5300 Series Printer

Users Guide

Disclaimer

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Web site

http://www.pertechresources.com/

Federal Communications Commission (FCC) Radio Frequency Interference Statement

Warning

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and , if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Information to the User

This equipment must be installed and used in strict accordance with the manufacturer's instructions. However, there is no guarantee that interference of radio communications will not occur in a particular commercial installation. If this equipment does cause interference, which can be determined by turning the equipment off and on , the user is encouraged to contact Pertech immediately.

Pertech is not responsible for any radio of television interference caused by unauthorized modification of this equipment, or the substitution of attachment or connection cables and equipment other than those specified by Pertech. The correction of interferences caused by such unauthorized modification, substitution or attachment will be the responsibility of the user.

Industry Canada

This Class B digital apparatus complies with Industry Canada Standard ICES-003.
Cet appareil numérique de la classe A est conforme à la norme NMB-003 d'Industrie Canada.

Important Information to the User

In order to ensure compliance with the Product Safety, FCC and CE marking requirements. you must use the power supply, power cord, and interface cable which were shipped with this product or which meet the following parameters:

Power Supply

Input power to this product must be provided by one of the following:
(1) A NRTL Certified power source with a Limited Power Source
(LPS) output for use in North America, input rated 100 - 240 Vac, 1.5 A, 50/60 Hz, Output rated 24Vdc, 2.5 A Maximum and 60W Maximum. or
(2) A power source with a Limited Power Source (LPS) output Certified by an agency recognized in the country of installation, input rated 100 - 240 Vac, 1.5 A, 50/60 Hz, Output rated 24Vdc, 2.5 A Maximum and 60W Maximum. Use of this product with a power supply other than the Pertech power supply will require you to test this power supply and the Pertech printer for FCC and CE mark certification.

Interface Cable

A shielded (360 degree) interface cable must be used with this product. The shield must be connected to the frame or earth ground reference at each end of the cable.
 Use of a cable other than the described here will require that you test this cable with the Pertech printer and your system for FCC and CE mark certification.

Power cord

For North America a NRTL Recognized detachable power cord must be used. For applications where the power supply module may be located on the floor, a power cord with Type SJT marking must be used.
For applications outside of North America, Power cords which meet the country of installation's certification and application requirements must be used.
Use of a power cord other than described here may result in a violation of safety certifications which are in force in the country of use.

Contents

Preface

This manual has been written to help you Install and Operate your Pertech® 5300 Series Printer. Feel free to contact us if you need further assistance after reading this manual. Please see the Troubleshooting Printer Problems section of this manual and determine the complete part number of your printer prior to calling. Pertech provides technical support Monday through Friday from 8:00 AM to 5:00 PM MST at 307-856-4821.

Every effort has been made to insure the information in this manual is complete and accurate. Feel free to contact us with any comments concerning this manual. Pertech assumes no responsibility for errors.

Where to Get Additional information

The following publications contain more information about the 5300 series printer. Contact your Pertech sales representative to obtain additional copies of this Manual or any of the publications listed below.

Title	Part Number
5300 Printer: Setup Guide	220322
5300 Printer: Users Guide	220321
5300 Printer: Service Guide	220323
5300 Printer: Programming Manual A470	220282
5300 Printer: Programming Manual ACL	220320
5300 Printer: Programming Manual D0214	220284
5300 Printer: Programming Manual ZC 5999 / 5979	220285
5300 Printer: Programming Manual ZC 2979	220286
5300 Printer: Programming Manual ZC 1939 / 2059	220325
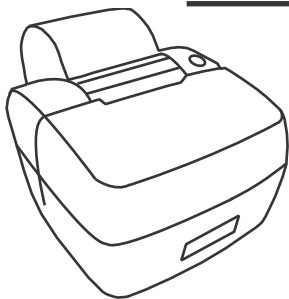
Available Models:
5351 Ink Jet Receipt / Independent Validation
5354 Ink Jet Validation Only

5371 Impact Receipt / Independent Validation
5374 Impact Validation Only

About The Printer

Unpacking the Printer

Save all packing materials in case you need to repack the printer.

To report a printer that was damaged during shipping, see "Contact Information" on the last page of this Guide.

To repack the printer, consult the illustration and use the original packing materials.

Choosing a Location

Place the printer on a level surface on or near the host computer. Leave space to open the cover, change the paper, Ink or ribbon Cartridge, and to insert a form.

The maximum distance from the printer to the host and the power supply is: 20 feet (RS-232 serial interface).

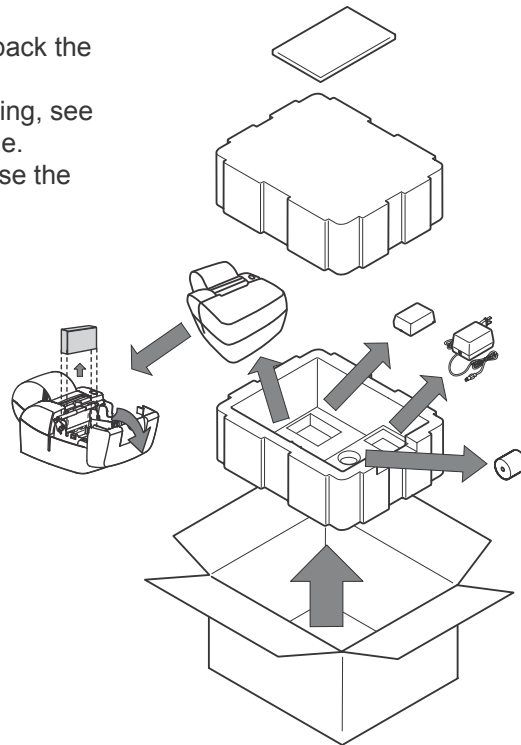## Features and Options

Automatic paper loading.

Serial and USB Standard interfaces

One button configuration.

Validation / Receipt and Validation Only Models.

Impact / Ink Jet conversion capability

535X Packing Shown

Ordering Paper and Supplies

The following section lists the paper and supplies available for order. In addition to paper and ribbons, parts, service and repair may be obtained by calling 1-**800-800-6614.**

Paper:

Call: 1-800-800-6614

Paper	Part Number
Ink Jet 5351	
One Ply	103292057
Impact 5371	
One Ply	103292062
Two Ply	103292061

Cartridge's:

Call: 1-800-800-6614

Description	Part Number
Ink Jet 535X	
Black	108541001
Impact 537X	
Black	100629011
Purple	100629012

Cables:

Call: 1-800-800-6614

Description	Part Number
5300 Printer RS232 Serial Cable	106356010
5300 Printer Certified USB Cable	106356011

Documentation:

Call: 1-800-800-6614 - or downloadable at www.pertechresources.com

Title	Part Number
5300 Printer: Setup Guide	220322
5300 Printer: Users Guide	220321
5300 Printer: : Service Manual	220223
Parts Information Manual (PIM)	220324

Operating the Printer

Using the Controls

The 5300 printer includes the
following controls :
•Paper feed button used to
 advance paper.
•Power switch used to turn the
 printer on and off.

Paper Loading

Paper and other printer consumables may be purchased from Pertech by calling 1-800-800-6614.

Roll paper must be 3.0 inches wide +/- .03 inches (.762mm) with a maximum diameter of 3.5 inches (88.9mm).
Ink Jet 535X receipt printers can accommodate 1 paper ply. Impact 537X receipt printers can accommodate 1 or two
paper plys. The minimum inside core diameter is 5/8 inches (15.875mm).
Inserted forms allow for one original plus 2 additional copies, this includes the receipt roll paper if used. Minimum
form size is 5.5 inches by 2.75 inches (139.7 by 69.9mm) with thickness between .0015 to .0047 inches (.0381-
.1194mm) for 2 ply s, .0026-.0047 for 1ply(.066-.1194mm) . Total media thickness allowed is no more than .012
inches (.305mm) includes the receipt.

To load paper the power must be turned ON. Refer to the pictorial paper loading instructions in the Paper Roll
Cover. Follow the instructions on this page.

Failure to load paper correctly may result in a paper jam. To remove paper that has jammed:

1. Open the Front Cover.
2. Pull the paper backwards out of the mechanism. If the paper will not remove pull the paper
    forwards out of the mechanism. If needed cycle power to the printer and wait 5 seconds.

Drop roll into paper bucket so that paper comes off the bottom of the paper roll. Insert the paper end into the paper
feed actuator assembly. The paper feed actuator will automatically feed the paper through the mechanism . Close
the paper cover lid, paper loading is complete.

Correct

Incorrect
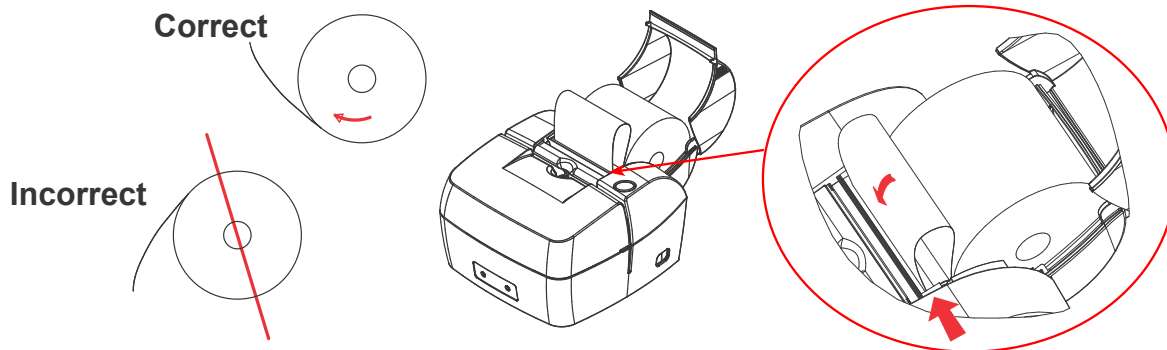
Cartridge Installation & Replacement

1. Press the Power Switch to turn on the printer.
2. Open the front cover. The printhead cradle will move to an accessible position.
3. If replacing print cartridge lift the print cartridge out and discard. Skip this step if no print cartridge is installed.

> *Note: Replacement ink jet print cartridge for your printer 108541001*
> *Replacement impact print cartridge for your printer 100629011 Black*
> *100629012 Purple.*

535X Ink Jet Specific Directions

To reset the Ink Status - Close and Re-Open the Cover after Step 3
(See INK STATUS RESET in Configuration section of this manual for available options.)

4. Remove the protective vinyl tape from replacement print cartridge.
> **Do not** touch the Ink nozzles.
> **Do not** touch or remove the copper contacts.

5. Push the print cartridge firmly, angled down into the print cartridge cradle, cradle latch will latch automatically.
6. Close the front cover.
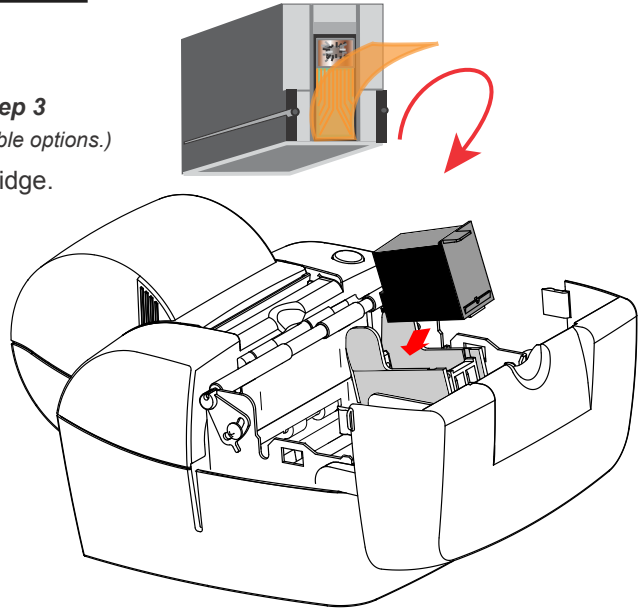
Warning: Printer is shipped without the print cartridge installed. When shipping or transporting printer remove the ink cartridge to prevent damage to the printer. Ink cartridges should be shipped in original packaging only.

537X Impact Specific Directions

4. Remove the cartridge from its protective plastic bag.
5. Angle the exposed ribbon end over the print head carriage In front of the two ribbon guides.
6. Lightly push the ribbon case down until it is engaged into the ribbon advance gear on the right side and the ribbon cartridge is flush in the ribbon carrier.

NOTE: It may be necessary to turn the ribbon advance knob clock wise during Installation to engage the ribbon advance gear.

Ribbon Advance Knob
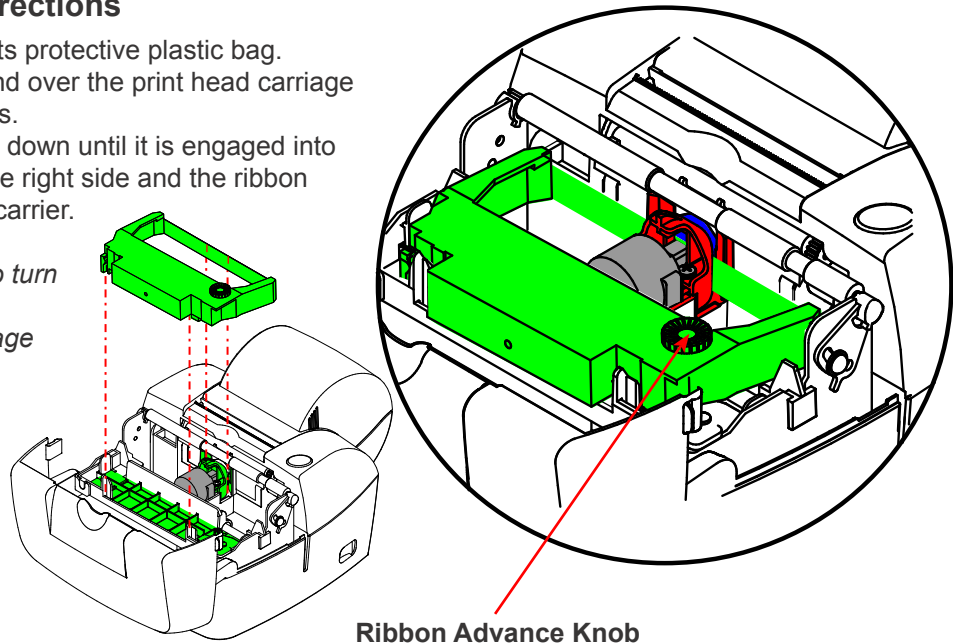
Validation and Document Guides

Validation Print Fields

The 5300 series printer has 2.5 inch wide printfield. The validation print field height is adjustable from .17 to 1.75 inches. This can be done via the configuration utility or the one button setup. An inserted form can be manually aligned or a optional document guide can be attached to provide a fixed right side stop for the inserted form. The drawings below indicate the typical print positions for a 2 3/4" X 6" form. The highlighted area is the printfield width and Maximum height.

Note: The one button set-up only has three selectable document stop settings. Using the Configuration Utility the document stop can be adjusted to any desired printfield height within the parameters specified above.See Configuration and Diagnostics section of this manual for available options.

To 2" Print Zone:
Left Justify
Right Justify
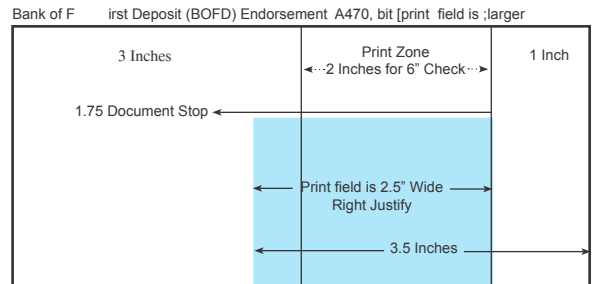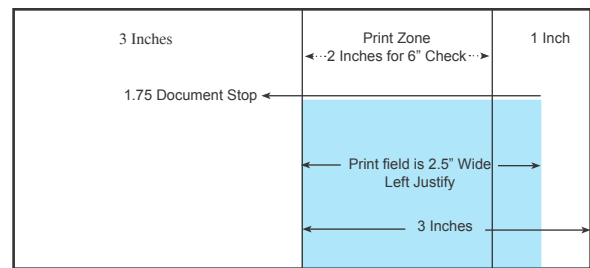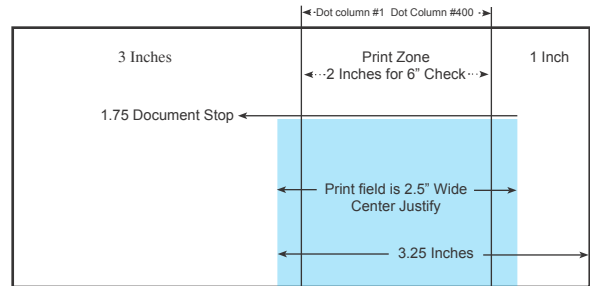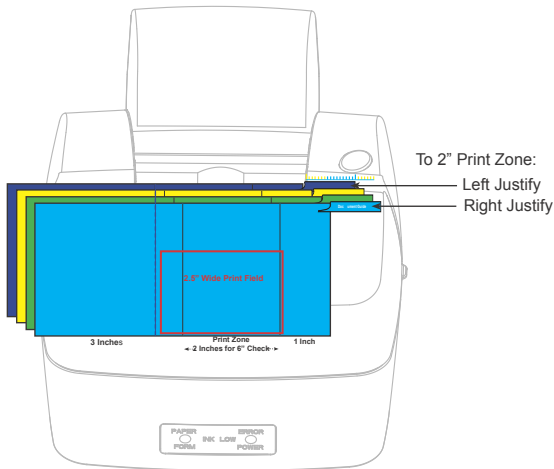
Right Edge of Form Aligned with Right Edge of Receipt Retail Endorsement. To center justify check in print zone, document guide is 2.625" from dot column #1
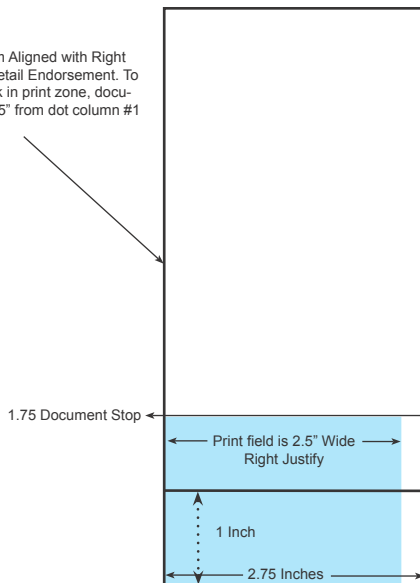
Right Edge of Form Aligned with Right Edge of Receipt BOFD Endorsement Effective print area in Endorsement zone is 1.75" wide.
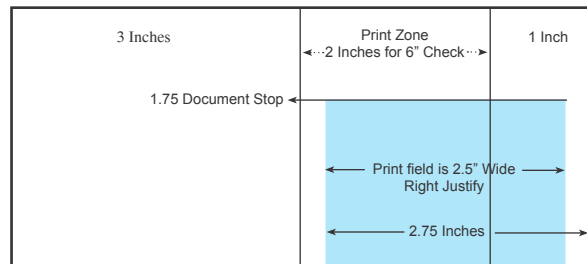
Note: The Print Field is 2.5" wide. Left Justification will overlap into the 1" right zone. Right Justification will overlap into 3" left zone.

Document Guide Installation

The Document Guide is a clip in durable plastic part that attaches to the printers Validation Roller to provide a right side guide for an inserted form.

NOTE: Before installing the Document Guide make sure the area where the guide is to be installed is free of any dust debris or contamination that could inhibit the movement of the Validation Roller.

The Document Guide is installed by attaching it to the Validation Roller. The guide is installed vertically with the bottom of the guide clipped into the Validation Roller in the rollers notch on the right side. The tapered tab end of the guide needs to be toward the top of the printer. Align the bottom two extensions of the Document guide so that they are left of the MLV Roller Gear. Make sure an inserted form will not catch on the guide.

Tab

MLV Gear
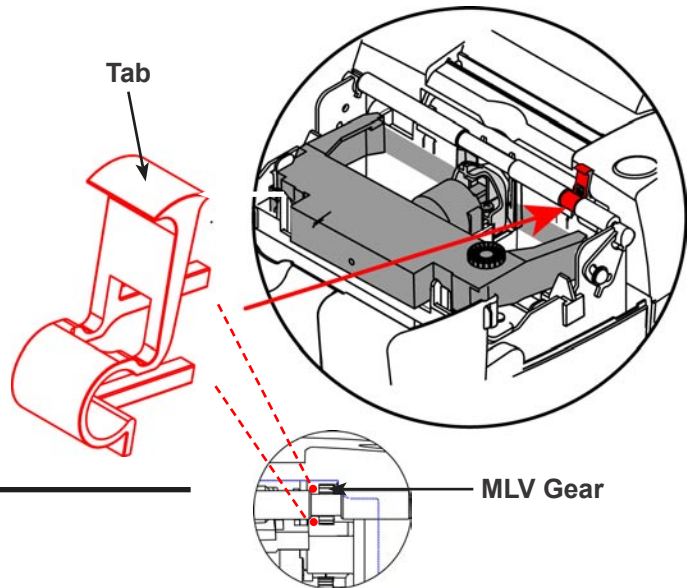
When the Document Guide is attached the Print is Left Justified to the 2" Print Zone on the back of a 2 3/4" X 6" standard check.

Note: The Print Field is 2.5" wide. Left Justification can overlap into the 1" right zone.

The print field will be 1/4" left of a standard 2 3/4" X 6" form when inserted vertically and aligning with the document guide.

3 Inches

Print Zone
◄···2 Inches for 6" Check···►

1 Inch

1.75 Document Stop ◄

Print field is 2.5" Wide

3 Inches

1.75 Document Stop ◄

Print field is 2.5" Wide

1 Inch

2.75 Inches
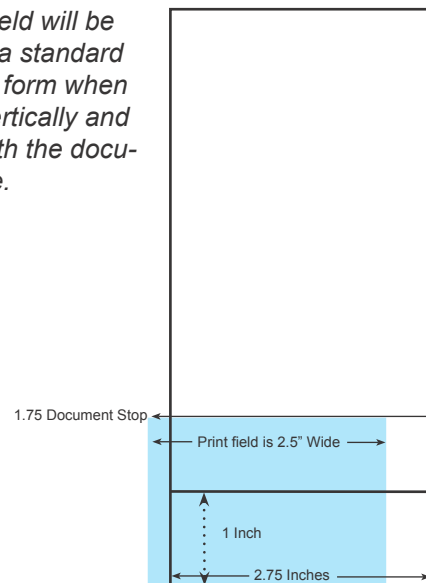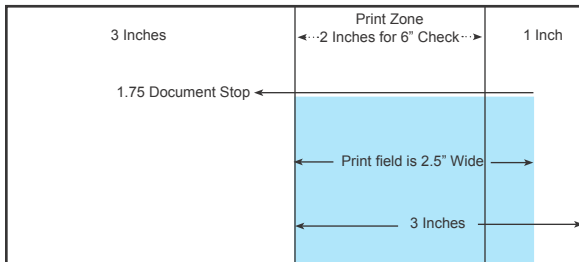
Cables and Connections

Comunications

The 5300 comes with two communication interfaces, RS-232 Serial and USB. Additionally, the printer has a cash drawer port and a three pin mini din power coupling. The RS-232 interface connector is a DB9M connector and requires a Null Modem Serial cable for standard PC to printer connections. The USB Interface uses a standard USB 2.0 cable for standard PC to printer connections. A single tele-jack port provides a cash drawer interface capable of running two cash drawers. An external Class 2 Power Supply provides 15 watt Min output to the printer. All connectors are located on the back of the printer in the order listed below.

Connecting the Cables

Caution: *Be sure the power switch is turned off before connecting cables. The host computer should be turned off before connecting any cables.*

Power   USB   Serial   Cash Drawer
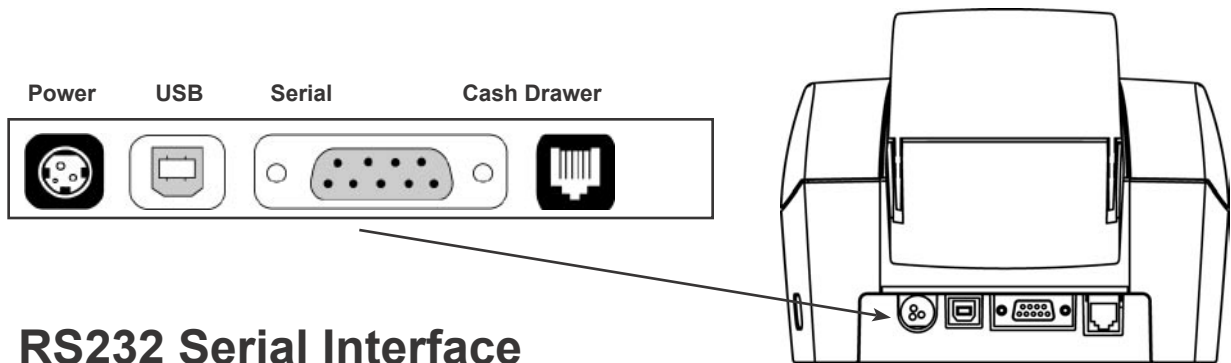
RS232 Serial Interface

1. Make sure the host computer and printer are turned off.
2. Attach the cable to the DB9 Male connector on the back of the Printer.
3 Attach the cable to the DB9 Male connector on the back of the PC.
4. Tighten the connector screws to secure the cable and ensure a solid connection.

RS-232 Interface Connection

Printer		Computer
DB-9M		**DB-9M**
Pin		**Pin**
1 N/C		1 N/C
2.RXD	←	3
3 TXD	→	2
4 DTR	→	6
5 SIG. GND.	←	5
6 DSR	←	4
(TTL FORM IN)	→	
7 RTS	→	8
8 CTS	←	7
(TTL LOW PAPER)	→	
9. N/C		N/C
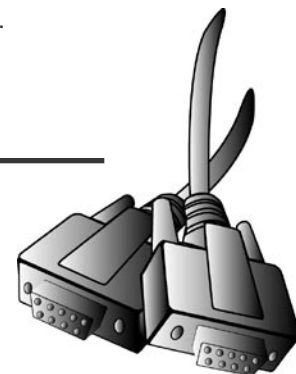
Serial Cable DB9F - DB9F

Part Number 106356010

USB 2.0 Interface

Pin 1   EOT/VCC
Pin 2   D-
Pin 3   D+
Pin 4   GND
Pin 5   GND
Pin 6   GND

The USB cable may be attached or detached when the system is on. When Using the USB interface the Windows® Operating System will automatically install the USB port driver. Pertech has available printer drivers at www.pertechresources.com.

USB Cable Part Number 106356011

Warning: When Hot Swapping USB cable make sure that cable is installed into the correct connectors or damage to the printer could result.

Cash Drawer

1. Printer should be off when connecting the cash drawer.
2. Connect the cable to the cash drawer and the printer.

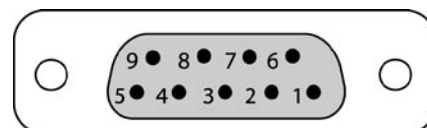| Pin #	Signal Name	Signal Source	Description
1	Ground		Ground
2	Cash Drawer drive #1	Printer	Drive for Cash Drawer 1
3	Cash Drawer Sense	Cash Drawer	Cash Drawer Switch
4	Cash Drawer +24V	Printer	Drawer supply side.
5	Cash Drawer drive #2	Printer	Drive for Cash Drawer 2
6	COM	Cash Drawer	Cash Sense Return (Gnd)

123456

A470 Cash Drawer Commands	ASCII	HEX	Decimal	Default 75ms Pulse
Cash Drawer "A"	ESC BEL	1B 07	27 7	
Cash Drawer "B"	ESC BS	1B 08	27 8	

ACL Cash Drawer Commands	ASCII	HEX	Decimal	
Immediate peripheral pulse	DLE DC4	10 14	16 20	$s\ m\ n$

s: Peripheral Select
m: Peripheral On Time
n: Peripheral Off Time

Immediately generates a pulse of (m x 2 msec) followed by an off time of (n x 2 msec) on the peripheral output. If s = 00, the first peripheral on pin 2 is activated and if s =01, the second peripheral on pin 1 is activated.
Off Time should be set so that it is greater than or equal to On Time.

Warning: use of incompatible cables can damage the printer and will void the warranty.
When purchasing a cash drawer for this product please make sure the vendor is aware of the product specifications.
When replacing an A470 model printer, the cash drawer cable must be changed.

Cash Drawer Cable

Cash Drawer
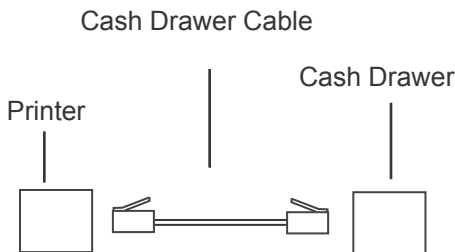
Printer

Single Cash Drawer Configuration

Cash Drawer Y Cable

Cash Drawers
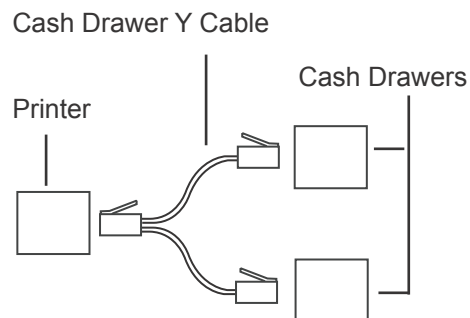
Printer

Dual Cash Drawer Configuration
(Requires Y Cash Drawer Cable Adapter, See your cash drawer manufacture for the correct cable.)

Power Supply

To avoid damage to the printer connect the Power Supply last.
1. Make sure the printer power switch is off.
2. Plug the Power Supply Cable into the printer. The power supply cable connector has a locking mechanism to ensure that the cable stays fastened to the printer. When removing the cable release the locking mechanism by pulling the mechanism away from the printer.
3. Plug the Power Supply Cable into a grounded outlet.
4. Turn the power switch on. The Power LED on the front of the Printer will illuminate to green.

PAPER
ERROR
INK LOW
FORM
POWER

Connector Cable Locking Mechanism

Pin 2 : GND
Pin 1 : +24V
Pin 3 : Empty
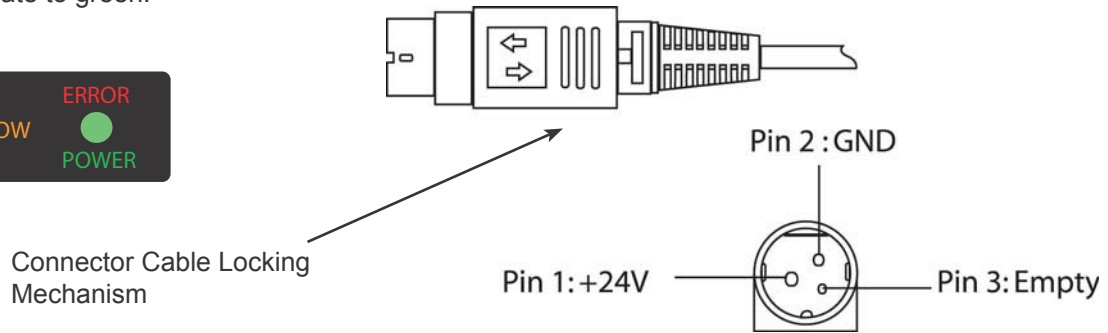
Ink Jet 535X Power Supply

INPUT

Input Voltage:	90Vac To 255Vac
Input Current:	<.5Arms At 90Vac
Input Frequency	47Hz To 63Hz

OUTPUT

Output Voltage:	24VDC
Output Current:	.625A Minimum, No Minimum Load Required
Rated Output Power:	15 Watts Minimum
Load Regulation:	+/- 5%
Line Regulation:	+/- 1%
Ripple Voltage:	250mV Peak To Peak
Inrush Current:	30A @ 115Vac, 40A @ 230Vac
Efficiency:	60% Minimum, 75% Typical

PROTECTION

Over-voltage:	25.6Vdc TO 30Vdc
Short Circuit:	Auto-Recover Upon Removal Of Short

APPROVALS

Safety Marks:	UL, CSA or CUL, *CE, *TUV
EMI:	FCC Part 15 Class B (Both Radiated And Conducted)

PHYSICAL

AC Plug:	On Wall Mount Adapter
DC Cord Length:	1830mm (6 FT.)
DC Plug:	3-pin Locking Mini Din (See Pinout Above)

Impact 537X Power Supply

INPUT

Input Voltage:	90Vac To 255Vac
Input Current:	1.5A Max
Input Frequency	47Hz To 63Hz

OUTPUT

Output Voltage:	24VDC
Output Current:	2.5A Minimum, No Minimum Load Required
Rated Output Power:	60 Watts Minimum
Load Regulation:	+/- 5%
Line Regulation:	+/- 1%
Ripple Voltage:	250mV Peak To Peak
Inrush Current:	50A @ 115Vac, 100A @ 230Vac
Efficiency:	75% Minimum

PROTECTION

Over-voltage:	25.6Vdc To 30Vdc
Short Circuit:	Auto-Recover Upon Removal Of Short

APPROVALS

Safety Marks:	UL, CSA OR CUL, CE, TUV
EMI:	FCC Part 15 Class B (Both Radiated And Conducted)

PHYSICAL

Ac Plug:	IEC 320/C6
Dc Cord Length:	1830mm (6 FT.)
Dc Plug:	3-pin Locking Mini Din

Drivers & Utilities

XP/2000 Windows Driver

Pertech provides drivers for various operating systems. Common drivers can be downloaded off the Pertech web site www.pertechresources.com. For drivers not listed on the web site check with your Pertech representative for availability.

For the 5300 to utilize the Pertech drivers or the USB communication interface a driver must be installed. When connecting the printer to a XP or 2000 Windows® operating system use the Pertech driver available for download off the Pertech web site. The printer must be set into the ACL command language to function with the driver. To set the command language see the Diagnostic & Configuration section in this manual.

Driver Installation

1. Unzip the 5300 driver package to a temporary folder. Make a note of where this folder is located for later.

2. If using USB, connect the USB cable between the 5300 printer and computer. Then turn on the 5300. This causes Windows to assign the 5300 to a Virtual USB Printer Port, which will need to be selected in the "Select Printer Port" step described below.

3. Use the "Add Printer Wizard" to install this driver on either Windows 2000 or Windows XP.   Find "Printers And Faxes" on the "Start" menu.   (Some machines may have this section under the sub-heading "Control Panel"). Click on "Add Printer" and click "Next".

4. Select "Local Printer" and uncheck "Automatically detect and install my Plug and Play printer". Click "Next". Note that unchecking "Automatically detect..." is optional, but speeds up the installation process.

5. To "Select a Printer Port", pull down the drop box. If using USB, select the virtual USB port number for the printer. If USB001 and USB002 are shown, select USB002. You can always change this later. If using RS-232 serial, select the appropriate COM port that the printer is attached and note that later you may need to adjust RS-232 settings.   Click "Next".
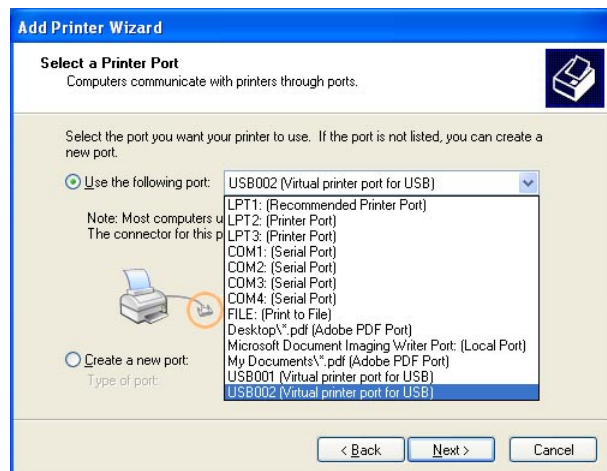
6. The "Install Printer Software" section will display a list of printers that Windows currently supports and show a button called "Have Disk". Click "Have Disk" and browse to the temporary folder where the driver was unzipped in step 1. In this folder, Windows will find "5300.INF". Click "Open", then click "OK".
Click "OK" again.
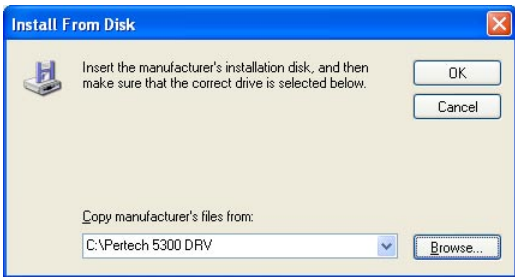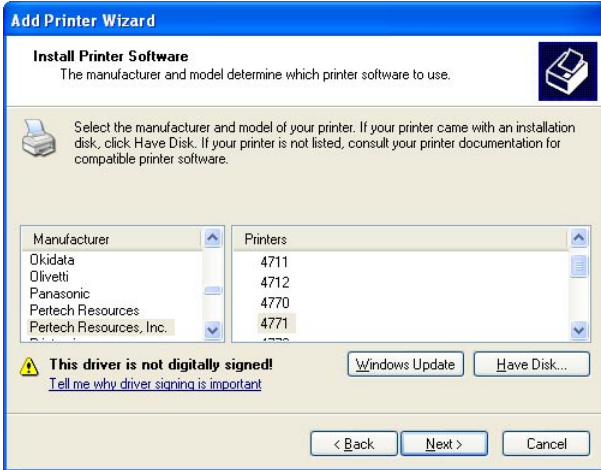
7. Four different versions of the 5300 will be listed:
        5371 (impact receipt and validation)
        5374 (impact validation only)
        5351 (inkjet receipt and validation)
        5354 (inkjet validation only).
Click on the appropriate model and click "Next".
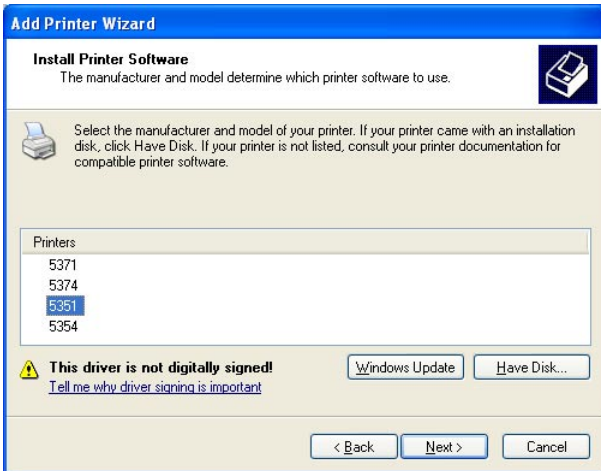
8. You can optionally rename your printer and assign it as default. Click "Next".
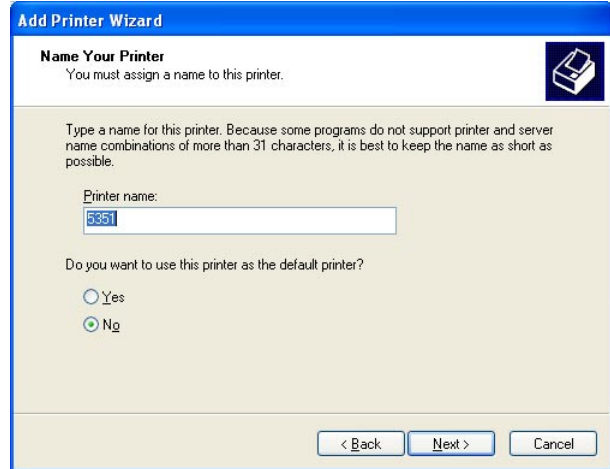
9. Click whether or not you want the printer to be shared with other PC's on a network. Click "Next".
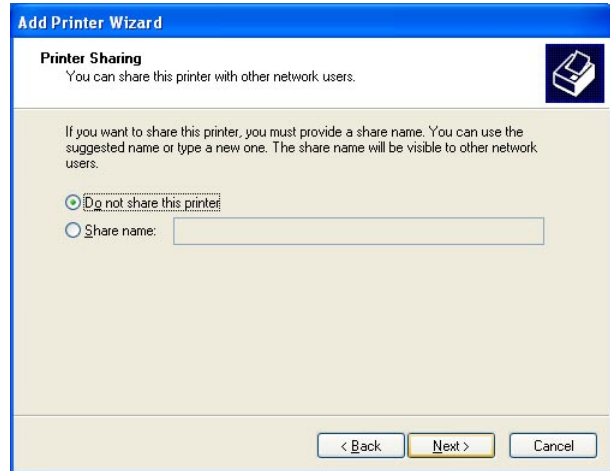
10. Click whether or not to print a test page and click "Next".
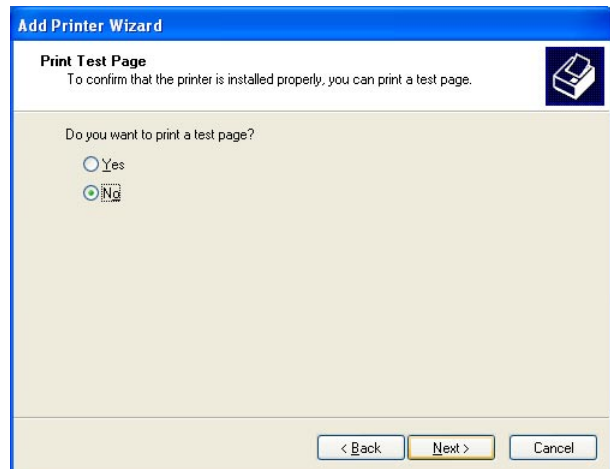
11. Click "Finish". Windows will issue a warning that the driver is not digitally signed by Microsoft®. To install the driver, click "Continue."
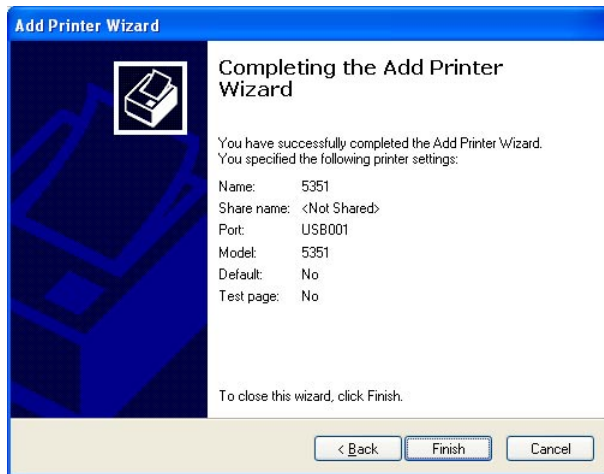
Print Driver Setup

COMx Port Set up
If using RS-232, it is likely that first time installers will need to adjust the RS-232 parameters to match the attached printer. After installing the driver, go to "Printers and Faxes" on the "Start" menu and right click on the 53xx printer driver. Select "Properties". Select the "Ports" tab. Select "Configure Port". Verify that the baud rate, parity data and stop bits and flow control match.
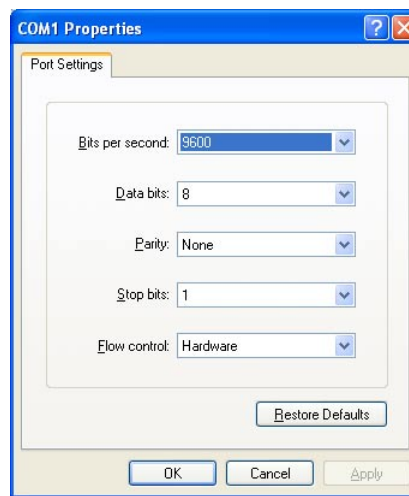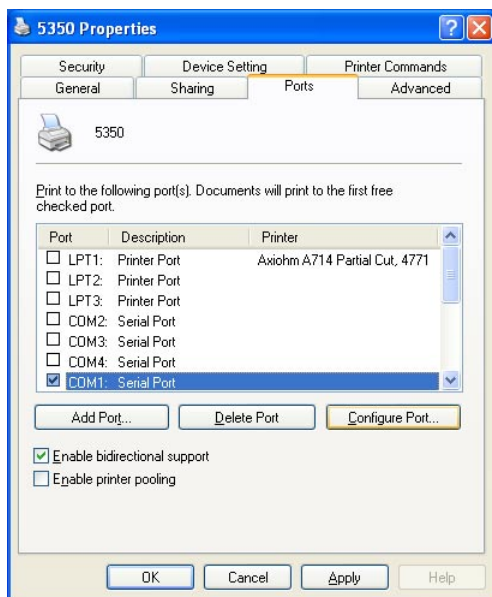
VERY IMPORTANT: Make sure that the Windows COM port is set for Flow Control = Hardware (or XON/XOFF if the attached printer is configured to for XON/XOFF). If Flow Control is set to "None", garbage print may eventually result. To check the printers configuration settings see the next section of this manual " Configuration & Diagnostic Print Tests".

Bi-directional Status
The printer driver will display printer status via an icon in the Windows System Tray, which is located on the task bar next to the clock. There are several different icons that could be possibly displayed, but the one shown represents the last printer status item that changed. To display the complete status, right click on the icon and a window will pop-up showing all status items.
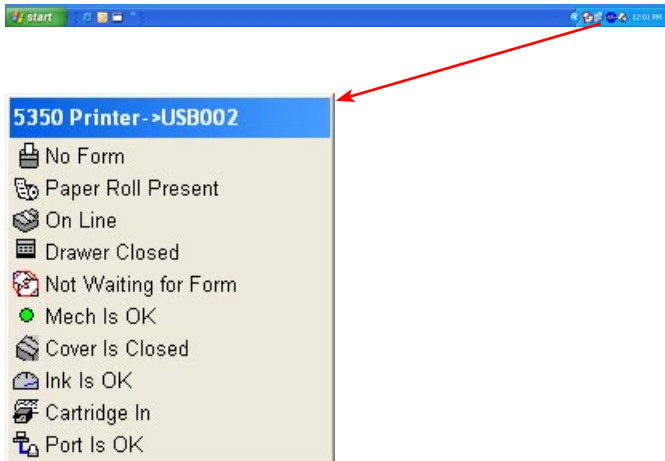
The icon can be turned off in a number of ways. Clicking on the 53xx Printer Property menu will shut the icon off until the next print job is sent. It can also be optionally disabled by unchecking "Enable bidirectional support" in the "Ports" tab , or unchecking "Enable Status" in the "Device Setting" tab of the 53xx Printer Properties dialog box.
To see a complete list of icons, please click "Help" on the "Device Setting" tab of the 53xx Printer Property page. Limited status information is also displayed in the "Details" view of the "Printers and Faxes"dialog box under the "Status" column.

Printer Configuration

The printer may be configured at any time by clicking on the printer icon in the printer folder with the right mouse button and selecting Properties. The Device Setting Tab allows the user to set the following parameters.

Clamp Delay
This is set to 1 second as a default and refers to the delay between the printer sensing that a validation slip has been inserted into the validation slot and the validation clamp operating. It is recommended that this be no less than 1 second.

Validation Height
This is set to maximum (1.75 inches) as a default but can be set between .17 to 1.75 inches. This should be set to match the printer configuration setting under the heading "Document Stop".

Bill out length
This is set to 1.57 inches (40 mm) as a default but can be changed as required. "Bill out" refers to the length of paper that is appended to the end of a print job and is normally used to move the paper up to the printer's tear bar. It is only operational if selected in the Document Defaults dialog box.
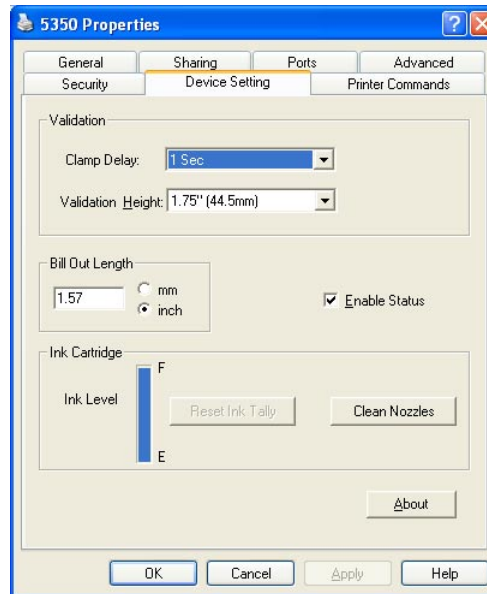
About
Clicking this button gives version information about the driver.

Enable Status
If this box is checked (this is the default condition) then information about the current status of the printer is displayed in the bottom of the screen on the task bar.

Ink Level (Inkjet models only)
This bar is adjusted when sending a print job and gives a estimated visual representation of the amount of ink left in the cartridge.

Clean Nozzles (inkjet models only)
The 535x printers perform automatic maintenance for best print quality when required, but if it is desired to force the printer to self clean its nozzles, click this button.

Printing Preferences

If the printer icon in the printers folder is clicked with the right mouse button and Printing Preferences selected the various parameters to do with the document may be modified. This dialog box is also usually available from within an application within its printer setup. Note that the current application's Printing Preferences will over-ride any set by other applications.
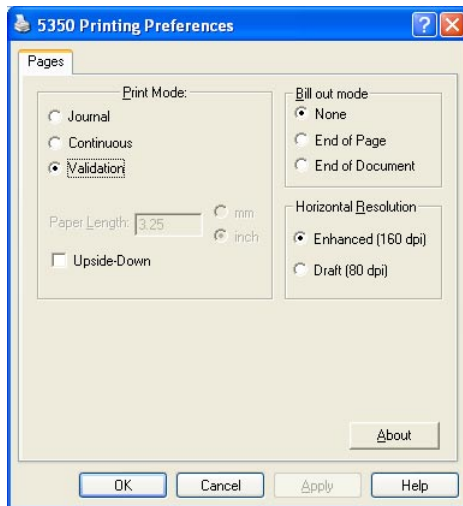
Print Mode
This defaults to journal and refers to how the job should be printed. There are three main choices:

Journal Mode. This is a standard mode of Windows op-eration and simply means that the job will be printed on the journal roll with a fixed page length - set in the Paper length box. (Applications can select "Journal" mode when dmPaperSize = 257).

Continuous Mode. This is a special mode of opera-tion which permits the journal roll to be used but without a fixed page length. In practice there is a maximum of approximately 24 inches (600mm) after which the driver will insert top and bottom margins before continuing. To minimize this effect, top and bottom margins should be set to zero in "Continuous" mode. Headers and Foot-ers in this mode will also give unpredictable results and should therefore be avoided. (Applications can select "Continuous" mode when dmPaperSize = 258)

Validation Mode. Selection of this mode will cause the print job to be printed on a Validation slip, which must be manually inserted into the slot in the printer. (Applica-tions can select "Validation" mode when dmPaperSize = 259).

Upside Down
If this box is checked then all jobs will be sent to the printer last line first and upside down. This mode is usu-ally employed when printing on certain validation

jobs. It is not available if "Continuous" mode is selected.

Bill Out Mode
This specifies if the Bill Out setting in the Printer Con-figuration should be used at the end of a document, the end of a page or not at all. The default setting is the end of a document. In most applications the bottom margin setting is used unless it is set to zero, in which case the bill out distance is used.

Horizontal Resolution
This can be set to 160 Dots Per Inch or 80 Dots Per Inch. 160 DPI will yield better printer quality but use more ink than 80 DPI. Graphics and True Type fonts will also print slower at 160 DPI. The InkJet models resident fonts (when used) will also change quality between 80 DPI. (Applications, such as Visual Basic, can use the PrintQuality attribute to select. i.e. vbPRPQHigh and vbPRPQMedium select 160 Dpi mode and vbPRPQLow and vbPRPQDraft select 80 Dpi).

About
Clicking this button gives version information about the driver.

Printer Commands

This page allows raw printer commands to be sent to the printer in addition to the Windows print job. Since the 5300 printer driver is designed for printers configured for the ACL command language, please refer to the "5300 Printer Series ACL Programming Manual" for a list and description of commands that are available.
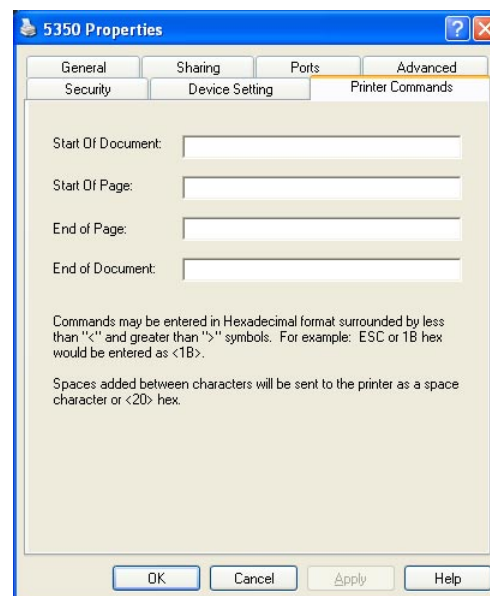
Commands can be entered in ASCII text or Hexadecimal format. To enter in hex, bracket the hex code with <> symbols. If spaces are added between characters, the printer driver will automatically convert them to <20>, or 20h, which is equivalent to ASCII space character, when OK or Apply is clicked.

Note that some commands will affect page length and may make the WYSIWYG (What You See Is What You Get) system no longer an accurate representation of the printed page.

Start of Document
This command will be sent at the start of each print job, after the printer driver transmits its own print job setup commands to the printer.

Start of Page
This command will be sent at the start of each page break in a document.

End of Page
This command will be sent at the end of each page break in a document.

End of Document
This command will be sent at the end of each print job.

Use of The Driver from within Applications

Margins:
Most word processor packages tend to automatically set all margins to approximately 1 inch (25 mm). With a printer whose field width is less than 3 inches, this will obviously need to be changed. A good starting point is to set all margins to zero. This will usually ensure that the left and right margins are set to the minimum (You may need to specify the Fix utility in Word to do this). It is recommended that the top and bottom margins are also set to zero. Note that there is an inherent top margin associated with the 53xx series printers which corresponds to the distance between the print head and the tear bar in Journal and Continuous modes. Bottom margins should use the Bill Out feature of the driver.

Resident Printer Fonts:
Any of the fonts available to applications can be used by the printer (See below about the Control Font). It should be noted however that resident printer fonts (signified by a small printer icon in the font list) print much faster and with slightly better resolution than True Type fonts (signified by the small TT icon). The style of printer fonts as compared with the enormous range of available True Type fonts is tiny. The choice of when to use each type will depend very largely on the application. Note that

while it is possible to print TT fonts and generic printer fonts on the same line, this should be avioded if possible. Printing TT and generic printer fonts on the same line will slow down the print speed, as the print head has to sweep twice, and it will increase the print job time.

Note that there are two point sizes for each font: 9 and 18. Most applications require that these be specifically set to either 9 or 18. If not, then the application will select a true type font instead. These resident fonts are:

Wide 8 CPI	Wide 10 CPI
Normal 10 CPI	Normal 12.3 CPI
Normal 14.5 CPI	Normal 16 CPI
Normal 20 CPI	

Bold, Italic and Underline versions are all available. Inverse printing causes these fonts to be printed all black.

Control Font:
The Control Font is the means by which the printer's extra features can be controlled. On a standard printer there is no such thing as a Cash Drawer controller so the Windows operating system was designed without a means of such control. The way around this problem is to use the Control Font that appears in the list as a generic printer font. These are the only characters that are used:

A - Fire cash drawer A	B - Fire cash drawer B
C - Clean Print Nozzles	1 - Select stored logo 1
2 - Select stored logo 2	3 - Select stored logo 3
4 - Select stored logo 4	5 - Select stored logo 5
6 - Select stored logo 6	7 - Select stored logo 7
8 - Select stored logo 8	9 - Select stored logo 9

Note that only the capital letters in this font do anything and while the characters appear on the screen the printer will not print them on the job, although they may slightly affect the page length. These characters should appear on a line by themselves, rather than embedded into other text.

If there was no logo downloaded to the printer that corresponds to the digit, the printer will ignore the Control font digit and nothing will be printed.

Note that the driver does not have the ability to store logos, only print them.

Status:
The status information is not exported by the driver and is only used to generate the status display on the task bar. Note that the icon displayed on the task bar only displays the last change in status from the printer.
To view the current complete status report, click on the status icon and a small dialog box will appear.

Logo Download Utility

Pertech provides a Logo Download Utility to simplify the adding of logos or Bit Mapped images to your printed tickets or receipts. The utility is available for download from the Pertech web site.

This utility allows BMP (Bitmap) graphic files to be downloaded into Pertech Resources printer memory for later printing. BMP graphics can be stored in non-volatile Flash or RAM.

The BMP Download Utility can be used on either the 5300 series printers, or the A470e printers.

The utility may be configured to download using one of two communication types: RS232 or USB. RS232 may be configured to use hardware or software handshaking, baud rates 1200, 2400, 4800, 9600, 19200, 38400, 57600 on a choice of COM ports 1-9.

Before using the utility to download BMP files, the user should verify the host communication settings match the connection to the printer. The communication settings used to transmit information to the printer are displayed on the bottom of the form. If the settings are incorrect, you may click on the "Setup" menu, then select "Communications". See the "Modify Host Communications" section of this document for more information.

The printer must be configured so that the "Printer Control Language" is set to "ACL Language".   This can be verified by printing a configuration ticket on the printer: Turn off power to printer, press and hold the paper feed button. While holding the feed button down, turn on the printer power. Release the button after the printer has finished centering the printhead.

Features

The "Add" button will open up a browser window to select a BMP file and add it to the list of BMP files to download. The BMP files must be monochrome and no larger than 368 pixels wide.
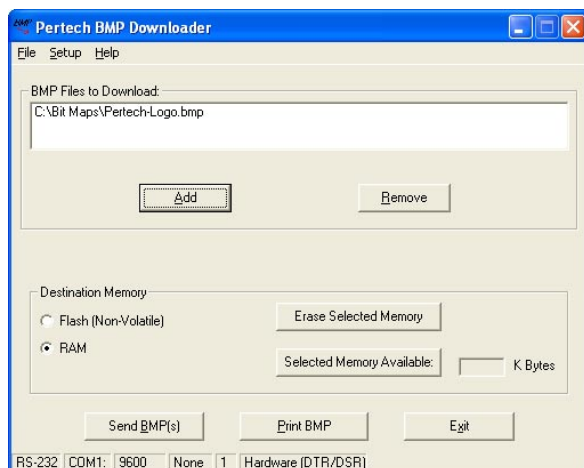
The "Remove" button will take a selected file off of the list of BMP files to be downloaded.

A "Destination Memory" must be selected, either FLASH or RAM. This selection will choose which type of memory where the BMP will be stored in the printer when the "Send BMP(s)" button is clicked. It will also choose the type of memory to be erased ("Erase Selected Memory") and the amount of total memory available ("Selected Memory Available").

Modify Host Communications

Setting the communications is done in the dialog box shown above. One of 2 interfaces may be checked, RS232 or USB.

RS232: For RS232 connections, the baud rate and handshaking method must match how the current printer is configured. If you are unsure how the printer is configured, print a self-test (hold the feed button and cycle power). Make sure that a null modem cable is connected between the selected COM port and the printer.

USB: USB connections do not require any special parameter settings. (Windows 98 users may need to check the "Troubleshooting" section of this document.)

Click on OK when the interface and parameters match those of the connected printer.
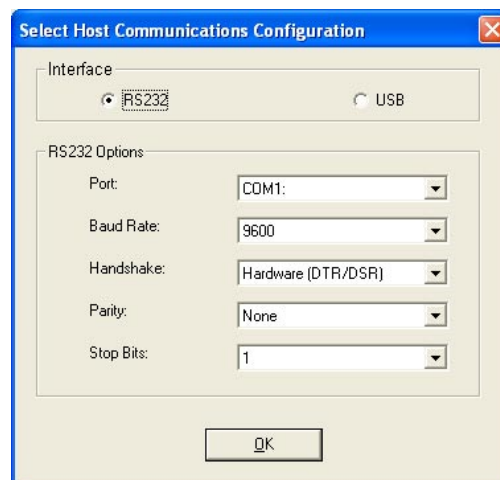
Configuration & Diagnostic Print Tests

Configuration Utility Program

Pertech Provides a Configuration Utility for the 5300 series that is downloadable from the Pertech web site. The Configuration Utility offers an alternative to the One Button Configuration explained later in this section. This utility requires a Windows XP or 2000 operating system and is easily installed. To install the Utility run setup.exe and follow instructions on the screen. For updated or additional information consult the readme / help file included with the software.

The Configuration Utility is organized in tabs and drop down box's and shows the available options for each Printer Control Language (PCL) selected.
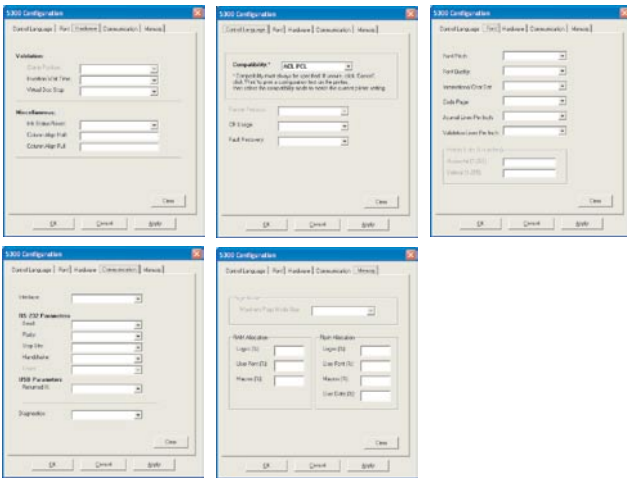
Host and printer communication settings can be configured within the application to steamline the setup for the system and printer. Before using the utility to configure a printer, the user should verify the host communication settings match the connection to the printer. The communication settings used to transmit information to the printer are displayed on the bottom of the form


The utility may be configured to download using RS232 or USB. RS232 may be configured to use hardware or software handshaking, baud rates of 1200, 2400, 4800, 9600, 19200, 38400, 57600 on a choice of COM ports 1-9.

If the settings are incorrect, you may click on the "Settings" menu, then select "Host Communication Settings", or press CTRL-H on the keyboard.

The "Configure" button will open up a window displaying allowed changes to the configuration of the 5300. See "Printer Configuration Options" for more information on the various options available. These items are what will be sent when the "Send" button is clicked. If there is a padlock icon in the bottom right of this window, then the configuration items can not be changed.

The "Send" button is what actually transmits the information set up in "Configure" to the printer. Make sure the host communications parameters match the connected printer, and that the printer is connected. It may take a few moments to transmit all the data. The 5300 may need to reset itself several times during this process. Do not disconnect the printer until the "Finished" dialog box appears. If for some reason the utility can not configure an item, you will be prompted with a choice to "Abort" the entire configuration process, "Ignore" (or skip) only the particular item that it can not configure, or to "Retry".

The "Print" button is used to print a self-test so that the configuration can be verified. Like the "Send" button, the printer must be connected, powered on, with the parameters displayed on the bottom of the window matching those of the currently connected printer. (Note that it is possible to have changed the printer communications settings if new settings were specified on a previous "Send"). Note that the printer is not able to receive data while the ticket is printing. Please wait until the ticket is finished before clicking "Send" or "Print" or a transmit error message will be displayed.

The "Exit" button will prompt the user if it would like to save the settings for a later session. If yes, then there is also an option to lock those settings, so that they can not be changed again without a password.

The user can choose to Lock Settings if desired. This prevents accidental changes from occurring in both the host communication settings and configuration items. When exiting the utility via the "Exit" button, there is a prompt to save the current settings to disk. If the user clicks "Yes", then there is a second prompt asking if locking is desired. To lock, click "yes" again and enter a password, which can be used to unlock the settings later if desired. A padlock icon will be displayed at the bottom right if the utility is currently locked. To unlock, go to the "Settings" menu under "Lock Configuration Settings" or pressing CTRL-N on the keyboard and enter the password used to lock the utility.

Modify Host Communication

RS232: For RS232 connections, the baud rate and handshaking method must match how the current printer is configured. If you are unsure how the printer is configured, print a self-test (hold the feed button and cycle power). Make sure that a null modem cable is connected between the selected COM port and the printer.

USB: No special settings are required.

IEEE1284 is not available on the 5300.

Click on OK when the interface and parameters match those of the connected printer.

Host communications will appear greyed out if the settings have been locked.

Note: Under "Printer Configuration Options", you may change the communications parameters so that they will no longer match the host configuration. The printer communications parameters are sent last and they do not take effect until the final printer reset when updating the printer. However, if the printer needs re-configured after the update process, the host communication parameters will then need to be changed to match the printer's new settings.

Printer Configuration Options

Click the "Configure" button to open the configuration window. Settings will appear greyed out if the settings have been locked.

The 5300 has several different compatible languages or "PCL's" available. Because the compatibility mode affects so many other configuration items, if the compatibility changes, all other items are reset. (Note that not all items are available depending on which compatibility mode is selected).

For all configuration items, click on the list boxes for each item to change an option. If an option is left blank, which will be the case if the "Clear" button is pressed, then that item will not be changed in the printer. Click "OK" or "Apply" to accept the settings. Clicking "OK" will close the window, and you will return to the main screen. Neither "OK" or "Apply" save the items to disk, the program must be exited to save the configuration.

If you are unsure about any of the particular items in any of the Tabs, consult the appropriate 5300 manual for the compatibility mode you are using.

If an item is left blank, then that item will not be changed on the connected printer.

Printer Control Language

There are seven printer control languages available in the configuration menu. If you are unsure which control language your application needs to communicate with the printer, contact your Pertech representative or application vendor for assistance.

A Hex Dump Diagnostic mode setting is available for printing of Hex information helpful in determining control code issues.

The Auto Line feed setting can be changed to allow Carriage Returns to be treated as Line Feeds. Additionally, some control languages offer an ACK on CR for status back to the host (See your Compatibility Mode Programming manual for details on how to implement).

The Soft Fault Recover (ACL mode only) setting allows for Automatic or Host Controlled recover when a Soft Fault occurs. Examples of Soft Faults occurrences are Cover Open, Paper Out etc. ....
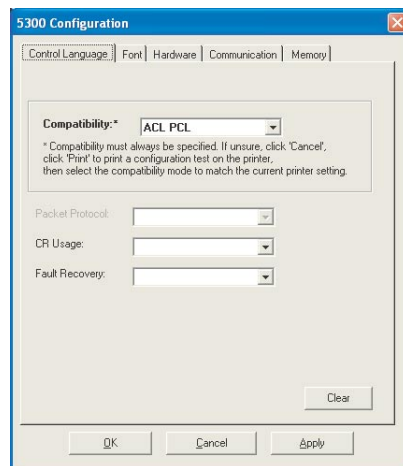
Font

There are three font options available in all control languages except the A470 Mode they are Standard - Compressed - Expanded. The table below details each of the font options pitch and column capabilities

Inkjet Font	Pitch (Char/Inch)	Columns (Char/Line)
Standard	16	40
Compressed	22.8	57
Expanded	13.2	33

The A470 control language has the following font capabilities: 33, 36, 40, 44, 50, 57, 66 Characters Per Line
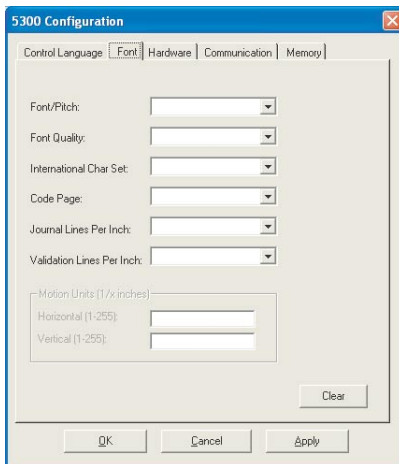
RS232 Interface

Baud Rate - Data Bits -Stop Bit - Parity and Flow control settings are selectable through the configuration menu. Flow control is designated as Hardware = DTR, DSR, or RTS, CTS depending on the printer control language being used. Software flow control is Xon/Xoff.
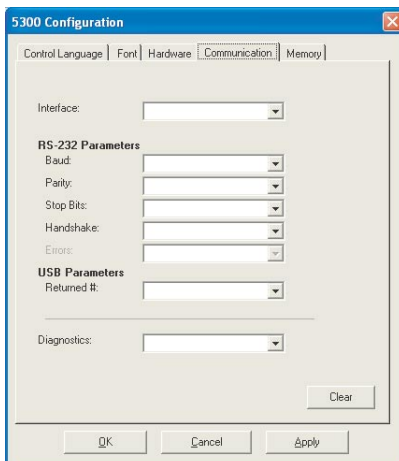
USB Interface

Change the USB option to "Serial Number" for the USB driver to assign serial numbers for each printer that is installed. The Model number default selection allows for a 5300 printer to be removed and a new 5300 printer to be installed without the Operating System detecting and installing a new driver.

Hardware

The Mechanism Model identifies the printers current model setting, this parameter can only be adjusted with the use of command codes. This parameter is set at the factory and should not require change.

The option for Validation Clamp default to be changed to the Open position is only available in the A470 mode control language.

The time allowed for the user to insert a form is selectable up to 15 minutes.

The Paper Low Stop can be set to enable or disable, enable will notify the user via the led indicator when the paper is out.

There are two options for the **INK STATUS RESET** setting.

1. Automatic (Default Setting) - Allows for the user to automatically reset the ink cartridge Dot Count Tally, LOW INK LED and Command Status Notification for a new cartridge. The cover must be opened and closed an additional time after the old Ink Cartridge is removed and before a new Cartridge is installed for the Status to clear.

2. Manual - LOW INK LED Status Notification will occur when the Dot Count exceeds it preset limit for the cartridge. The Dot Count Tally must be reset via Configuration Menu to clear LOW INK LED Status.

Available Fixed Document stop settings are 1.75", 1.63" and 1.46" these are available in the one button configuration mode. The Configuration Utility allows the Document Stop settings to be incrementally set between the .17" and 1.75". The validation print field width is 2.5", up to 14 lines of print @ 1.75" setting with Validation Lines Per inch set at 8 LPI.
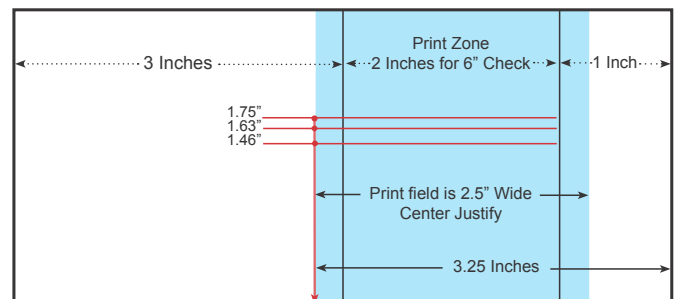
Column Alignment is set at the factory and should not be adjusted.
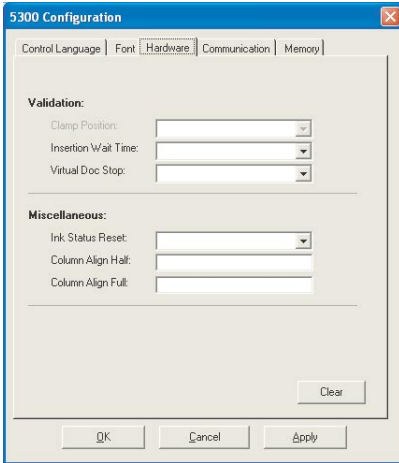
Memory

When the printer is set into the ACL Mode control language memory is user define able. The configuration utility allows the user to adjust the memory allocated for Logos, Fonts, Macros and User Data for RAM and Flash memory.
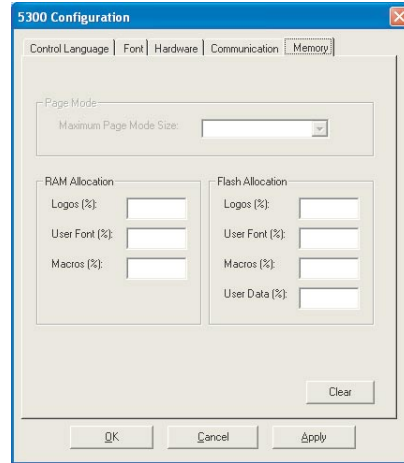
Tallies

Tallies provide information and can be reset with the use of the one button setup. Available tallied information includes:
Printed Lines -Character printed before a carriage return.
Hours On - Power on time.
Flash Updates - Number of changes made to the Flash memory for logos, or firmware updates.
Cover Opens - Number of time the cover has been opened.

Configuration Report & Setup Mode

After the printer is set up, you can run two print diagnostic reports / tests and enter the configuration menu. Below is an example of the configuration report.

1 Press and hold the Paper Feed Button and then press the Power Switch to turn the printer on and start the first test.

   Validation printers will perform a Self Test if a form is detected, when the power is turned on.

   Release the Paper Feed Button after 4 seconds for the printing to begin.

   The 5300 completes a test of RAM , a checksum test of program memory, homing and maintenance of the print head, and then prints the configuration settings.

2 To change the configuration settings, press the Paper Feed Button when prompted, the Left LED will begin flashing.

   Note: Validation-Only printers do not have this feature.

   Note: If Ink Status Reset is set to "Manual", first option to print will be "Press feed to Reset Ink Tally".

```
========================================
  Press paper feed to change configuration


        SET-UP INSTRUCTIONS

PRESSING THE PAPER FEED BUTTON WHILE THE
GREEN LIGHT IS FLASHING WILL REJECT THE
LAST PRINTED PARAMETER. IF THE BUTTON IS
NOT PRESSED WITHIN 5 SECONDS. THE PARAM-
ETER WILL BE ACCEPTED AND THE NEXT SET-UP
OPTION WILL BE LISTED.


PRESS THE PAPER FEED BUTTON NOW TO
REJECT THE CURRENT CONFIGURATION AND
CONTINUE WITH THE PRINTER SET-UP.
```

A. Entering the configuration mode, the printer prints the Set-Up Instructions and prompts the user to press the feed button to reject the current settings.

B. If you don't want to change an option, wait for five seconds and the next option will print.

C. After completing the Configuration Mode, the printer prints the new configuration settings and stores them in non-volatile memory.

Note: Exiting setup early by turning the printer off will erase any changes made to the configuration. You must complete the setup for changes to take effect.

Serial Number:	********
Main Firmware	
Revision:	* ** ***
CRC:	****
Boot Firmware	
Revision:	* ** ***
CRC:	****
Printer Control Language	
PCL:	ACL Language
Diag Mode:	Standard Print
Auto LF:	CR = CR
Soft Fault Recover:	Automatic
Font:	
Font:	Standard
Font Quality:	Draft
Intl Char set:	USA
Code Page:	437 USA
Receipt LPI:	6 Lines Per Inch
Validation LPI:	6 Lines Per Inch
RS232 Serial (when used)	
Baud Rate:	57.6K
Data Bits:	8-bits
Stop Bits:	1-bit
Parity:	None
Flow Control:	Hardware
USB (when used)	
Descriptor:	Model Number
Hardware	
Validation Clamp:	Closed
Form Insert Wait:	1 Min
Paper Low Sensor:	Enabled
Ink Status Reset:	Automatic
Document Stop:	1.75 Inches
Column Alignment	
Half Speed:	3
Full Speed:	10
Memory	
Installed RAM:	128K
Installed ROM:	512K
Total User Flash:	64K
Flash Logos	32K
Flash Fonts	0K
Flash Macros:	0K
Flash Raw Data:	32K
Total User Ram:	24560
Ram Logos:	24560
Ram Fonts:	0K
Ram Macros:	0K
Tallies	
Printed Lines:	0
Dot Count:	0
Validation Opens:	0
Feed Distance:	0
Hours On:	0
Flash Updates:	0
Cover Opens:	0
Diagnostic:	
0 0 0	

```
====================================
Press  paper  feed  to  change  configuration



Press  paper  feed  to  enter  print  test
```

3 Otherwise, wait 10 seconds and you can choose to enter an Extended Print Test. After this test, or Ignoring this option, will return the printer to normal operation after 10 seconds.

4. Extended Print Test:Checks the printers vertical line alignment, character fonts, and pitches.

1

```
=================================
Press paper feed to change configuration


    SET-UP INSTRUCTIONS

PRESSING THE PAPER FEED BUTTON WHILE THE
GREEN LIGHT IS FLASHING WILL REJECT THE
LAST PRINTED PARAMETER. IF THE BUTTON IS
NOT PRESSED WITHIN 5 SECONDS. THE PARAM-
ETER WILL BE ACCEPTED AND THE NEXT SET-UP
OPTION WILL BE LISTED.
```

2

```
PRESS THE PAPER FEED BUTTON NOW TO
REJECT THE CURRENT CONFIGURATION AND
CONTINUE WITH THE PRINTER SET-UP.
```

3

```
Printer Control Language
    PCL:              ACL Language
    Diag:             Standard Print
    Auto LF:          CR=CR

Font:
    Font:             ACL Language
    Font Quality:     Draft
    Intl Char Set:    USA
    Code Page:        437 USA
    Receipt LPI:      6 PLI
    Validation LPI    :6LPI

RS232 Serial (when used)
    Baud Rate:        57.6K
    Data Bits:        8 Bits
    Stop Bits:        1
    Parity:           None
    Flow Control:     Hardware
```

4

```
Baud Rate Options:
    9600
    19.2K
    38.4K
    57.6K
```

5

```
    Baud Rate:        57.6



    Baud Rate:        9600
```

6

```
Stop Bit Options:
    1-Bit
    2-Bit

    Stop Bits:        1 Bit

Parity Options:
    None
    Even
    Odd

    Parity:           None

Flow Control Options:
    Hardware
    Software
```

7

```
    Flow Control: Hardware



    Flow Control: Software

USB (when used)
    Descriptor:       Model Number

Hardware
    Mechanism Model:JRNL / VAL
    Validation Clamp: Closed
    Paper Low Stop:   Disabled
    Ink Status Reset: Automatic
    Document Stop:    1.75 inches
    Column Alignment
        Half Speed:   X
        Full Speed:   X

Tallies
    Printed Lines:
    Dot Count:
    Validation Opens:
    Feed Distance:
    Hours On;
    Flash Updates:
    Cover Opens:

Diagnostic:
    0    0    0



    Configuration Report to follow
```

Configuration Example:
Configure the RS232 Serial parameters for the printer using the configuration menu.

	Current Parameters	Change to:
Baud Rate	57.6	9600
Data Bits	8	8
Stop Bits	1	1
Parity	None	None
Flow Control	Hardware	Software

Press and hold the Paper Feed Button and then press the Power Switch to turn the printer on.
Release the Paper Feed Button after 4 seconds for the configuration report to begin printing.

1

At the end of the configuration report the printer will prompt **" Press Paper Feed to Change Configuration"** .
Press the Paper Feed Button.

2

The Setup instructions will print and prompt to:
"PRESS THE PAPER FEED BUTTON NOW TO REJECT THE CURRENT CONFIGURATION AND CONTINUE WITH THE PRINTER SET-UP"
Press the Paper Feed Button.

3

The First Menu Item will appear "Printer Control Language". Wait 5 seconds and the next Menu Item will appear "Font". Wait 5 seconds and the "RS232 Serial (When Used)" Menu will appear.
Press the Paper Feed Button

4

The "Baud Rate Options" will appear
Press the Paper Feed Button

5

The currently selected Baud Rate "57.6K" will appear
Press the feed button until the 9600 parameter appears then wait 5 seconds for the next option.

6

The "Stop Bits" parameter will appear
Wait 5 seconds and the next Menu Item will appear "Parity Options". Wait 5 seconds and the next Menu Item will appear "Flow Control Options".
Press the Paper Feed Button

7

The currently selected Flow Control Option, "Hardware" will appear
Press the Paper Feed Button until the "Software" parameter appears then wait until the printer goes through the rest of the menus and prints off the configuration Report.
Check the New Report with the old to make sure the setting are now correct.

Printer Configuration Options

Options for ACL Compatibility Mode

```
Serial Number:                  ********
Main Firmware
        Revision:               * ** ***
        CRC:                    ****
Boot Firmware
        Revision:               * ** ***                                              A470 Language
        CRC:                    ****                                                  Mode 1 (DO214)

Printer Control Language                                                              Mode 2 (ZC2979)
        PCL:                    ACL Language ─────────────────────                    Mode 3 (ZC5979)
        Diag Mode:              Standard Print ──────── Hex Dump                      Mode 4 (ZC1939)
        Auto LF:                CR = CR ─────────────── CR + LF                       Mode 5 (ZC2059)
        Soft Fault Recover:     Automatic ───────────── Host Controlled

Font:                                                                                 Compressed
        Font:                   Standard ──────────────────────────────
        Font Quality:           Draft ───────────────── Enhanced                      Expanded
        Intl Char set:          USA ─────────────────────────────
        Code Page:              437 USA ──────────────────────
        Receipt LPI:            6 Lines Per Inch ────── 5,7,8 LPI
        Validation LPI:         6 Lines Per Inch ────── 5,7,8 LPI         863 Canada-French   UK

                                                                         1252 Latin I         Germany
RS232 Serial (when used)
        Baud Rate:              57.6K ───────────────── 9600,19.2K, 38.4K             France
        Data Bits:              8-bits ──────────────── 8 BIT                         Italy
        Stop Bits:              1-bit ───────────────── 2-Bit                         Spain I
        Parity:                 None ─────────────────────────── Even                 Denmark I
        Flow Control:           Hardware ────────────── Software      Odd             Sweden

USB (when used)                                                                       Japan
        Descriptor:             Model Number ────────── Serial Number                 Norway

Hardware                                                                              Denmark II
        Validation Clamp:       Closed
        Form Insert Wait:       1 Min ───────────────── 1min to 15min
        Paper Low Sensor:       Enabled ─────────────── Disabled
        Ink Status Reset:       Automatic ───────────── Manual
        Document Stop:          1.75 Inches ─────────── 1.63,1.46 Inches
        Column Alignment
                Half Speed:     3
                Full Speed:     10

Memory
        Installed RAM:          128K
        Installed ROM:          512K
        Total User Flash:       64K
                Flash Logos     32K
                Flash Fonts     0K
                Flash Macros:   0K
                Flash Raw Data: 32K
        Total User Ram:         24560
                Ram Logos:      24560
                Ram Fonts:      0K
                Ram Macros:     0K

Tallies
        Printed Lines:          0
        Dot Count:              0
        Validation Opens:       0
        Feed Distance:          0
        Hours On:               0
        Flash Updates:          0
        Cover Opens:            0

Diagnostic:
        0              0              0


==================================
Press  paper  feed  to  change  configuration
```

```
Serial Number:                  ********
Main Firmware
        Revision:               * ** ***
        CRC:                    ****
Boot Firmware
        Revision:               * ** ***                              ACL Language
        CRC:                    ****                                  Mode 1 (DO214)
                                                                      Mode 2 (ZC2979)
Printer Control Language                                              Mode 3 (ZC5979)
        PCL:            A470 Language ─────────────────               Mode 4 (ZC1939)
        Diag Mode:      Standard Print ───────── Hex Dump             Mode 5 (ZC2059)
        Auto LF:        CR = CR ────────────── CR + LF

Font:
        Font:           Standard
        Font Quality:   Draft ──────────── Enhanced
        Char / Line:    33CPL ──────────── 36,40,44,50,57,66
        Intl Char set:  USA ─────────────
        Code Page:      437 USA ─────────
        Receipt LPI:    6 Lines Per Inch ──── 5,7,8 LPI
        Validation LPI: 6 Lines Per Inch ──── 5,7,8 LPI
                                                          863 Canada-French
                                                                              UK
RS232 Serial (when used)                                  1252 Latin I
        Baud Rate:      57.6K ─────────── 9600,19.2K, 38.4K                   Germany
        Data Bits:      8-bits ────────── 8 BIT                               France
        Stop Bits:      1-bit ─────────── 2-Bit                               Italy
        Parity:         None ───────────────────── Even                      Spain I
        Flow Control:   Hardware ──────── Software    Odd                     Hebrew

USB (when used)
        Descriptor:     Model Number ──────── Serial Number

Hardware
        Validation Clamp:   Closed ─────────── Open
        Paper Low Sensor    Enabled ───────── Diabled
        Ink Status Reset:   Automatic ──────── Manual
        Document Stop:      1.75 Inches ─────── 1.63,1.46 Inches
        Column Alignment
                Half Speed:     3
                Full Speed:     10

Memory
        Installed RAM:      128K
        Installed ROM:      512K
        Logo / Font Storage 64K


Tallies
        Printed Lines:      0
        Dot Count:          0
        Validation Opens:   0
        Feed Distance:      0
        Hours On:           0
        Flash Updates:      0
        Cover Opens:        84

Diagnostic:
        0           0           0


===================================
Press  paper  feed  to  change  configuration




Press  paper  feed  to  enter  print  test
```

```
Serial Number:              ********
Main Firmware
        Revision:           * ** ***
        CRC:                ****
Boot Firmware
        Revision:           * ** ***
        CRC:                ****

Printer Control Language
        PCL:                DO214 Language
        Diag Mode:          Standard Print         Hex Dump
        Auto LF:            CR = CR                CR + LF
        ACK on CR           Disabled               Enabled
                                                   (Only Available in  Modes 2 & 4)

Font:
        Font:               Standard               Enhanced
        Font Quality:       Draft
        Intl Char set:      USA
        Code Page:          437 USA                5,7,8 LPI
        Receipt LPI:        6 Lines Per Inch       5,7,8 LPI
        Validation LPI:     6 Lines Per Inch

RS232 Serial (when used)                           9600,19.2K, 38.4K
        Baud Rate:          57.6K                  8 BIT
        Data Bits:          8-bits                 2-Bit
        Stop Bits:          1-bit                                  Even
        Parity:             None                   Software        Odd
        Flow Control:       Hardware

USB (when used)                                    Serial Number
        Descriptor:         Model Number

Hardware
        Validation Clamp:   Closed                 to 15 Min
        Form Insert Wait:   1 Min                  Disabled
        Paper Low Sensor    Enabled                Manual
        Ink Status Reset:   Automatic              1.63,1.46 Inches
        Document Stop:      1.75 Inches
        Column Alignment
                Half Speed:     3
                Full Speed:     10

Memory
        Installed RAM:      128K
        Installed ROM:      512K
        Logo / Font Storage 64K


Tallies
        Printed Lines:      0
        Dot Count:          0
        Validation Opens:   0
        Feed Distance:      0
        Hours On:           0
        Flash Updates:      0
        Cover Opens:        0

Diagnostic:
        0           0           0

==================================
Press  paper  feed  to  change  configuration




Press  paper  feed  to  enter  print  test
```

Options list (right column):
- ACL Language
- A470 Language
- Mode 2 (ZC2979)
- Mode 3 (ZC5979)
- Mode 4 (ZC1939)
- Mode 5 (ZC2059)
- Compressed
- Expanded
- 863 Canada-French
- 1252 Latin I
- UK
- Germany
- France
- Italy
- Spain I
- Denmark I
- Sweden
- Japan
- Norway
- Denmark II

LED Mode Indicators

The 5300 series printers are equipped with two color led indicators that identify Paper, Error, Ink Low, Form In, and Power On conditions.

Status	Left LED	Right LED
Power On	Off	Green
Insert form	Blink Green	Current Status
Form is in	Green	Current Status
Error	Off	Red
Ink Low	Current Status	Blink Amber
Ink Cartridge Out	Current Status	Amber
Paper Out	Blink Red	Current Status
Cover Open	Current status	Blink Green
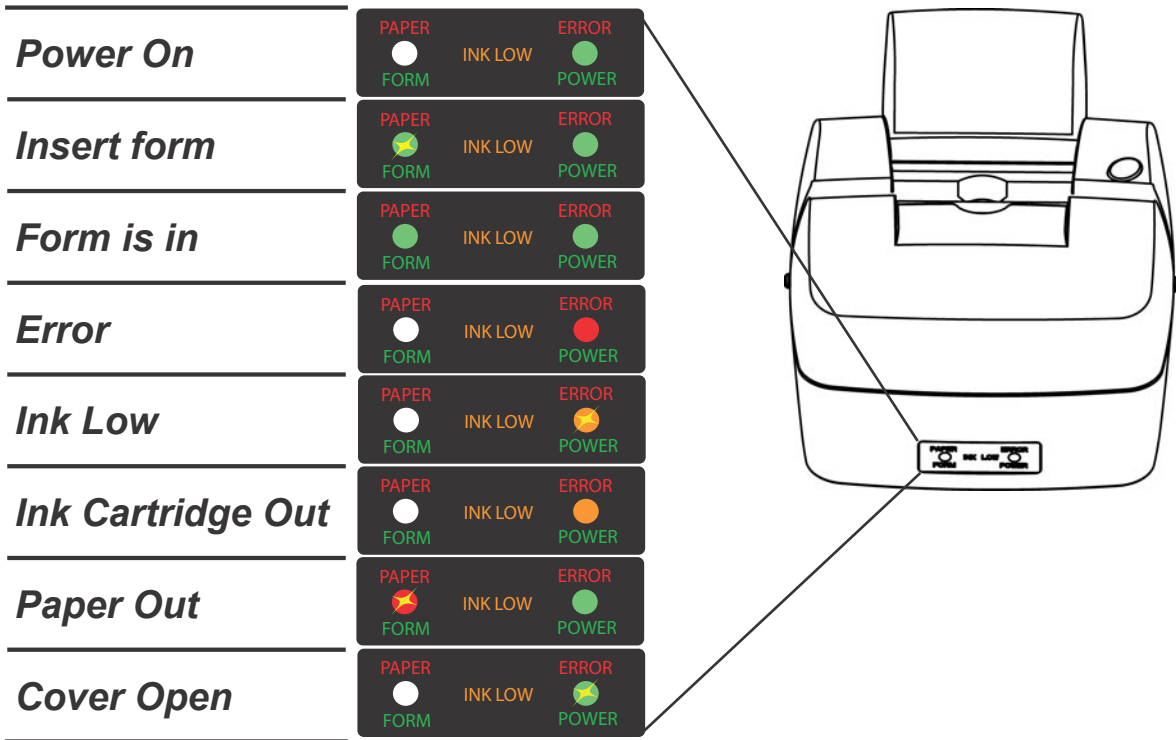
Trouble Shooting Printer Problems

LED Error Fault Mode Diagnostics

The printer will enter a Fault Mode and will not operate when certain failure conditions are encountered. Confirmation of this condition can be accomplished by the host on the DTR (pin 8) or status with an RS-232 interface.

A Printer in fault mode will not feed paper when the paper advance button on the top cover is depressed nor will it execute commands other than immediate commands that are executed even when the printer is in a fault condition. Immediate commands are high-level commands that are typically executed prior to low-level commands that are stored in the input buffer. They are received and processed regardless of the printer's fault state or communications interface busy status.

ACL Control Language Immediate Commands
(See 5300 Programing Manuals for details on these and other Compatibility Mode available commands)

Immediate status transmission	DLE EOT	10 04	16 4	n
Immediate recovery from fault	DLE ENQ	10 05	16 5	n
Immediate peripheral pulse	DLE DC4	10 14	16 20	$s\ m\ n$
Immediate printer reset	DLE @	10 40	16 64	

The color of the Power LED on the front panel of the printer will change from Green to Red if a fault condition is encountered. Depressing the paper feed button on the printer cover will cause the printer to enter diagnostic mode. This will cause the LED to flash a 3 bit code to define the specific reason the printer entered Fault Mode. The error code is followed by a delay before being repeated. The diagnostic code will toggle the DTR line <u>and</u> flash the Red LED if the RS-232 interface is selected. It will toggle the fault line and flash the green led if parallel interface is selected.

Error Code			Diagnosed failure
Dot	Dot	Dash	Mechanical Error (most likely compensator, wiper problem)*
Dot	Dash	Dot	Ram Error***
Dot	Dash	Dash	Program Error / Firmware Error***
Dash	Dot	Dot	Home Sensor Error **

* Clamp functionality, wiper engage and disengage

** Failed sensor, control board problem, mechanical problem or dirty sensor. The later has proved to be the most common and can be resolved by cleaning paper dust and other debris from the sensors and code wheel.

***Failures diagnosed with error codes indicating a problem with the firmware or control board.

The printer will remain in FAULT Mode until the power is cycled or the printer is reset with a imediate reset command.

Trouble Shooting General Issues

A. Printer prints garbage when using RS-232 and/or printer occasionally prints garbage even when not sending print job.
- Solution : Verify that the COM port is set up to match the attached printer. .

B. Printer is not printing and receive error message from Windows that it failed to print.
- Verify that the printer is connected and powered on.
- Cancel the document.
- Solution for USB users:
Windows may have assigned the 53xx printer to some other port than the one chosen during the install. Select a different "USB00x Virtual Printer Port". To do this, go to 53xx Printer Properties and select the Ports tab. If the printer is on and connected, but the 53xx icon displayed in the Printers and Faxes dialog box is grayed out, right click on the 53xx icon and check "Use Printer Off Line". Try sending the print job again. You may have to repeat this process if several "USB00x Virtual Printer Ports" are displayed under the Ports tab until you find the correct port. Always remember to cancel the documents that fail to print.
- Solution for RS-232 users:
Verify that the NULL MODEM cable is connected to the port selected by the printer driver. Verify that the baud rate, parity, data and stop bits match. If the printer is on and connected, but the 53xx icon displayed in the Printers and Faxes dialog box is grayed out, right click on the 53xx icon and check "Use Printer Off Line". Try sending the print job again.   Always remember to cancel the documents that fail to print.

C. When using a RS232 port and clicking on "Update Printer" or "Print", Windows 2000 or XP displays a message that says the port is not available, but no other applications are running.
Verify that a printer driver is not using the same COM port. Open "control panel, printers" or "printers and faxes" in Windows and select the properties (right click on the printer icon) for each installed printer. Select the "ports" tab. If the current checked port for any installed printer matches the COM port that is being used with the configuration utility, you will need to select another port for the printer driver. This only needs to be done while the configuration utility is being used. After the printer is configured, set the printer driver port back to the correct COM port

D. Utility does not communicate with USB connected printer.
If using Windows 98 SR2, you may need to contact Pertech Resources for Microsoft's USBPRINT.SYS driver. Windows ME, 2000 and XP already include this driver.
If you have a Printer Driver for Windows 2000/XP installed using a virtual USB printer port, you may have to temporarily re-assign the Printer Driver to a "File" port before using the configuration utility.   Go to "Printers and Faxes", right click on the printer, select "Properties", select the "Ports" tab, make a note of which USB port is checked, then check the "File" port. After using the configuration utility, remember to switch the port back to the USB port that it was assigned to.

E. The power switch is turned ON but the printer is dead. The Green Status light is Off.
Make sure the outlet has power and the power cord is plugged into the back of the printer. Check the power brick for a green LED (Impact Printers 537X).

F. The printer will print a Configuration Report but will not respond to the system commands.
Check to see that the interface cable is connected to the back of the terminal/ PC, and to the back of the printer.
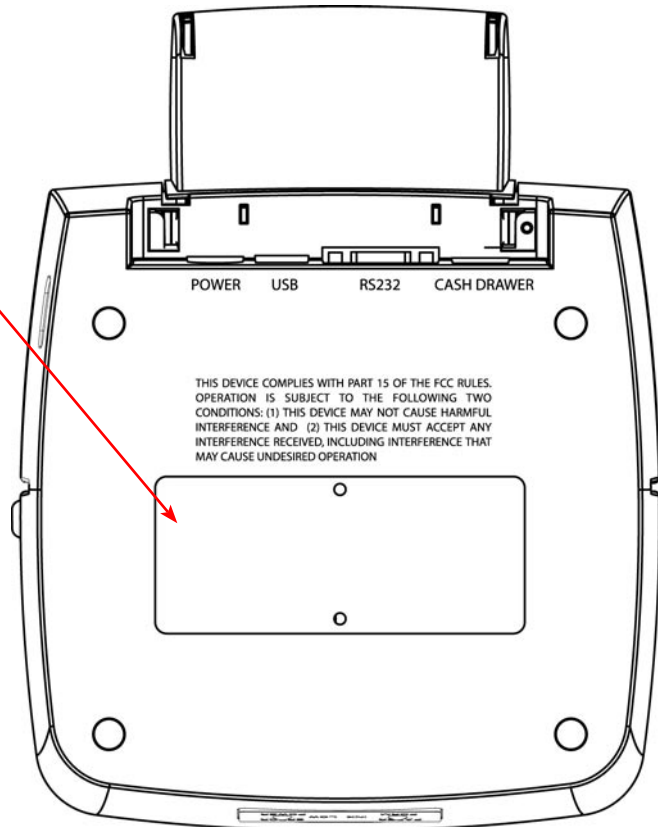
G. Printer prints too light to read easily.
Impact printers (537X) replace the ribbon cartridge. See Chapter 2 Operating the Printer.
Call 1-800-800-6614 to order new Ribbon Cartridges.

Service & Support

Pertech provides Technical Support for this product by calling 307-856-4821 between the hours of 8AM to 5PM Monday through Friday MST, or by submitting a Support Inquiry at the Pertech web site. www.pertechresources.com under the service/support section.

The Model Number, Revision, Date, and Serial Number can be located on the Label attached on the bottom of the printer. Please have this information available when you contact Pertech.

POWER   USB   RS232   CASH DRAWER

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION

Maintaining The Printer

There is no customer maintenance required for the 5300 printers. However, printers gather paper dust and other debris through normal use, continued accumulation can eventually lead to printer issues. A general preventive main-tenance program can help reduce unnecessary failures and downtime. Pertech recommends that you occasionally clean lint and paper dust out of the mechanism using low pressure canned air. It is recommended that this be done on a regular basis, such as after every Ink Cartridge change. Clean the cabinet as needed to remove finger marks and dust. Use any household cleaner designed for plastics, but test it first on a small, unseen area.

Caution: Do not spray or try to clean the print head or the inside of the printer with any kind of cleaner. This may damage the print head or the electronics.

Specifications

Dimensions	
Height	5.38" / (136.65 mm)
Width	6.92" / (175.77 mm)
Length	8.9" / (226.06 mm)
Weight	
R/V Models	5.75 Lbs. / (2.61 kg)
Ext. Power Supply	1.12 Lbs. Max. / (.051 kg)
Power Supply	Impact: 60 Watt 24V Brick or Inkjet:15 Watt 24V Wall Mount
Roll Paper	
Width	3.0" +/- .03" / (76mm +/- .762 mm)
Diameter	3.5" Max./ (88.9 mm)
Plies	1 or 2 Ply
Thickness	.0064" Combined Two Ply (.1626 mm)
Core ID	5/8" Min. / (15.875 mm)
Form	Original + 2, 5.5" by 2.75" Min.(139.7 X 69.9mm)
Thickness	.0015 to .0047 Multi-Ply / (.0381-.1194 mm)
Total Media Thickness	.012" Total (Includes Receipt) / (.305 mm)
Impact Ribbon	
Purple	4 Million Characters 100629012
Black	3 Million Characters Part # 100629011
InkJet Cartridge	Part # 108541001 (Black Ink)
Interface	
	RS232C (DB9M)
	USB 1.1, 2.0 Compatible
Baud Rates	9600, 19200 & 57600
Input Buffer	9K
Cash Drawer	One 6 Pin Female Tele-Connector
	2 Drawer Capability /Single Sense
Print Speed	Ink Jet: 5.0 LPS (Lines Per Sec.)@ 40 CPL(Characters Per Line),16 CPI (Caracters Per Inch) and 6LPI (Lines Per Inch)
	Impact : 4.7 LPI @ 40 CP L, 16 CPI and 6LPI
Paper Feed	5 Inches Per Second
Printhead	HP Inkjet / 9 Wire Impact Dot Matrix
Line Pitch	5, 6, 7, 8, LPI
Character Sets	USA
Code Pages	437 USA, 863 Canadian-French and 1252 Latin I
5 Fonts	7 x 12 @ Max. 66 CPL
	10x10 @ Max. 44 CPL
	12 X 12 @ Max. 33 CPL
	OCRA (Ink Jet ONLY)
	Times New Roman (ink Jet Only)
Graphics	InkJet: 12 Nozzle / Impact: Full 9 wire
Print Line	InkJet: 3", 96X80 DPI Draft Mode, 96X160 DPI Standard Mode.
	Impact: 72X80 & 72X160 DPI
Validation	Up to 14 Lines on Inserted Form at 8 LPI
Compatibility Modes	Seven
User Memory	
Flash	64K Expandable to 512
Ram	16K Expandable to 400K
Environmental	
Noise	62 db impact, 49 db Inkjet
Operating	10˚ to 40˚ C, Humidity 10-90% Non-Condensing
Storage	-10˚ to 40˚ C, 10-90% Non-Condensing
Expected Life	
Printhead	Impact 300 Million Impacts Per Wire
PCB	61K hrs
Mechanism	8 Miilion Printed Lines 535K Validations
Agency Listings	FCC Class B, C CSA US
Drivers	Windows XP, 2000
Utilities	Logo - Dowload - Configuration

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Warranty

Warranty

Pertech Resources warrants all of its transaction printers against defects in material and workmanship for a period of 24 months from date of shipment by Pertech Resources or the rated maximum number of transactions for the specific product – whichever comes first. Kiosk printers, mechanisms and distributed products carry warranties specific to their application or manufacturers' warranty. Contact **warranty@pertechresources.com** for details on the specific product warranty.

Pertech Resources does not consider damage caused by replacement ribbons or replacement parts supplied by parties other than Pertech Resources to be a defect in material or workmanship. This is a limited warranty, limited exclusively to its terms, including the exclusive remedies set forth below. In addition, this warranty is void if the product has been altered, misused, taken apart or otherwise abused. All other warranties, expressed or implied are excluded, including but not limited to the implied warranties of merchantability and fitness for particular purpose. Any warranty claims must be supported by proof of purchase, represented by reference to the customers' purchase order.

Buyer's Remedies

Pertech Resources' obligations and liabilities under the foregoing warranty are limited to repair or replacement of the product without charge, provided it is shipped prepaid to Pertech Resources, 860 College View Drive, Riverton, WY 82501-2298. A charge is made for repairs after the expiration of the warranty period. In addition, if a printer is returned and replacement ribbons or other replacement parts not supplied by Pertech Resources have caused the printer damage, a reasonable charge for repair will be assessed. Printers returned under warranty discovered to be

Pertech Resources Inc.
860 College View Drive
Riverton, WY 82501

www.pertechresources.com