

User's Manual

P520i



**Card
Printer
Solutions**

Part Number.980477-001

Rev. B

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FOREWORD

This manual contains installation and operation information for the P520*i* Series card printers manufactured by Zebra Technologies Corporation.

RETURN MATERIALS AUTHORIZATION

Before returning any equipment to Zebra Technologies Corporation for in-warranty or out-of-warranty repair, contact Repair Administration for a Return Materials Authorization (RMA) number. Repack the equipment in the original packing material and mark the RMA number clearly on the outside. Ship the equipment, freight prepaid, to the address listed below:

For USA and Latin America:
Zebra Technologies Corporation
Card Imaging Division
1001 Flynn Road
Camarillo, CA. 93021-8706.USA
Phone: +1 (805) 579-1800
FAX: +1 (805) 579-1808

For Europe, Asia and Pacific:
EMEA Technical Support
Gordon Road
High Wycombe Bucks
HP13-6EQ UK
Phone: + 44 (0) 870 241 1527
FAX: + 44 (0) 870 241 0765

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TRADEMARKS

P520*i* is a service mark and Zebra is a registered trademark of Zebra Technologies Corporation. Windows and MS.DOS are registered trademarks of Microsoft Corp. All other trademarks or registered trademarks are marks of their respective holders.



PRODUCT WARRANTY STATEMENT

Printers

All Zebra Card Printers are warranted against defects in material or workmanship for twelve (12) months from the purchase date.

Proof of purchase or shipment date is required to validate the warranty period. The warranty becomes void if the equipment is modified, improperly installed or used, damaged by accident or neglect, or if any parts are improperly installed or replaced by the user.

Note: Products returned must be packaged in the original or comparable packing and shipping container. In the event equipment is not so packaged, or if shipping damage is evident, it will not be accepted for service under warranty. Surface transportation charges for return to customers in the continental United States is paid by Zebra. Otherwise, Zebra pays CPT (carriage paid to) nearest airport, customer pays customers, duties, taxes, and freight from airport to destination. If Zebra determines that the product returned for warranty service or replacement is not defective as herein defined, the customer will pay all handling and transportation costs.

Printheads

Since printhead wear is part of normal operation, the original printhead is covered by a twelve (12) month warranty. Warranty period begins on purchase date.

To qualify for this warranty, the printhead must be returned to the factory or to an authorized service center. Customers are not required to purchase Zebra supplies (media and/or ribbons) for warranty qualification. However, if it is determined that the use of other manufacturer supplies has caused any defect in the printhead for which a warranty claim is made, the user is responsible for Zebra's labor and material charges required to repair the defect. The warranty becomes void if the printhead is physically worn or damaged, also if it is determined that failure to follow the preventive maintenance schedule listed in the User's Guide has caused defect in the thermal printhead for which a warranty claim is made.

Spare Parts

All parts, maintenance kits, options kits, and print head accessories are warranted to be free of defects in material and workmanship for 90 days (except where otherwise denoted) from date of purchase. This warranty becomes void if the item is modified, improperly installed or used, or damaged by accident or neglect.



DECLARATIONS OF CONFORMITY



89/336/EEC modified by 92/31/EEC and 93/68/EEC	EMC Directive	EN 55022 (1998)	RF Emissions control
		EN 301489-3 V1.4.1	RF Emissions and immunity for radio equipment
		EN 55024 (2001)	Immunity to Electromagnetic Disturbances
73/23/EEC modified by 93/68/EEC	Low voltage Directive	EN 60950 (1992) and Amendments A1 to A11 (1997)	Product safety
1999/5/CE	R&TTE Directive	EN300330-2 V1.1.1	Radio frequency interferences

For a formal Certificate, please contact Compliance Engineering at the Camarillo facility.



Model: P520i conforms to the following specification:
FCC Part 15, Subpart A, Section 15.107(a) and Section 15.109(a)
Class B digital device

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

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and the receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

The user may find the following booklet, prepared by the Federal Communications Commission, helpful:

How to identify and resolve Radio/TV Interference Problems. This booklet is available from the U.S. Government printing Office, Washington, D.C. 20402, Stock No. 004-000-00345-4.

Use of a shielded cable is required to comply within Class B limits of Part 15 of FCC Rules.

Pursuant to Part 15.21 of the FCC Rules, any changes or modifications to this equipment not expressly approved by Zebra may cause, harmful interference and void the FCC authorization to operate this equipment.

INDUSTRY CANADA NOTICE

This device complies with Industry Canada ICS-003 class B requirements.



INTRODUCTION

Thank you for choosing the Zebra P520i Plastic Card Printer.

Zebra's P520i card printers offer a low cost, high quality solution to those requiring computer-controlled printing and encoding of credit card style plastic cards, Card applications include personalized identification, access control, visitor, membership, badges and tags.

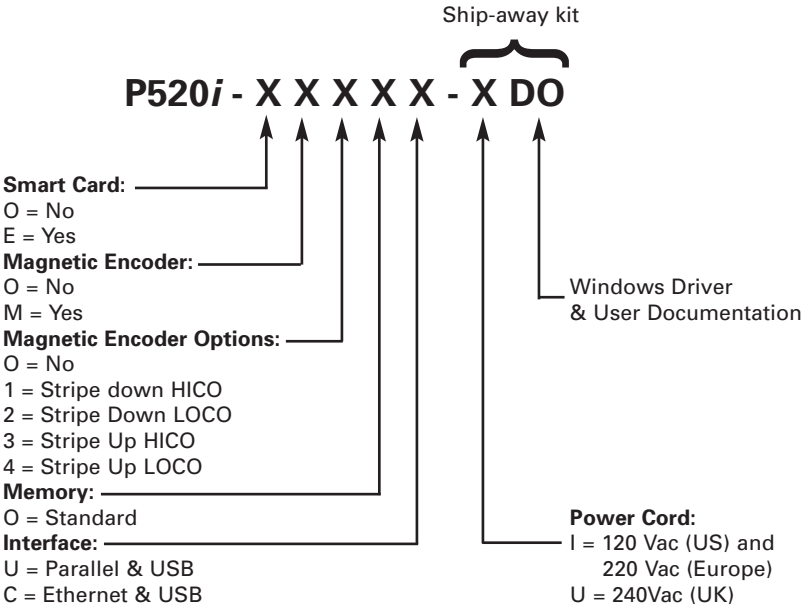
This manual guides you to efficient start up and operation of your new Card Printer.

P520i printer models

The Zebra Product Number tells a story:

Here is a quick review of the Zebra Card Printer Series numbering and lettering system to help you.

The P520i Plastic Card Printer employs Dye Sublimation and Resin Thermal Transfer technologies. Model numbers include identifiers that specify options are shown using the following lettering conventions:



ICONS

Throughout this manual, different icons highlight important information, as follows:



Important general information.



Mechanical hazard, such as one associated with moving parts, capable of resulting in equipment damage or personal injury.



Electrical hazard, such as an exposed voltage point, capable of causing electrical shock and personal injury.



An area where electrostatic discharge (ESD) can cause component damage. Use a grounding wrist band.



Elevated temperature hazard, capable of producing a burn.



Keep Card Printer clean by minimizing cover open time.

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GETTING STARTED

1

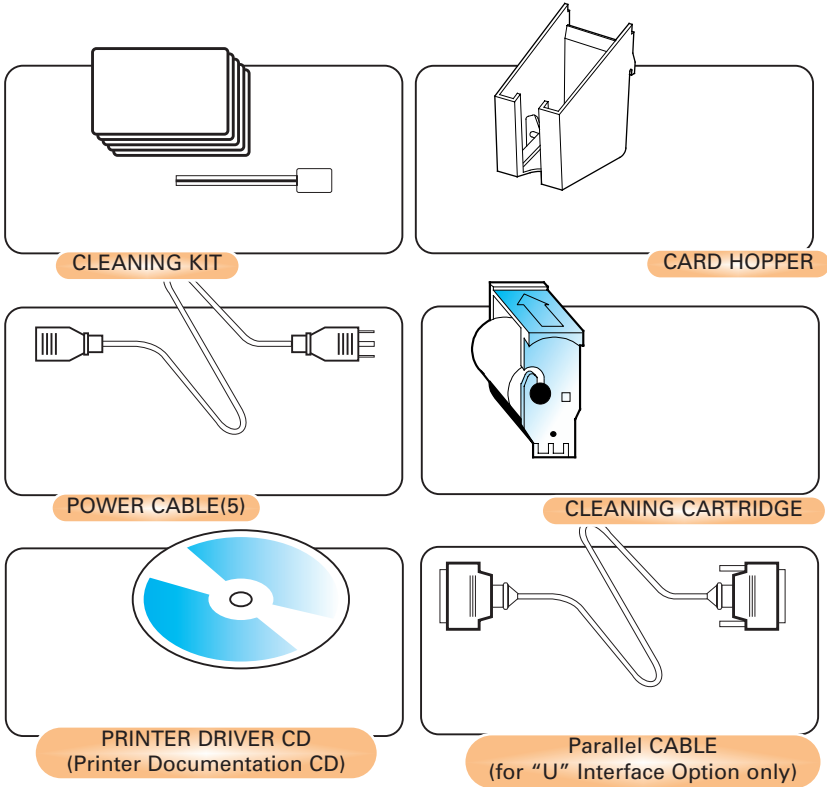
1 • 1 Unpacking your card printer

Your P520i printer ships in a carton and protective anti-static bag. Keep all packaging material in case you need to move or re-ship the printer.

While unpacking, inspect the carton to ensure that no damage occurred during shipping.

Please ensure that you have a clean and nearly dust free environment for proper operation and storage of the printer.

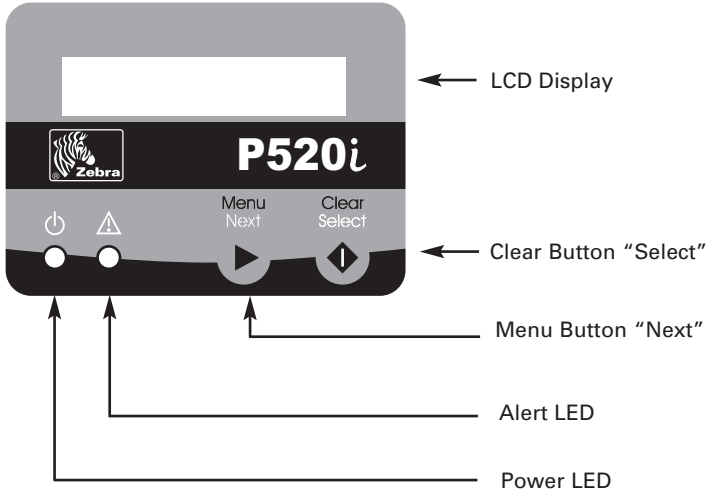
In addition to user documentation, make sure the following items are included with your P520i printer:



If any items are missing, please contact your dealer. To reorder, please refer to Appendix C of this manual.

1 • 2 Indicators and Control

Your P520i printer has an LCD Display, two LED's and two Panel Buttons.



LCD Display:

The 16 character LCD 2-Line Display is used for:

- Showing the printer's current status
- Providing operator and service messages (chapter 5)

LEDs:

The two LEDs are used for:

- Green: Power LED
- Amber: Alert LED (with Beeper)

Panel Buttons:

The Menu Button (left) is a push button used for:

- Bringing printer into Menu Mode when pressed with the printer showing READY on the LCD Display.
- Using in Menu Mode to scroll through Menu Options.

The Clear Button (right) is a push button used for:

- Clearing an error status (when LCD Display shows an error and Alert LED is on).
- Invoking automatic retry of the operation which gave the error.
- Selecting a Menu Option when in Menu Mode.

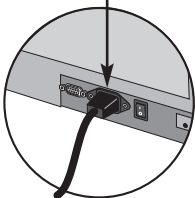
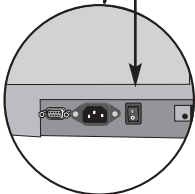
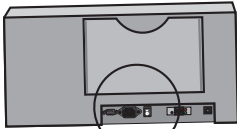
Note: The buttons beep when pressed.

1 • 3 *Printer Installation*

The following will guide you through the installation of your P520i printer.



CAUTION: Limit AC power supplied to the P520i Printer to 110 - 230 V AC, 60 - 50 Hz for an associated 1,40A - 0,80A. Limit excess current draw to 16 amps or less, using an associated circuit breaker or other such device. Never operate the printer in a location where operator, computer, or printer can get wet. Personal injury could result. The printer must be connected to an earthed electrical power supply and properly protected against electrical surges and grounding faults.



1 • Place the printer in a location that allows easy access to all sides. The printer should never be operated while resting on its side or upside down.

2 • Place the printer's power switch in the OFF (O) position.

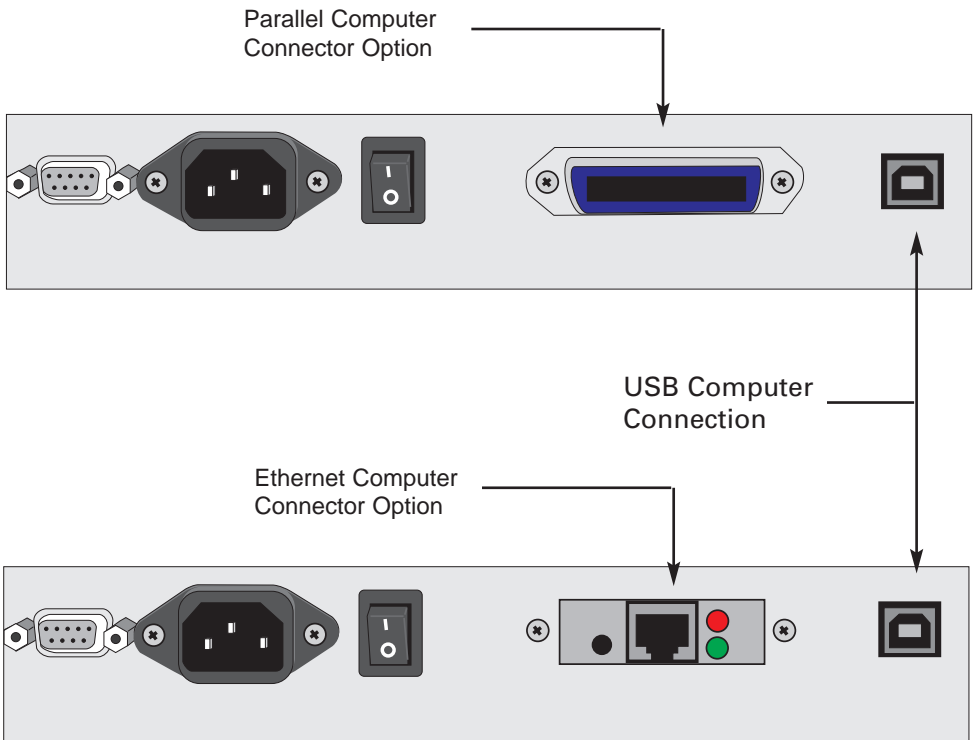
3 • Insert the power cable to the printer power socket and attach to grounded electrical socket of the proper voltage and type.



CAUTION: Intermittent or unpredictable operation may occur from unsecured connectors. If damaged, the power cable must be replaced by an exact equivalent. Use only Parallel Cable under 3 Meters in length.

4 • Attach and secure the interface cable to printer and computer. Note: In printers with two-connectors, use the USB or the Parallel/Ethernet, never both.

5 • Switch power on.



Ethernet Indicators

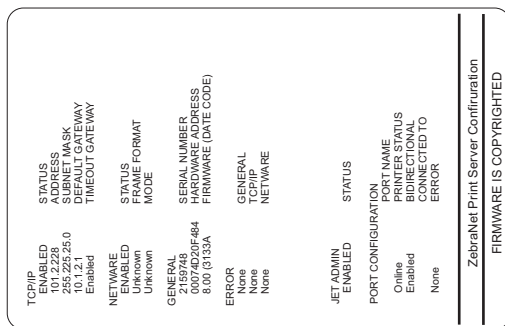
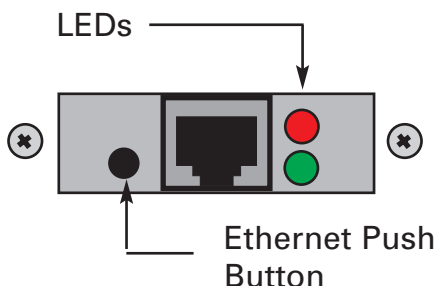
The following shows the function of the switch and indicators found on P520i Printers that use Ethernet Computer Interfaces.

LED	Action	Status Being Signaled
Red	Flashing	Power-On Self Testing
Red	Solid > 30 sec	Failure of Power-On Tests
Red/Green	Flashing Alternately	Firmware Download mode
Green	Solid > 30 sec	Proper Hardware Operation; Network Found
Green	Rapid Flashing (9/sec)	Network not Found
Green	Slowly Flashing (1/sec)	Print Job in Progress

Ethernet Push Button

Press the Ethernet Push button with the printer ON to to get a Test Card.

Press and hold the Switch while turning ON the Printer to perform a RESET.

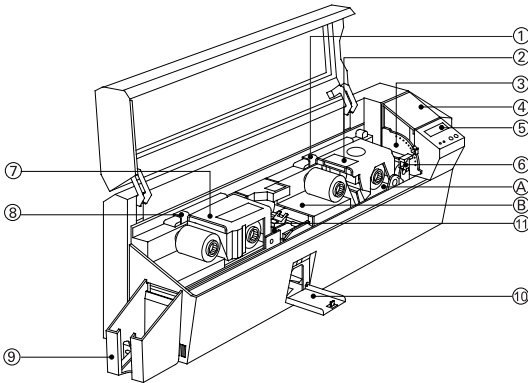


Ethernet Test Card

OPERATION 2

2 • 1 Printer Features

The following shows the features found on your P520i Printer:



Standard Features:

- 1 • Print Head Unlock Lever
- 2 • Print Head
- 3 • Card Thickness Control Lever
- 4 • Card Feeder
- 5 • LCD Display and two panel Buttons
- 6 • Card Cleaning Cartridge
- 7 • Laminator
- 8 • Laminator Unlock Lever
- 9 • Card Output Hopper
- 10 • Rejected Card Box
- 11 • Cleaning Roller

Optional Features:

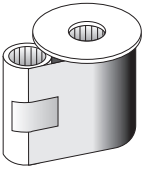
- A • Smart Card Contact Station
- B • Magnetic Encoder Station

2 • 2 Loading Printing Ribbons

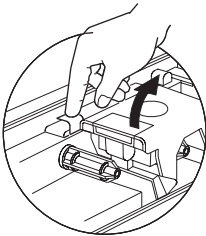
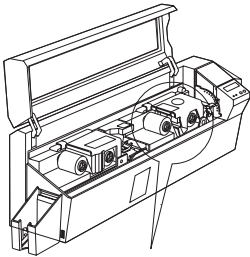
The P520i Printer requires approved ribbons (see Appendix C). The Resin Thermal Transfer and Dye Sublimation ribbons and Lamination are specifically designed for your P520i Printer. For optimum performance and printer life (Print Head), always use approved ribbons.



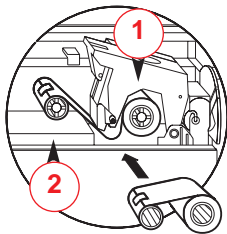
DO NOT TOUCH the print head or the electronic components on the print head carriage. Discharges of electrostatic charge from the human body or other surfaces can damage the print head or other electronic components used in this device.



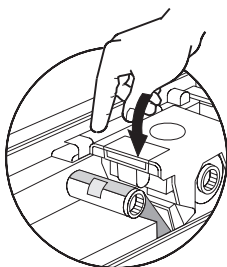
- 1 •** Remove ribbon from packaging.



- 2 •** With printer power ON and Printer Ready status, open cover and press down on the Print Head Unlock Lever to open the print head carriage. The print head carriage will pop open.



3 • Load ribbon onto the supply spindle "1" (under print head carriage) and empty core (with tape attached) onto the take-up spindle "2". Make sure the ribbon comes off the top of the supply spindle and feeds to the top of the take-up spindle.



4 • Push down on the Print Head Lock Lever until an audible "click" signals the locked-down position.

5 • Close Cover



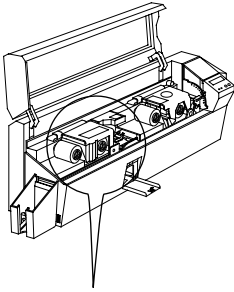
Please note that the ribbon automatically synchronises whenever the print head lock down occurs.



The card flipper will not operate and an error will be indicated if you try to flip a card when the cover is open.

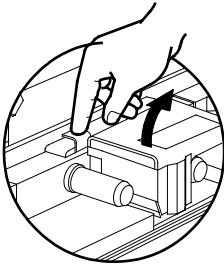
2 • 3 Loading Lamination Patch

The P520i Printer requires approved patches (see Appendix C). Clear patches, hologram patches or Overlay varnishes are specifically designed for your P520i Printer. For optimum performance and printer life (Laminator), always use approved patches.

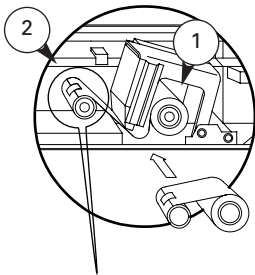


1 • Remove patch from packaging.

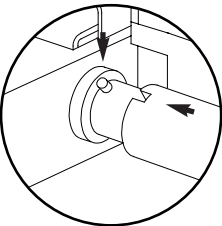
2 • With printer power ON and printer Ready status, open cover.



3 • Press down on the Laminator Unlock Lever to open the laminator bracket. The laminator bracket will pop open.



4 • Load patch onto the supply spindle "1" (under laminator bracket) and align the notch of the empty core with the spindle screw (with tape attached) onto the take-up spindle "2". Make sure the patch comes off the top of the supply spindle and feeds to the top of the take-up spindle.



5 • Push down on the Laminator Lock Lever until an audible "click" signals the locked-down position.

6 • Close Cover

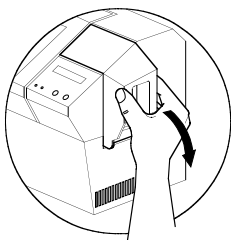
.Please note that the ribbon automatically synchronises whenever the laminator head lock down occurs.

2 • 4 Loading Cards

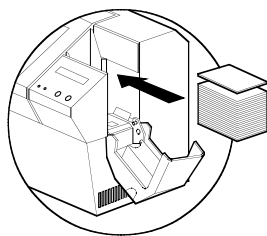
To help you load, print, and collect cards, the P520*i* has the following items:

A - CARD FEEDER

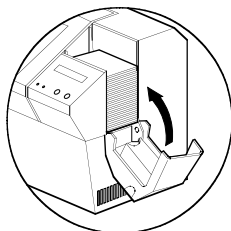
This items is used for loading cards.



1 • Open Card Feeder Cover by putting your fingers on both sides and rotating the cover in a clockwise direction to the open position.



2 • Install cards into Feeder* as shown.



3 • Close Card Feeder Cover.

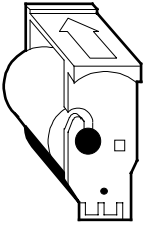


DO NOT bend cards or touch print surfaces as this can reduce print quality. The surface of the cards must remain clean and dust free. Always store cards in an enclosed container. Ideally, use cards as soon as possible. If cards stick together, carefully shuffle them.

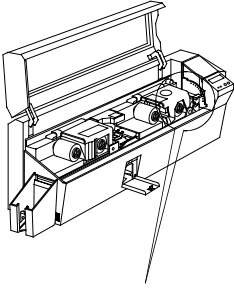
* See Chapter 6, Technical Specifications, for card requirements and capacities.

B - INSTALL CARD CLEANING CARTRIDGE

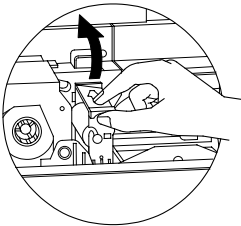
This items is used to clean the cards entering the printer.
It must installed before using the printer.



- 1** • Remove Card Cleaning Cartridge from plastic bag and peel off protective wrapper from adhesive cleaning roller.



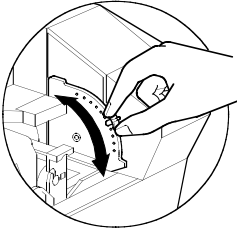
- 2** • Open printer cover and remove the yellow reminder tape from the location for the Cleaning Cartridge.



- 3** • Make sure the arrow on top of the assembly is facing towards the rear of the printer. Hook assembly into slot on printer and rotate down. Ensure the assembly locks in place.

C - CARD THICKNESS CONTROL LEVER

This item is operated by the user to prevent more than one card feeding into the printer at the same time and causing a jam.



Open cover, and adjust lever to the correct position for the card thickness you are using. Repeat for different card thickness. (Factory setting is for 30 mil (0,762 mm) card thickness). See diagram below:

Card thickness:

A - 60mil (1.524mm) to 50mil (1.27mm)

B - 40mil (1.016mm)

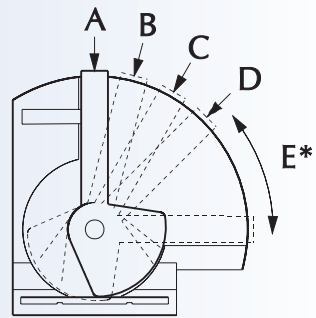
C - 30mil (0.762mm)

D - 20mil (0.508mm)

E* - Less than 20mil (0.508mm)

*Start at lowest position and move lever up to match card thickness.

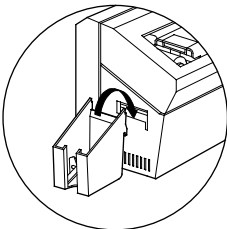
For other card thickness, start lever at lowest position and move up until cards feed.



Note: For Lamination cards should only be 30 mil cards, and composite PVC is preferred for optimum performance.

D - CARD OUTPUT HOPPER

This item is used for printing cards.



Install card Output hopper onto printer by hooking over bottom edge of card exit aperture.

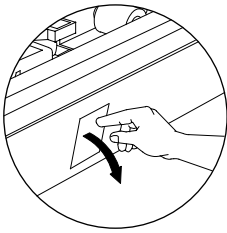
2 • 5 Rejected Card Box

The P520i Printer is equipped with a Rejected card Box. When an encoding can not be completed, the card is ejected into the Rejected Card Box. The P520i Printer counts the number of cards which go into the Reject Card Box. After 10 cards the printer stops, the Amber LED Flashes and a LCD Message is displayed indicating the need to empty the reject box.

REJECT BOX FULL

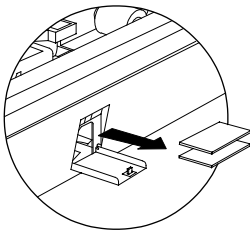
WHEN TO MAINTAIN

When the LCD screen reports message

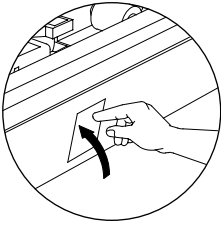


HOW TO MAINTAIN

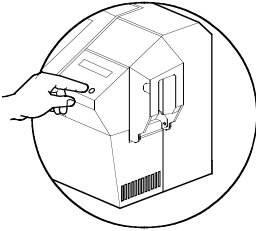
1 • Press the top of the Rejected Card Box Door as shown. Allow the door to swing down and open.



2 • Remove all cards from the Rejected Card Box.



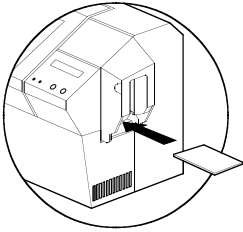
3 • Swing the Rejected Card Box Door and press the top. An audible “click” signals the locked position.



4 • Press the Clear Button on the front panel to re-start the current printer job and to clear the rejected cards counter.

2 • 6 Feeding one card at a time

A Manual Feed Slot is available on the side of the Card Feeder cover for feeding single cards. Cleaning Cards are fed manually through this slot. The Feeder must be empty for manual card feeding to work properly.



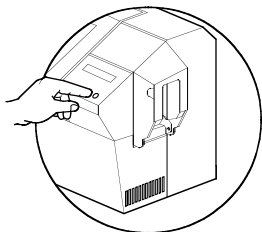
For one-at-a-time printing, feed cards through slot on side of Feeder.

Do not feed more than one card at a time.

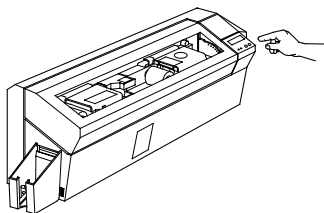
2 • 7 Printing a Test Card

With ribbon and cards loaded, your P520i printer is ready to print. To check the operation of the printer and the laminator you should print a test card.

NOTE: Test cards are not laminated.



1 • When the printer displays READY, press the “Next” button (left) on your Control Panel to MENU PRINTER, then the “Select” button (right) to PRINTER INFO.



2 • Press twice the “Next” button to SELF TEST MENU and then “Select” to TEST PATTERN.

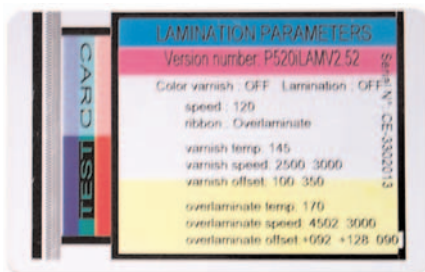
3 • A test card will print after a few seconds. LCD display will show printing status. Test Card is printed on both sides of the card.

This is an example of the test card.

Front Side: **Printer Operation**



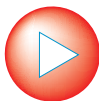
Back Side: **Laminator Operation**



2 • 8 Printer Menu Information

The printer is equipped with an LCD Display and two key buttons which gives access to printer menus.

When the printer status shows READY, press the Menu button to enter the Menu Mode



Menu Button “NEXT”(left)

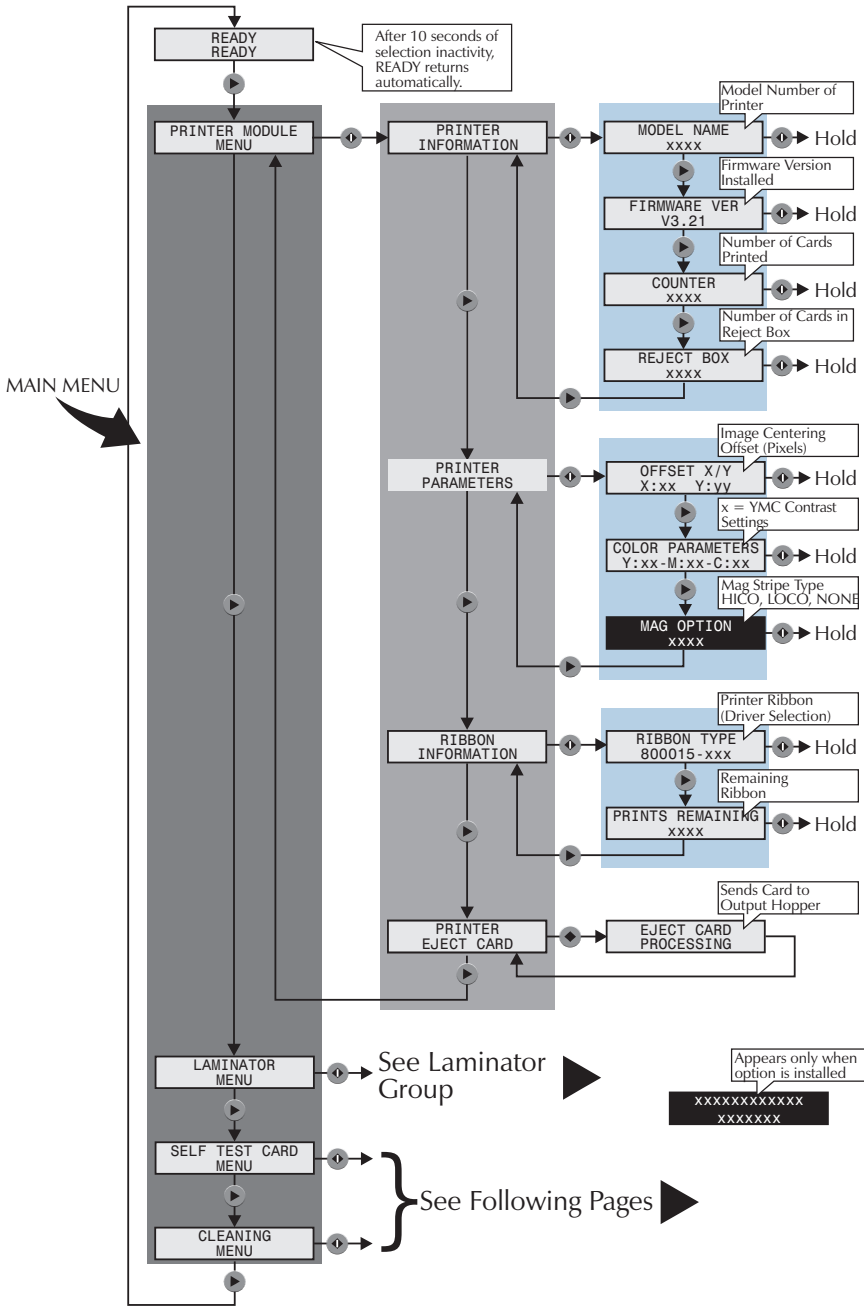


Clear Button “SELECT”(right)

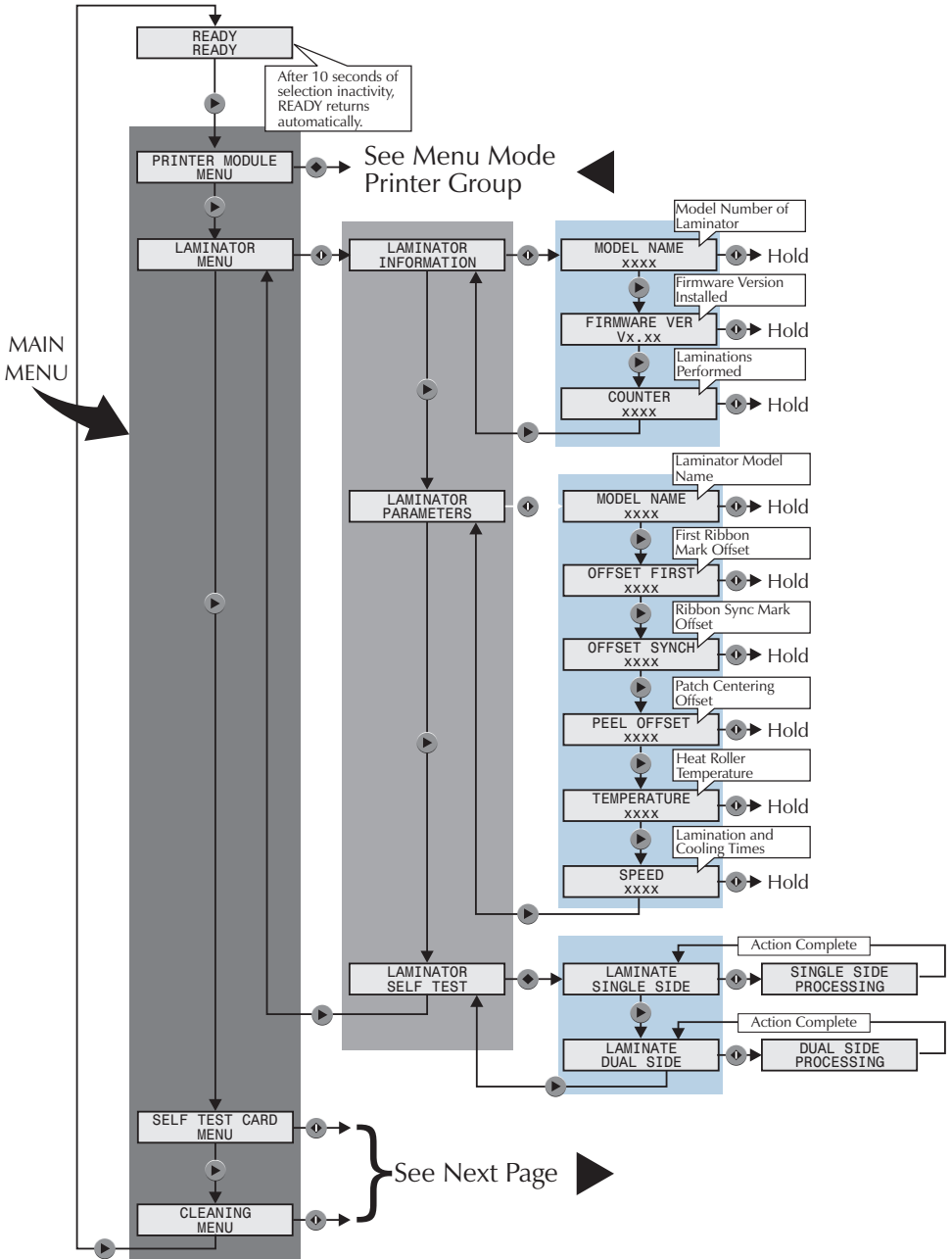
When you are in Menu Mode the top line display shows menu information and the second line of display clarifies the function of the two “NEXT” and “SELECT” key buttons relative to the current menu item. The printer will return to READY Mode if either of the two key Buttons is not pressed within ten seconds of entering Menu mode.

P520i LCD Menu Trees:

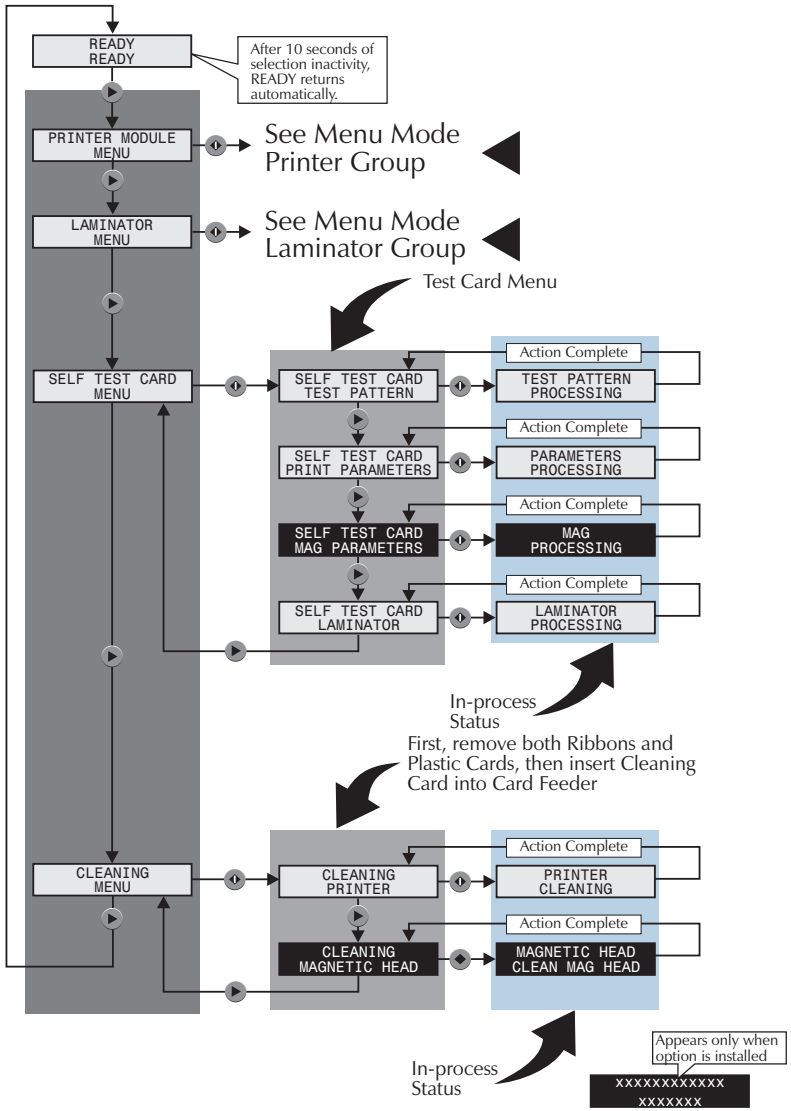
Menu Tree: Printer station



Menu Tree: Laminating station



Menu Tree: Test Cards and Cleaning



3

PRINTING A SAMPLE CARD

Printing with the P520i Printer requires the Windows Printer Driver, your card design/issuing software or printer command level programming through the printer interface.

The P520i Card Printer can be used with any Windows 98 SE/ME, NT 4.0, 2000. or XP software application program, using the drivers provided with the printer.

This section contains information on the printing of a dual-sided card in color (using the 5-Panel color ribbon YMCKK) and the Windows Printer Driver.



BEFORE installing updated printer driver versions, always delete the existing printer driver version from your computer using Add/Remove from the Windows Control Panel.

3 • 1 *To install the P520i Printer Driver proceed as follows:*



IMPORTANT NOTE: Ensure that your PC printer port is set to ECP mode and also ensure that you have deleted any previous versions of this printer driver. If you have any doubts please contact your IT department.

- ❑ Start your computer and then Windows.
- ❑ Insert your “Zebra Driver” CD into an available drive.
- ❑ Wait for the Driver Install Wizard to self-launch, and follow the instructions.



3 • 2 Printing a sample card:

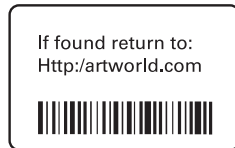
You can either follow the steps below to print your first card or choose the sample card available during driver installation.

- Go to the Microsoft Word Software.
- If the printer was not selected as the default printer, go to the **file** menu and Select **Printer** and choose **Zebra P520i Card Printer** in the printer names list. Then Close the print dialog box.
- Come back to **file** menu and choose **Page Setup**.
- Select **Paper Size** tab and in **Paper Size** choose **Card**. Then select the orientation: "landscape".
- Go to **Margins** tab, Set the Top, Bottom, left and right margins to 0 (zero) values.
- Press **OK** to close Page Setup window.
- The card appears on the screen.
- Design a card with 2 sides similar to the following:

Front Side:



Back Side:



- Once you are ready to print, go to **File** and point **Print**
- The printer will feed in a card and start printing (the data download time will vary depending on the complexity of the card design and the processing speed of the computer).
- Once the printing job is achieved the card is ejected from the printer.

4

CLEANING



PROTECT YOUR FACTORY WARRANTY!

The recommended maintenance procedures must be performed to maintain your factory warranty. Other than the recommended cleaning procedures described in this manual, allow only Zebra authorised technicians to service the P520i Printer.

NEVER loosen, tighten, adjust, or bend, etc. a part or cable inside the printer.

NEVER use a high pressure air compressor to remove particles in the printer.

4 • 1 Cleaning System

Your P520i Printer includes a simple cleaning system using the Pre-Saturated Cleaning Cards provided. The regular use of these cards will clean and maintain important parts of your printer that cannot be reached: including the Print Head, the Lamination station and Transport Rollers.

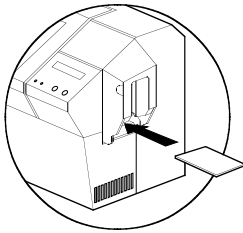
CLEAN PRINTER

WHEN TO CLEAN

When the LCD screen reports messages.

HOW TO CLEAN

1 • Leave power on.
Open Cover and release Print Head Bracket.
Remove ribbon.
Close Print Head Bracket
Close Cover. Remove cards from Card Feeder.



2 • Insert one Pre-Saturated Cleaning Card (provided) through slot on the side of the Card feeder Cover.

3 • Press the right panel button for a few seconds. The card will feed into printer and carry out the cleaning process. repeat the process with a new Cleaning card if necessary.

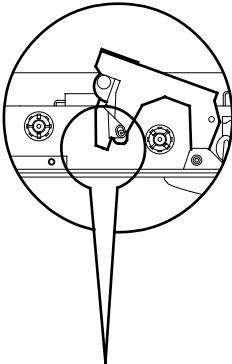
Note: For a printer cleaning prior to the WHEN TO CLEAN signal, press the Left Panel button until the LCD screen shows "CLEANING MENU". Press the right Panel button to select and one more time again to run the cleaning process (Repeat first steps 1 & 2 above).



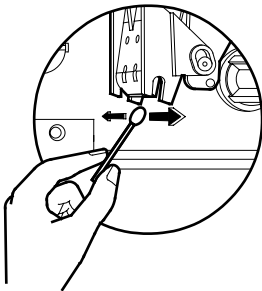
Although the CLEAN PRINTER message is displayed until the cleaning process has been performed, the printer will continue to operate.

4 • 2 *Cleaning the Print Head*

A cleaning using the cleaning system with cards usually suffices. However, a separate Print head cleaning using swabs can remove more stubborn deposits when print anomalies persist. To avoid deposits, only use foam-tipped swabs.



1 • Switch power Off, open cover, raise Print Head and remove the Ribbon.



2 • Clean Print Head by moving alcohol-moistened swab tip side-to-side across Print Head elements. Only use moderate force. Make sure the elements are dry before switching on. (To reorder swabs see Appendix C).



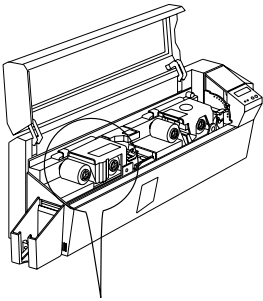
Never use a sharp object to scrape deposits from the print head. Permanent damage will result.

4 • 3 *Cleaning the Laminator Rollers*

A cleaning using the Cleaning System with cards usually suffices, moreover your printer is equipped with two cleaning rollers situated before the card enter the Laminator. The upper roller has a coating that collects any loose particles on the surface of cards. However, a separate Laminator Station cleaning can remove more stubborn deposits.



To avoid deposits, only use foam-tipped swabs. Never touch the rollers with fingers.

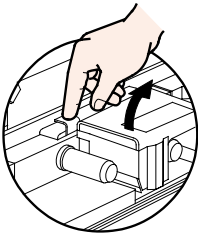


WHEN TO MAINTAIN

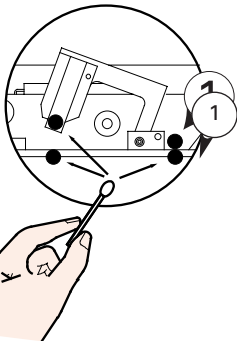
Cleaning frequency varies with different environments. Clean when lamination anomalies persist.

HOW TO MAINTAIN

1 • Switch OFF your printer and open cover. Make sure the Laminator rollers cool down.



2 • Press down on the unlock lever to open the Laminator bracket.



3 • Clean the two Laminator rollers and the two transport rollers gently with a swab. (The above transport roller "1" can be temporary removed for an easy clean)

4 • Make sure the rollers are dry before Pushing down the bracket and switching on your printer.

4 • 4 Card Cleaning Cartridge

Your P520i Printer also has a Card Cleaning Cartridge. This item cleans the cards entering the printer. To ensure print quality, the cleaning roller requires periodic replacements.

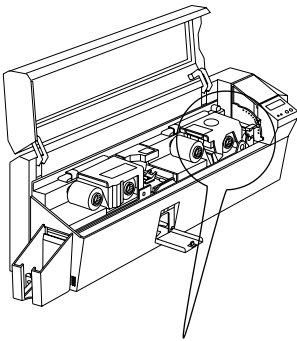
CLEAN PRINTER

WHEN TO MAINTAIN

When LCD screen reports message or at ribbon replacements.

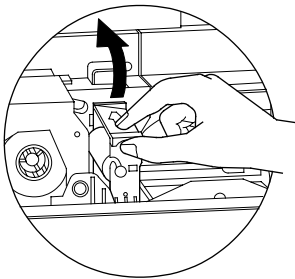
Run a printer cleaning first.

(see 4.1 Cleaning System for more instructions).

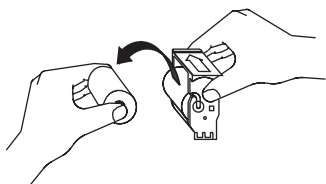


HOW TO MAINTAIN

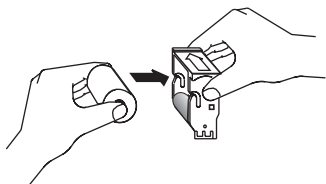
1 • Open Cover and locate Cleaning Cartridge



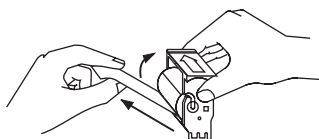
2 • Gently remove Cleaning Cartridge by rotating up and away from printer.



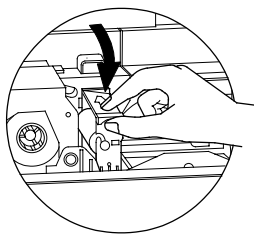
3 • Remove Cleaning Roller from Cartridge and discard.



4 • Install new Cleaning Roller into Cartridge*. To avoid contamination, always hold the Cleaning Roller assembly by the ends.



5 • Carefully peel off wrapper from new Cleaning Roller while in Cartridge.



6 • Replace Cartridge into printer. Make sure the arrow on top of the assembly is facing towards the rear of the printer. Hook assembly into slot on printer and rotate down. Ensure the assembly locks in place.

DO NOT touch the roller surface that contacts the cards.

7 • Close Cover

**See Appendix C for replacement Cleaning Rollers.



Although the CLEANING PRINTER message is displayed until maintenance has been performed, the printer will continue to operate.

5 **TROUBLESHOOTING**

This section offers solutions to potential problems you may experience with your P520i printer. The table below lists the screen messages that will be displayed on the printer's LCD, both during normal operation and to alert operator of any error conditions. There is also some additional information dealing with quality issues concerning printing onto cards.

5 • 1 *Interpreting LCD Display messages*

A • Printing Station Status Messages

SCREEN MESSAGE	MEANING	ACTION
INITIALIZING	Power-ON Initialization is occurring.	Wait for the ready message
READY	Ready for Print Data	
WAIT TEMPERATURE	A pause for a Print Head cool down is occurring.	
DOWNLOADING DATA	Printer data is being received.	
PRINTING YELLOW	The yellow bit map is being printed.	
PRINTING MAGENTA	The magenta panel is being printed.	
PRINTING CYAN	The cyan panel is being printed.	
PRINTING MONO	A monochrome bit map is being printed.	
PRINTING VARNISH	A varnish bit map is being printed.	
PRINTING UV	An ultra-violet bit map is being printed.	
PRINT HOLOGRAM	A hologram bit map is being printed.	

A • Printing Station Status Messages (Continued)

SCREEN MESSAGE	MEANING	ACTION
ENCODING	The printer is encoding the Magnetic Stripe.	
CLEAN PRINTER	The printer is prompting for operator maintenance.	Carry out the cleaning procedure as detailed in section 4 of this manual.
CLEANING	The printer is performing an internal cleaning routine.	
FLIPPING CARD	A card-flip to the opposite side is occurring.	
DOWNLOADING FW	Firmware is downloading to the printer.	

B • Laminating Station Status Messages

SCREEN MESSAGE	MEANING	ACTION
INITIALIZING	Power-ON Initialization is occurring.	
READY	The Laminator can accept cards.	
LAMINATING	Card lamination is occurring.	
STAND BY MODE	The Laminator is in Reduced-power Mode.	
WARMING UP	The Laminator is not yet at the temperature needed for lamination.	Wait

C • Print Station Alert Messages

SCREEN MESSAGE	MEANING	ACTION
REMOVE RIBBON	The ribbon has not been removed while the cleaning operation is in progress.	Remove ribbon
OUT OF RIBBON	The printer ribbon has run out.	Replace printer ribbon. Remove the jammed card.
MECHANICAL ERROR	The printer has an error moving the card internally	Ensure the card is not out of specification
OUT OF CARD	The card feeder is empty	Add more cards or adjust the card feeder to accept the cards.
ROTATION ERROR	The printer has an error moving the card in the Card Flip.	Remove card
COVER OPEN	The cover is open	Close the cover
HEAD OPEN	The print head is not locked into position	Lock the print head in its lower position.
COMMAND ERROR	The data being sent from the host is not recognised.	Check that the data is suitable for printing. Try reprinting a card from known "good" data.
PARAMETERS ERROR	The features of the card are not recognised or the data for the stripe is incorrect.	Check the windows driver options and printer type. Check the data format.
ENCODING ERROR	Data cannot be written or read from the magnetic stripe on the card.	Check that the cards are loaded with the magnetic stripe in the correct orientation. Check whether high or low coercivity cards have been specified. Check that the data conforms to ISO specifications. See Appendix A of this manual for further information.
REJECT BOX FULL	The reject box is full.	Empty Reject Box.
CHECK RIBBON	Invalid ribbon or none detected.	Install proper ribbon.
PRINTER LOCKED	Printer is locked	Press the Select Button, and follow the Passcode Menu instructions.

Ribbon Errors: Check that the print ribbon has not "run out". Lock and then unlock the print head assembly; this resynchronises the ribbon automatically. When using a color ribbon, it should advance automatically so that the leading edge of the yellow panel is beneath the print head. Ensure that the correct ribbon type has been specified in the Windows driver.

Card Feed & Mechanical Errors: Ensure that the card thickness adjustment has been set-up correctly to allow one card to feed.

Magnetic Encoding Errors: Check that the cards are inserted correctly in the printer. Ensure that the cards are low or high coercivity as required, and are set-up correctly in the printer driver.

Cleaning Alert: The printer has counted the number of cards printed and has automatically flagged that a cleaning routine needs to be carried out. (See Chapter 4).

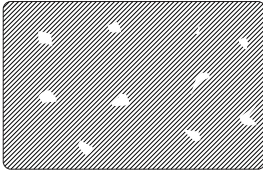
D • Laminating Station Alert Messages

SCREEN MESSAGE	MEANING	ACTION
COVER OPEN	The cover is open.	Close cover.
HEAD OPEN	The Laminator Head is raised.	Latch down the Lamination Head.
OUT OF RIBBON	The Laminator has run out of ribbon.	Load a new ribbon
OUT OF CARD	There is no card in the Laminator.	Check for a jamed card. Ensure the card is not out of specification.
MECHANICAL ERROR	An error ocured while moving a card.	Produce an initialization by switching Printer Off and On.
COMMAND ERROR	The Laminator has received an invalid Command or Parameter.	Check then resend Command.
NO ACCESS	Laminator access is restricted.	
ROTATION ERROR	A Laminator Flip-over error ocured.	Check for Card Jam.
RIBBON FAILURE	The film is glued to the card during the cool-down period	Open Laminator Bracket, remove card, and close Bracket. Check Lot Code of the Lamination Ribbon roll.
TEMPERATURE ERR	Lamination Temperature failure.	
FLASH ERROR	Laminator Flash Memory produced an error,	

5 • 2 *Print Quality Issues*

This section will help you resolve print quality problems. The print quality is dependent on several factors. The two most important factors that will increase your print quality are cleanliness and card stock. To diagnose and fix print quality problems, follow the troubleshooting procedure below:

• Small spots appear on the printed card with a non-printed area or a different color.



Possible Cause

- A** • Contamination on the card surface.
- B** • Dust inside the printer and/or dirty Cleaning Roller.

>> Solution

- A1** • Check that cards are stored in a dust free environment
- A2** • Use a different supply of cards.

- B1** • Perform a Cleaning of the printer (see Cleaning section).
- B2** • Replace Cleaning Roller (see Cleaning section)

• There are non-printing horizontal lines (white) on the card surfaces.



Possible Cause

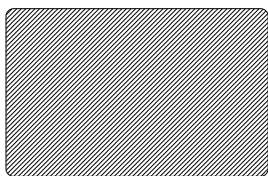
- A** • Ribbon is not correctly positioned.
- B** • Print Head may be dirty.
- C** • Print Head elements may have been damaged (e.g. scratched or burnt).

>> Solution

- A1** • Open cover and press down the Print Head Unlock Lever to open the Print Head carriage. The Print Head will move up.
- A2** • Check that the ribbon is properly rolled onto the ribbon cores and there are no wrinkles in the ribbon.
- A3** • Push down on the Lock Lever until an audible “click” signals the locked-down position.
- A4** • Ribbon will automatically synchronize.
- A5** • Print again.

- B1** • Perform a Cleaning of the Print Head (see 4 • 2 Cleaning the Print Head).
- C1** • Call service for Print Head replacement information.

• **Printing shows very pale or inconsistent results.**



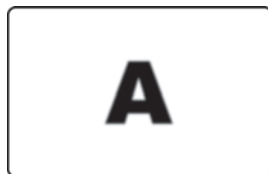
Possible Cause

- A** • Ribbon have been stored improperly or is damaged.
- B** • Cards may not meet specifications.
- C** • Contrast and/or Intensity may be set to values which are too high.
- D** • Dust or embedded contamination on elements of the Print Head.

>> Solution

- A1** • Change ribbon and print again.
- B1** • Use a different supply of cards.
- C1** • Adjust Contrast and/or Intensity values in software.
- D1** • Perform a Cleaning of the Print Head (see **4 • 2** Cleaning the Print Head).

• **Printing shows blurry printed image.**



Possible Cause

- A** • Ribbon may not be correctly positioned.
- B** • Ribbon may not be synchronized on the correct color panel position.
- C** • Cards may not meet specifications.
- D** • Dust inside the printer and/or dirty Cleaning Roller.

>> Solution

- A1** • Open cover and press down the Print Head Unlock Lever to open the Print Head carriage. The Print Head will move up.
- A2** • Check that the ribbon is properly rolled onto the ribbon cores.
- A3** • Push down on the Print Head Lock Lever until an audible “click” signals the locked-down position.
- A4** • Ribbon will automatically synchronize.
- A5** • Print again.

- B1** • Open cover and press down the Print Head Unlock Lever to open the Print Head carriage. The Print Head will move up.
- B2** • Push down on the Print Head Lock Lever until an audible “click” signals the locked-down position.
- B3** • Ribbon will automatically synchronize.
- B4** • Print again.

- C1** • Use a different supply of cards.

- D1** • Perform a cleaning of the Print Head (See **4 • 2** Cleaning the Print Head).
- D2** • Replace Cleaning Roller (See **4 • 3** Cleaning Cartridge).

- No printing on the card.



Possible Cause

- A** • Ribbon may not be installed in the printer.
- B** • Cards may not meet specifications.
- C** • Cable on Print Head may be disconnected.
- D** • Print Head elements may be scratched or burnt.

>> Solution

- A1** • Check for ribbon in the printer.
- B1** • Use a different supply of cards.
- C1** • Power off the printer and check the Print Head cable connections.
- D1** • Call Service for Print Head replacement information.



For optimum print quality, always keep cover of the printer closed except during ribbon loading and card thickness control procedures.

The card flipper will not operate and an error will be indicated if you try to flip a card with the cover open.



TECHNICAL SPECIFICATIONS



General

- High speed printing & laminating
- Small footprint
- Windows Drivers for 98SE, ME, NT 4.0, 2000, and XP
- One year printer warranty
- One year print head warranty

Color Printing

- Color dye sublimation or monochrome thermal transfer printing
- 300 dpi (11.8 dots/mm) print resolution
- Edge to edge printing standard

Bar Code

- Code 39
- Code 128 B & C with & without check digit
- 2 of 5 & 2 of 5 industrial
- UPCA
- EAN8 & EAN13
- PDF 417 2D bar code

Fonts

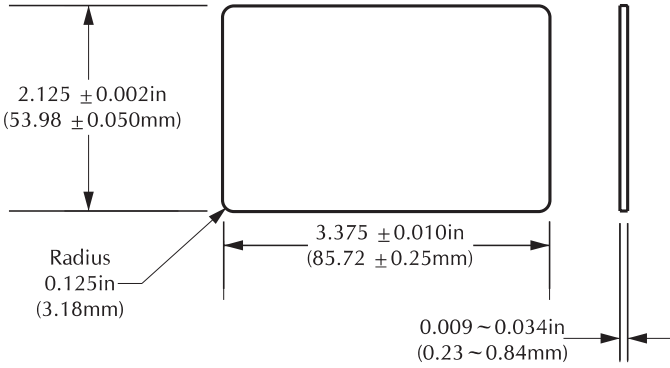
- Internal: Normal 100 point, Bold 100 point
- True Type fonts available via Windows Driver

Cards

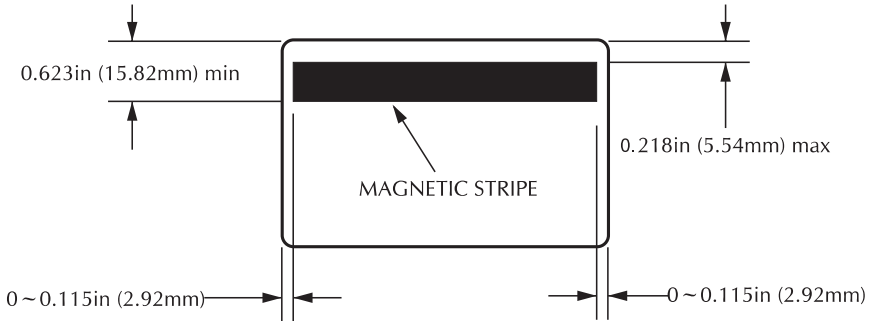
- Types PVC, Composite
- Card width/length: ISO CR-80 - ISO 7810, 2.125" (54mm) by 3.375" (86mm)
- Option: Magnetic Stripe - ISO 7811
- Option: Smart Card - ISO 7816-2
- Card thickness: 10mil (0,25mm) to 50mil (1,25mm) for printing only and 0,8mm for printing and lamination.
- Card Feeder capacity: up to 300 cards (10mil), up to 100 cards (30mil)
- Card Output Hopper capacity: 300 cards (10mil), up to 100 cards (30mil)

CARD DIMENSIONS

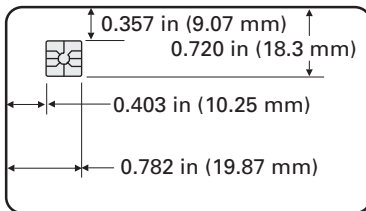
ISO STANDARD DIMENSIONS FOR PLAIN CARD



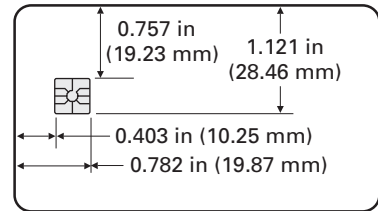
ISO STANDARD DIMENSIONS FOR MAGNETIC STRIPE CARD



CHIP POSITION FOR SMART CARD



AFNOR Cards



ISO 7816 Cards

Ribbons	<ul style="list-style-type: none"> • Monochrome: 1000/1500 cards/roll • Monochrome colors: back, red, blue, green, silver, gold, white. • K-resin + O: 500 cards/roll • K-dye + O: 500 cards/roll • YMC: 300 cards/roll • YMCK: 250/400 cards/roll • YMCK-K: 200 cards/roll • YMCKO: 200/330 cards/roll • YMCKOK: 170 cards/roll
Patches	<ul style="list-style-type: none"> • Clear Patch 1 or 0.6 mil • Clear Patch for mag. stripe 1 mil • Clear Patch for smart card 1 mil • Hologram 1 mil • Varnish full overlay
Overlay Varnish	<ul style="list-style-type: none"> • Thermal transfer • 4 microns thick • Clear and holographic options: <ul style="list-style-type: none"> - Clear - Genuine/Secure Hologram - Custom Hologram
Interfaces	<ul style="list-style-type: none"> • Centronics Parallel or Ethernet • USB port
Mechanical	<ul style="list-style-type: none"> • Width: 31,69" (805mm*) • Depth: 9,25" (235mm*) • Height: 10,43" (265mm*) • Weight: 47,28 lbs (21,45 kg)
Electrical	<ul style="list-style-type: none"> • 110 ~ 230 Volts AC, 60 ~ 50 Hz • FCC Class B, CE, UL, and CUL approved
Environmental	<ul style="list-style-type: none"> • Operating Temperature: 60 to 86°F (15 to 30°C) • Operating Humidity: 20 to 65% non condensing • Storage Temperature: 23 to 158°F (-5 to 70°C) • Storage Humidity: 20 to 70% non condensing • Ventilation: Free air

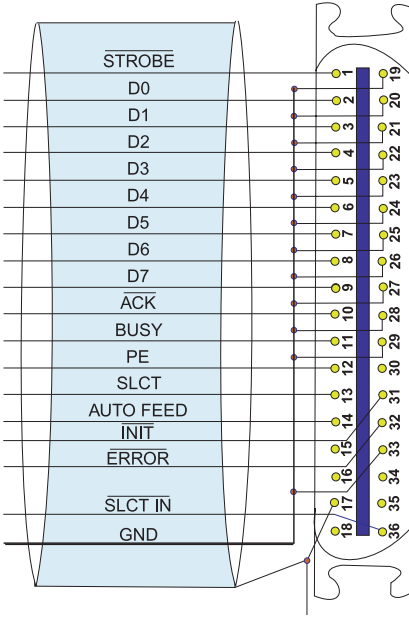
Dye sublimation printing requires dye sublimation ribbons, with either black or cyan, magenta, and yellow (plus black resin) panels.

*Measured without card output hopper.

Options	<ul style="list-style-type: none"> • Ethernet Port • Smart Card Contact Station (0.76mm cards only) • Magnetic Encoder (0.76mm cards only) • Cleaning Supplies
----------------	--

CENTRONIC CABLE INTERFACE

The above drawing shows the required connections to use the printer centronic interface.



Printer Pin	Lign Name
1	-STROBE
2	D0
3	D1
4	D2
5	D3
6	D4
7	D5
8	D6
9	D7
10	-ACK
11	-BUSY
12	PE
13	SLCT
14	-AUTO FEED
32	-ERROR
31	-INIT
36	SLCT IN
19-30-33	GND

Note: The printer pins number 15, 16, 18, 30, 34, 35 are not connected.

A

APPENDIX

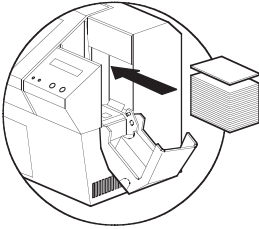
Magnetic Card Stripe Encoder

This section contains information on the additional operations of the P520i Printers with Magnetic Card Stripe Encoder.
(See Chapter 2 for location.)

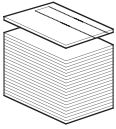
INTRODUCTION

Operation and maintenance requirements for the P520i Printer with the optional magnetic card stripe encoder.
(See Chapter 2 for location.)
The magnetic encoder can be set for either high or low coercivity.

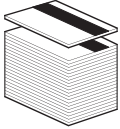
A • MEDIA LOADING ORIENTATION



The magnetic encoder is a factory installed item with the read/write head positioned below the card path, available with HICO encoding or LOCO encoding.



When loading cards into the Card Cartridge, please ensure that the magnetic stripe is facing down and closest to the rear.



Also available are Printer models with the Magnetic Read/Write head positioned above the card path, with HICO encoding or LOCO encoding.

When loading cards, please ensure that the magnetic stripe is facing up and closest to the rear.

Note:

M1 = Stripe Down HICO M3 = Stripe up HICO

M2 = Stripe Down LOCO M4 = Stripe up LOCO

approved HICO & LOCO PVC cards are available. (See Appendix C).



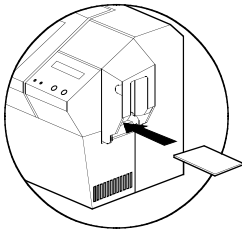
ONLY USE cards that comply with ISO 7810 & 7811 standards for magnetic stripe cards. The magnetic stripe must be flush to the surface of the card to work properly. Never use cards which have taped-on magnetic stripes.

B • MAGNETIC ENCODER CLEANING

There exists two different processes to clean the Magnetic stripe Encoder. The first process consists of a standard cleaning of the printer. This cleans the most important parts of the printer; including the print Head, Transport Roller and Magnetic Stripe Encoder (refer to chapter 4 "Cleaning" for more instructions.)

The second process consist of a cleaning of the Magnetic Encoder using the Menu Button from the LCD Display.

To access the Magnetic Cleaning Menu proceed as below:



- 1 • Leave power on.
- 2 • Remove cards from the card feeder.
- 3 • Insert one presaturated card (provided) through slot on the side of the Card Cartridge.
- 4 • Press the Menu button until the LCD screen shows CLEANING MENU.
- 5 • Press the Select button to select.
- 6 • Press the Menu button again until the LCD screen shows CLEAN MAG HEAD.
- 7 • Run this operation by pressing the select button.

ISO STANDARD ENCODING

Track #	Field Separator	Track density	Valid Characters	# of characters
1	^	210BPI*	Alphanumeric (ASCII 20 - 95**)	79***
2	=	75BPI*	Numeric (ASCII 48 - 62)	40***
3	=	210BPI*	Numeric (ASCII 48 - 62)	107***

* Bit per inch

** Except the "?" character

*** Including Start, Stop and LRC characters. Also note that these 3 characters are automatically managed by the magnetic encoder according to the ISO Standard norms.

NOTE: Refer to the Card Printer Programmer's Manual for complete programming information.

B

APPENDIX

Smart Card Contact Station

This section contains information on the additional operations of the P520i Printers with Smart Card Contact Stations.

(See Chapter 2 for location.)

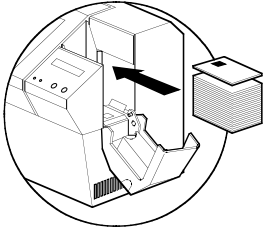
INTRODUCTION

Your P520i may be equipped with an **optional** Smart Card contact station. Smart Cards can store fingerprints, voice recognition patterns, medical records and other such data.

This printer model basically responds to commands that position the cards to the contact station, where the printer connects the pins to the contacts connector on the Smart cards.

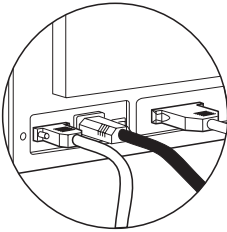
An external “encoder/reader” is necessary for programming Smart Cards (ISO 7816). All other printer operations remain the same as the standard P520i model.

A • MEDIA LOADING ORIENTATION



Position the cards with the Smart Card Chip at the top of the card and towards the printer.

B • SMART CARD CONTACT STATION INTERFACE



When a command to the parallel printer interface sends a card to the Smart Card Contact Station, the printer connects the Smart Card Contact Station to the female DB-9 connector on the rear of the printer. An attached external Smart Card Programmer can be used to program Smart card chips

DB - 9 PINS	SMART CARD CONTACT POINTS	DB - 9 PINS	SMART CARD CONTACT POINTS
1	CI (VCC)	6	C6 (Vpp)
2	C2 (Reset)	7	C7 (I/O)
3	C3 (Clock)	8	C8 (RFU)
4	C4 (RFU)	9	(GND when chip is at station)
5	C5 (GND)		

Refer to the Card printer programmer's Manual for complete programming information.



DO NOT position printing over the Smart Card Chip.

C APPENDIX

Accessories & Supplies

Please contact your Zebra authorised dealer to place an order for accessories and supplies.



Use only Zebra-approved card, ribbon and patches media. Using non-approved card or ribbon media can void your warranty.

Refer to the Accessories section for more information about Card and Ribbon Media available from Zebra Technologies Corp.

AVAILABLE FULL-COLOR PRINTER RIBBONS

Part Number	Description	Cards/roll
800015-440	YMCKO	200
800015-540	YMCKO	330
800015-448	YMCKOK	170
800015-480	YMCKK	200
800015-445	YMCK	250
800015-545	YMCK	400
800015-470	YMC	300
800015-450	Kdye-O	500
800015-460	KrO	500
800015-443	YMCUvK	200
800015-543	YMCUvK	300

AVAILABLE MONOCHROME RIBBONS:

Part Number	Description	Cards/roll
800015-101	Black	1000
800015-102	Red	1000
800015-103	Green	1000
800015-104	Blue	1000
800015-106	Gold	1000
800015-107	Silver	1000
800015-109	White	1000
800015-185	Scratch-off Gray	840
800015-301	Black	1500



Only 30 mil cards should be used when the card is to be laminated.
 Use 30 mil **composite** cards whenever possible to ensure compliance of the finished card to ISO flatness guidelines.

PRINT RIBBONS VS LAMINATOR COMPATIBILITY:

PRINTING STATION		LAMINATOR COMPATIBILITY		
Part Numbers	Description	Patch 1 mil -012 to -017	Patch 0.6 mil -135 to -138	Full Overlay -125 & -131
800015-101 to -109	Monochrome Ribbon	no	yes	yes †
800015-440 & -540	YMCKO	no*	no*	yes
800015-445 & -545	YMCK	yes	yes	no
800015-448	YMCKOK	no*	no*	yes
800015-450	Kdye-O	no*	no*	yes
800015-460	KO	no*	no*	yes
800015-470	YMC	yes	yes	no
800015-480	YMCKK	yes	yes	no
800015-443 & 543	YMCUVK	no*	no*	yes

NOTE: * These ribbons can possibly be used without using the "O"-Panel.
 † These ribbons can only be used with the full overlay Part Number 800015-125 and not with the 800015-131.

AVAILABLE PATCH RIBBONS:

Part Number	Description	Cards/roll
	Patch 1 mil Carrier-Based Rolls	
800015-012	clear patch for cards w/mag. stripe	100
800015-013	clear patch for smart cards	100
800015-014	clear full coverage patches	100
800015-031	clear full coverage alternating w/WITH mag. stripe	100 (50 cards)
800015-032	Genuine Secure Hologram Image Patches	100
800015-033	World Globe Hologram Image Patches	100
	Zebra TrueSecure Varnish Overlays	
800015-131	Clear	350
	Zebra TrueSecure 0.6 mil Carrier-Based Rolls	
800015-135	clear full coverage patches	170

CARDS FOR PRINTING AND LAMINATION:

Part Number	Description	Card/pack	thickness
104523-111	Premier grade PVC	100	30mil
104523-112	Premier grade PVC LoCo	100	30mil
104523-113	Premier grade PVC HiCo	100	30mil
104524-101	Premier plus grade composite	100	30mil
104524-102	Premier plus grade composite LoCo	100	30mil
104524-103	Premier plus grade composite HiCo	100	30mil

CARDS SUITABLE FOR PRINTING ONLY:

Part Number	Description	Card/pack	thickness
104523-110	Premier grade PVC w/adhesive back	200	10mil
104524-101	Premier plus grade composite	100	30mil
104524-102	Premier plus grade composite LoCo	100	30mil
104524-103	Premier plus grade composite HiCo	100	30mil

ACCESSORIES

Accessories available for P520i printers appear below. Always refer to the part number when placing an order.

Printer supplies	
Part Number	Description
300320-001 206851-001 105909-112	Centronics Parallel cable (36 pins) Additional Card Output Hopper Replacement Print Head Kit

Cleaning Supplies	
Part Number	Description
105909-169 105912-003 105912-002 104531-001 105909-057	Premier Cleaning Kit (25 swabs, 50 cards) Adhesive Cleaning Roller Kit (set of 5) Cleaning Cartridge, complete Cleaning Card Kit (box of 100 cards) Cleaning Swab Kit (box of 25 swabs)

Documentation	
Part Number	Description
105572-004 980415-001 980327-001	i-Series Documentation CD EPCL Programmer's Guide (English only) P520/P520i Maintenance Manual (English only)

Miscellaneous	
Part Number	Description
105600-008 806503-001 104527-001	Driver CD Card Punch (slots card for lapel clip) Lapel Clips (pack of 100 clips)

World Wide Sales and Support:

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