2	**40070-2**	Inner Ribbon Supply Blade	1
3	**30401-002**	Screw, 4–40 × 0.12	4
4	**30070-1**	Outer Ribbon Supply Blade (90/96*Xi*III/*Xi*III*Plus*)	1
5	**HW46211**	Compression Spring, 0.53 × 0.660 × 0.62 (only available in quantities of 10)	1
6	**38042**	Torsion Spring, 0.739 × 0.805	1
7	**47171**	Ribbon Spindle Spring Housing	1
8	**46397-375**	Locking Thin Hex Nut	1

Bold=Part available for purchase
Italic=Part not available for purchase, listed and shown for reference only



Notes • All components must be oil free.
O-rings, wear plates, and friction clutches must be handled with care to prevent oil or grease *contamination.*

Figure 5-11. Ribbon Supply Spindle Assembly

Table 5-12. Media Rewind Assembly

Item	Part Number	Description	Qty
1	**41383M**	Rewind Plate Assembly Maintenance Kit	1
2	**47915M**	Lower Platen Pulley Maintenance Kit	1
3	**30265**	Idler Pulley	1
4	**30207**	Idler Pulley Shaft	1
5	**45189-2**	Rewind Drive Belt, 0.080P 235T (203 and 300 dpi)	1
5	**45189-13**	Rewind Drive Belt, 0.080P 245T (600 dpi)	1
6	**HW30118**	E-Ring, External 0.500 × 0.042 (only available in quantities of 25)	1
7	**31336M**	MTU/RTU Pulley Maintenance Kit (203 and 300 dpi)	1
7	**33094-6M**	Pulley MTU Maintenance Kit (600 dpi)	1
8	**HW30114**	Flat Washer, 0.76 × 0.51 × 0.03 (only available in quantities of 25)	1
9	**HW30115**	Wave Washer, 0.740 × 0.520 × 0.080 (only available in quantities of 25)	1
10	**HW30393-006**	Screw, 8–32 × 0.31 (only available in quantities of 25)	3
11	**HW07435**	Screw, 6–32 × 0.37 (only available in quantities of 100)	2
12	**HW40193**	Flat Washer, 0.406 × 0.172 × 0.048 (only available in quantities of 25)	1
13	**46609-4M**	Take-Label Sensor Maintenance Kit (Includes Lower Sensor)	1
14	**47155M**	Spindle Media Rewind Maintenance Kit	1
15	**HW40193**	Flat Washer, 0.406 × 0.172 × 0.048 (only available in quantities of 25)	3
16	**HW30392-008**	Screw, 6-32 × 0.25 (only available in quantities of 50)	2
17	**02252**	Crescent Ring, 0.25	2
18	**40019**	Plate, Roller Adjustment	1
19	**HW30247**	Flat Washer, 0.42 × 0.262 × 0.0740 (only available in quantities of 25)	1
20	**HW30261**	Flat Washer, 0.442 × 0.255 × 0.020 (only available in quantities of 25)	2
21	**47601M**	Lower Platen Roller Maintenance Kit, 0.78 × 3.588	1
22	**49688**	Ball Bearing, 0.50 × 0.25 × 0.125	2

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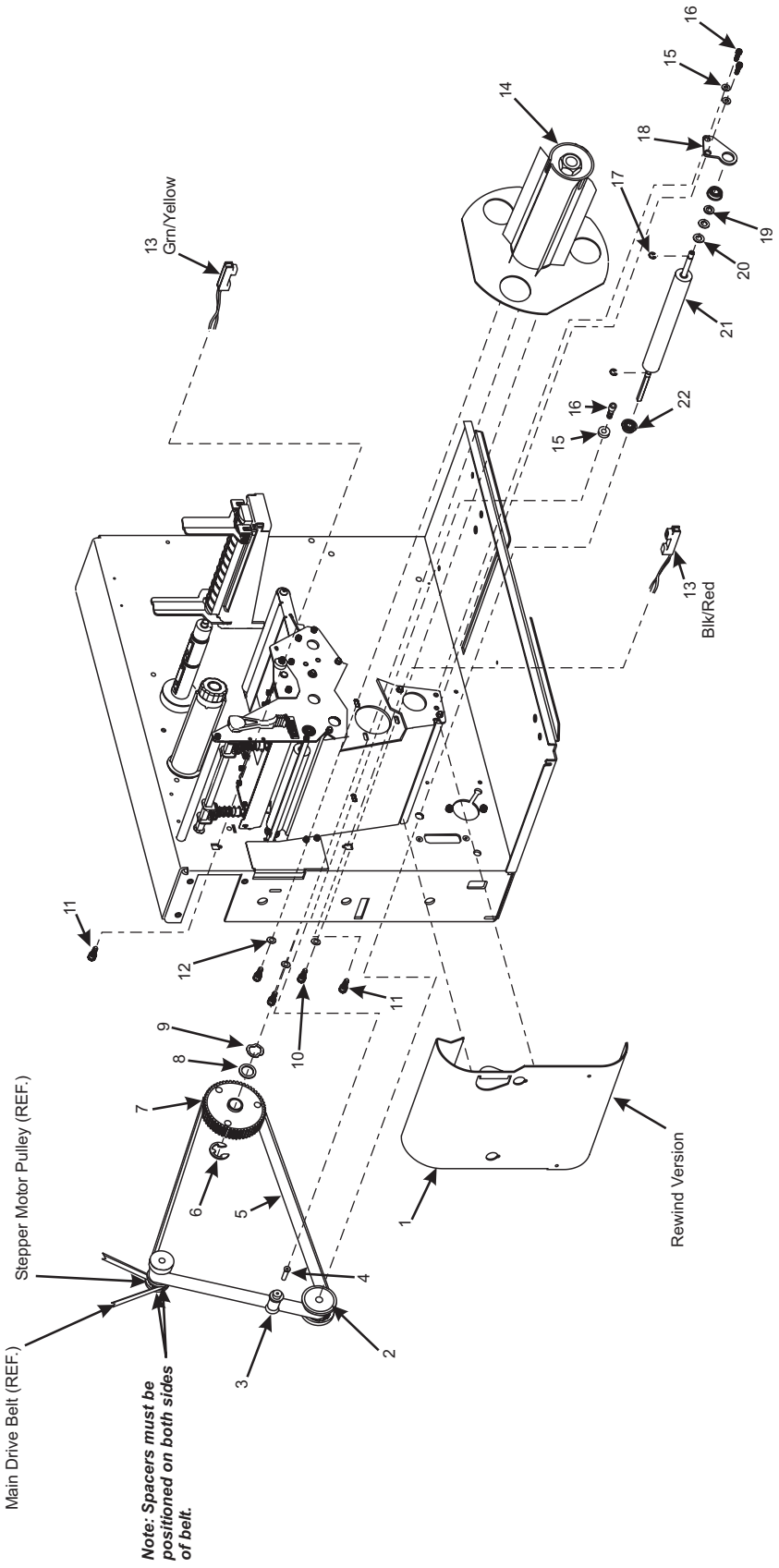

Figure 5-12. Media Rewind Assembly

Table 5-13. Cutter Option Assembly (View 1)

Item	Part Number	Description	Qty
1	**HW02133**	E-Ring, 0.188 Black (only available in quantities of 50)	4
2	**30199**	Bearing, 0.375 × 0.189 × 0.125	3
3	**30214**	Main Link	1
4	**Q10019**	E-ring, 0.250 Black	1
5	**30210**	Flat Washer, 0.564 × 0.384 × 0.060	2
6	*30217-1*	Link Pin, 0.187 Dia.	1
7	**HW30208**	Flat Washer, 0.500 × 0.191 × 0.030 (only available in quantities of 25)	2
8	**30215**	Slotted Link	1
9	**30198**	Bearing 0.500 × 0.252 × 0.250	1
10	**30133**	Ball Bearing 0.375 × 0.187 × 0.125	1
11	**31313**	Cutter Opto Wire Clamp	1
12	**01822**	Nut, 4–40	5
13	**40380M**	Lower Drive Arm Maintenance Kit	1
14	**30219**	Flag, Sensor	1
15	**HW01155**	Washer, Lock #4 (only available in quantities of 100)	1
16	**30236**	Screw 4-40 × 0.25	3
17	**30216**	Post, Pivot	1
18	**46618**	Cutter Sensor	1
19	**30394-005**	Screw, 10-32 × 0.312	2
20	**30382RM**	Cutter Plate Maintenance Kit	1
21	**30405-006**	Screw, ¼–20 × 0.38	1
22	**HW44632**	Ferrite Ring 1.1 × 0.75 (only available in quantities of 10)	1
23	**46224**	Rubber Grommet	1
24	**08449**	Cable-Tie, 0.187 W × 11.5 L	1
25	**30374M**	Cutter Motor Maintenance Kit	1
26	**HW30391-003**	Screw, 4–40 × 0.19 (only available in quantities of 25)	4
27	**49604-012**	Power Distribution Cable	1
28	**49600-012**	Comm. Cable	1
29	**49730M**	Cutter Control PCB Maintenance Kit	1
30	**46280M**	Arm Drive Upper Maintenance Kit	1
31	**30816**	Lower Cutter Bracket	1
32	**HW40193**	Flat Washer, 0.406 × 0.172 × 0.048 (only available in quantities of 25)	2
33	**HW30392-004**	Screw, 6–32 × 0.25 (only available in quantities of 50)	4

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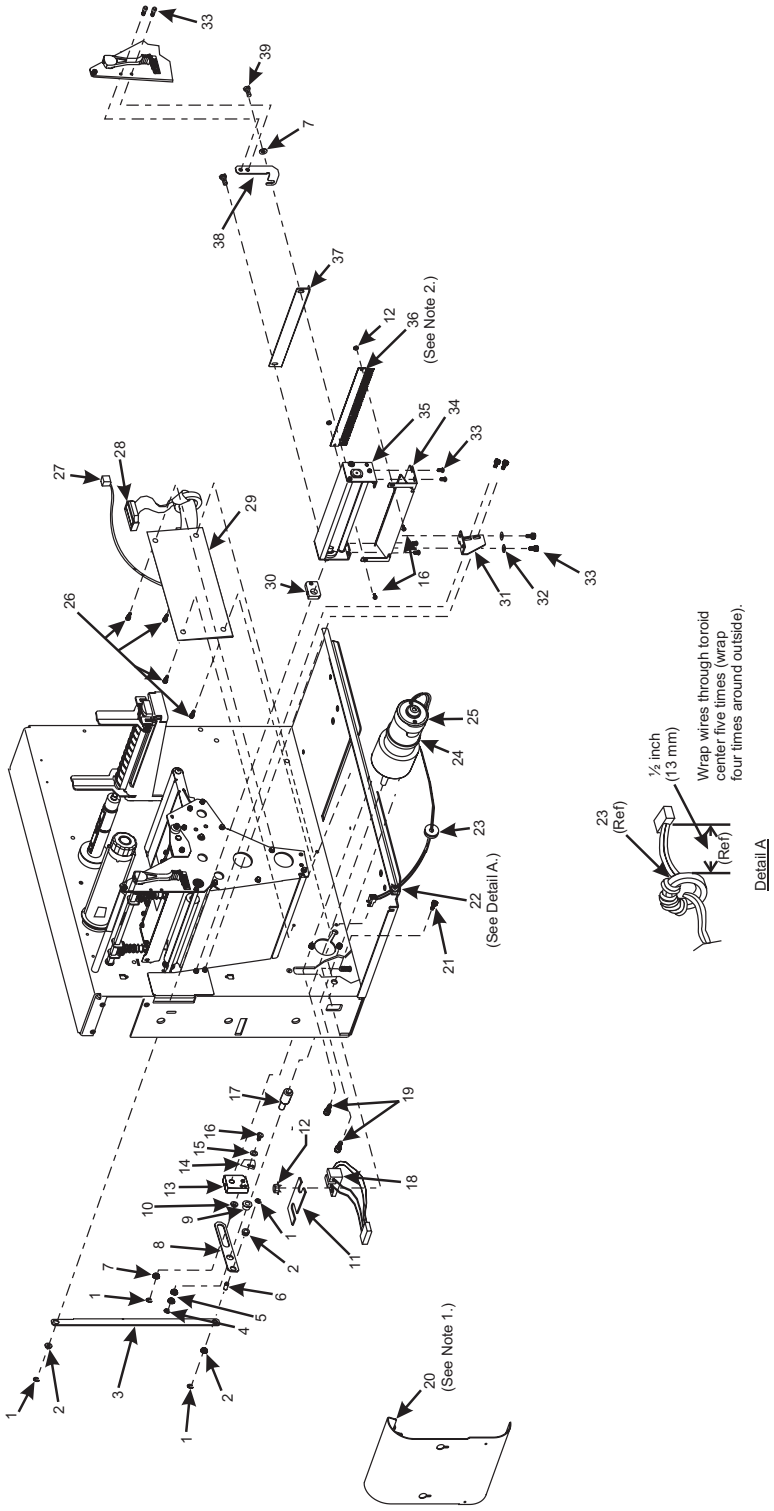

Notes: 1. If rewind option is installed on cutter machine, be sure to order cutter/rewind plate.
2. Position brush so that approximately 1/8 inch (3 mm) of brush's bristles rub against each moving label and brush's bristles are parallel to label edge.

Figure 5-13. Cutter Option Assembly (View 1)

Table 5-13. Cutter Option Assembly (View 1) (Continued)

Item	Part Number	Description	Qty
34	**30819**	Cutter Support Bracket	1
35	**30196-100**	Cutter Module	1
36	**30320**	Carbon Brush, 4.50 × 0.50	1
37	**30181**	Upper Cutter Guide	1
38	**46807**	Upper Cutter Bracket	1
39	**Q10011**	Screw, M4 × 0.7	2

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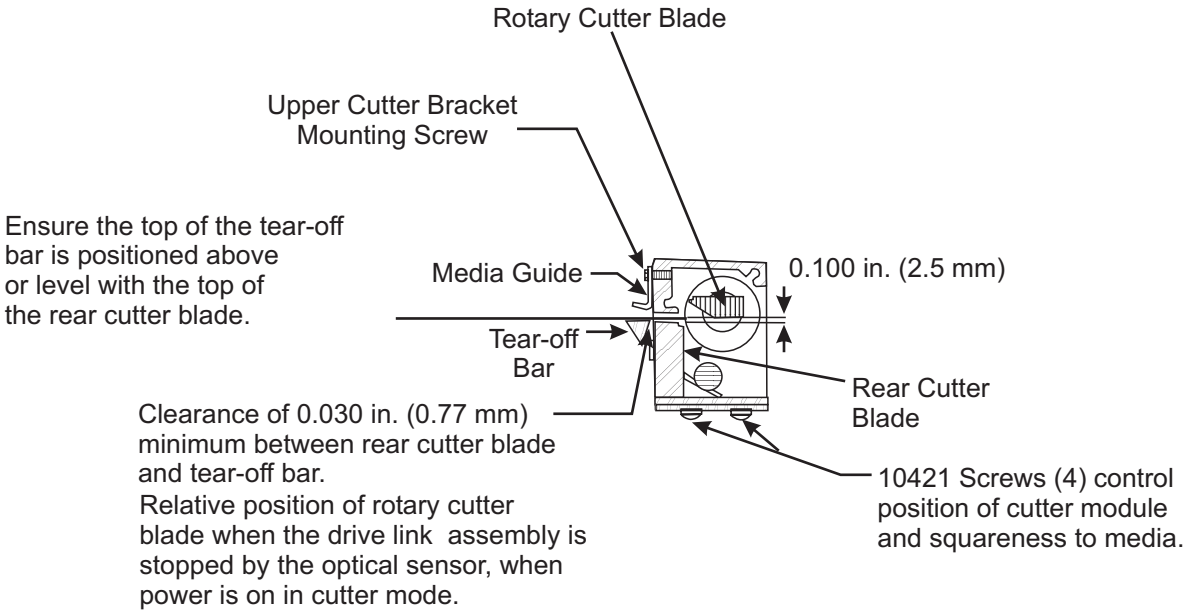

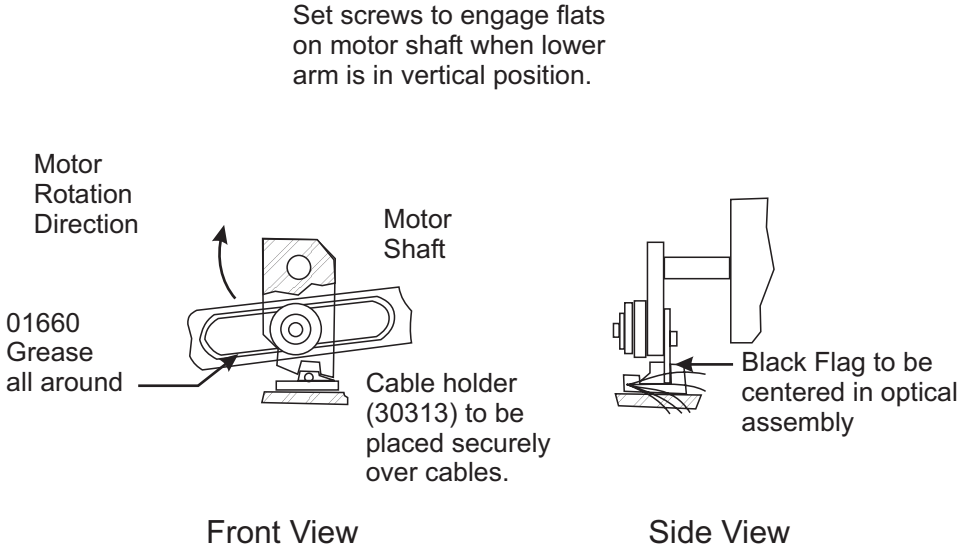

Figure 5-14. Cutter Option Assembly (View 2)

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