Nanoptix

PayCheck™

High Speed Couponing Thermal Printer Operator Manual

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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 A 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 to 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 Nanoptix Inc. immediately.

Nanoptix Inc. is not responsible for any radio or television interference caused by unauthorized modification of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by Nanoptix Inc. The correction of interferences caused by such unauthorized modification, substitution or attachment will be the responsibility of 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 cables, which were shipped with this product or which meet the following parameters:

Power Supply
UL Listed power supply with standard 60Hz-50Hz, 100-240VAC input and 24VDC output equipped with AC line filtering, over-current and short-circuit protection.

Use of this product with a power supply other than the Nanoptix Inc. power supply will require you to test the power supply and Nanoptix Inc. printer for FCC and CE mark certification.

Communication Interface Cable
An approved Nanoptix interface cable must be used with this product. Use of a cable other than Nanoptix approved product will require that you test the cable with the Nanoptix Inc. printer and your system for FCC and CE mark certification.

Power Cord
A UL listed, detachable power cord must be used. A power cord with Type SVT marking must be used. For applications outside the North America, power cords that meet the particular country's certification and application requirements should be used.

Use of a power cord other than described here may result in a violation of safety certifications that is in force in the country of use.

Industry Canada (IC)
Radio Frequency Interference Statement
This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.
Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

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1. About the Printer

1.1 Description of Printer

The ***Nanoptix PayCheck High Speed Couponing Thermal Printer*** is extremely fast, quiet and very reliable. With the technology of thermal printing, there is no cassette or ribbon to change and paper loading is extremely simple. The printer is portable and is easy to use with the ticket exiting from the front.

1.2 Nanoptix PayCheck High Speed Couponing Thermal Printer

Figure 1: Nanoptix PayCheck High Speed Couponing Thermal Printer

1.3 General Specifications

Print Method	Direct Thermal
Resolution	8 dot/mm (203 dpi)
Print Width	62.5 mm (2.46 in)
Paper Width	65 mm (2.56)
Max Ticket Capacity	800 Tickets Max
Sequence Printed Max	200 Tickets Max
Operating Temperature	0° to 50° C
Storage Temperature	-20° C to 60° C
Operating Relative Humidity	5% to 90% RH at 50C (Non-Condensing)
Communication Interface Options	RS-232C, USB.
Memory/Firmware	64 Mbit SDRAM, 16 Mbit Flash for storing Code, Logos, Images, etc.
Resident Character Sets	Arial Bold (6 sizes) Note: Other Character sets can be programmed quickly
Integrated Bar Codes	UPC-A, UPC-E, interleaved 2 of 5, Code 39, Code 93, Coda bar, EAN 8, EAN 13, Code 128. Note: Other Bar Codes can be programmed quickly
Speed	Up to 200 mm/second Monochrome (8 in) Up to 125 mm/second Two color mode (5 in)
Sensors	• Paper Out • Cutter Homed • Paper Low
Human Interface	Drop-In Paper Loading, Power LED, Status LED, Paper Feed Button
Dimensions (Width x Height x Depth)	178.8 mm (7”) X 192.1 mm (7.5”) X 474.9 mm (18.7”)
Weight	5.5 KG
Immunity	EN 55024: 1998 + amendment A1: 2001 + amendment A2: 2003
Emission Standards	United States – FCC 47 CFR Part 15, Subpart B Canada – ICES-003 Europe – EN 55022: 1998
Safety	United States – UL60950-1 first edition 2003, includes revisions through and including November 26, 2003 Canada – CSA C22.2No. 60950-1-03, First edition 2003 Europe – IEC 60950-1, first edition 2001
RoHS	RoHS Compliant

Table 1: Specifications

2 Printer Controls

2.1 Paper Loading

Caution: Do not operate the printer if it runs out of paper. The printer will not operate without paper, but it may continue to accept data from the host computer. Because the printer cannot print any transactions, the data may be lost.

1. Unlock and push button to lift open the top cover.

2. Reload the ticket tray of fanfold paper.

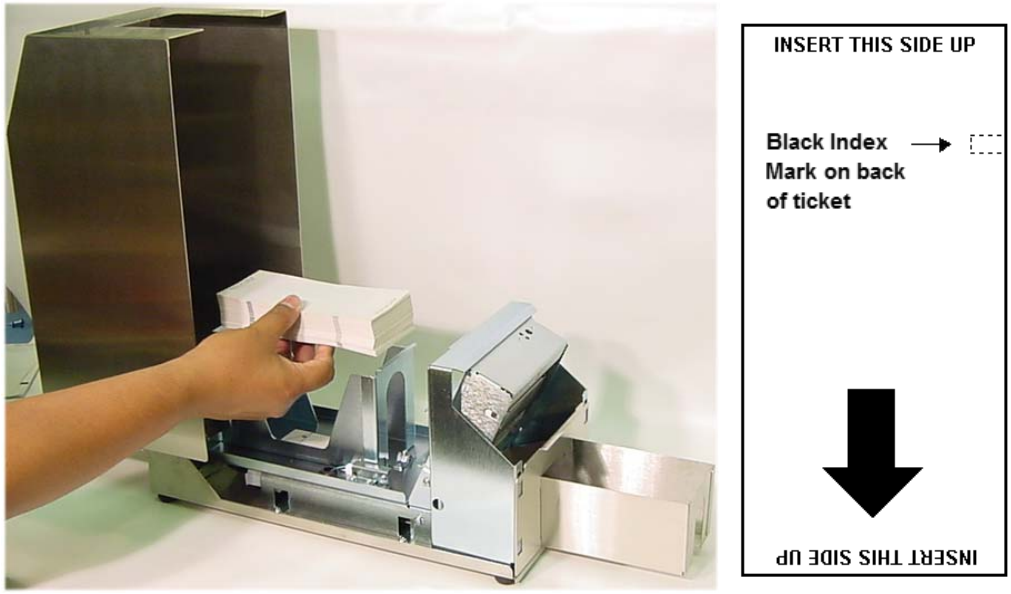

Figure 2: (Left) Loading Paper. (Right) Top view with arrow pointing towards output tray.
Note: The above arrow does not appear on actual ticket.

3. Lift the top ticket from the stack and align the left edge of the ticket to the left edge of the input paper guide.

Figure 3: Aligning Paper Edge

4. Slowly slide the paper towards the output tray. The printer will grab the paper and advance until one full ticket has passed and cut the first ticket.

5. Close the top cover making sure the button is latched.

Figure 4: Closing Cover

Note: In the event of a paper jam, see section 2.7: Clearing jams

2.2 Calibrate Printer

Depending on the manufacturing of the paper, there may be small variations in the intensity of the index mark located on the back of each ticket.

If the intensity falls outside of the pre-calibrated range of the printer, the printer will need to be re-calibrated. This will be obvious by the printer either cutting the tickets in the wrong location or the printer feeding multiple tickets.

To calibrate the printer following these steps:

1. Separate the ticket that is in the print head from the stack on the perforated line.
2. Press the Paper Feed Button to eject the ticket that is in the print head.
3. Take a single ticket from the stack and insert it in the input paper guide the same manner as loading a new stack of paper. The printer will feed the single ticket to the output tray.
4. Re-feed the existing paper stack as described in Section 2.1.

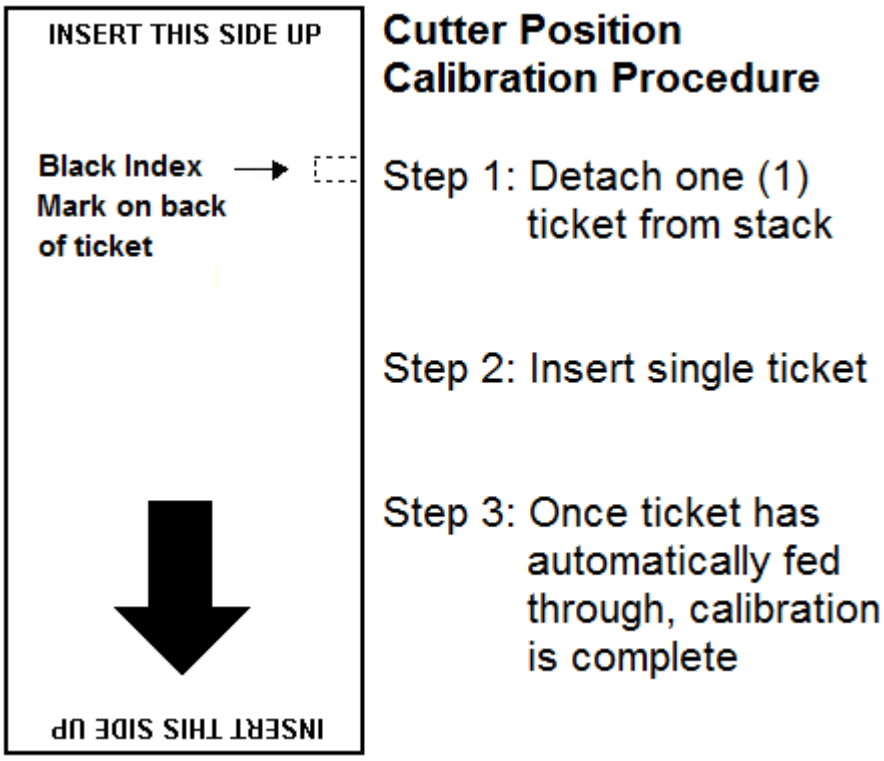

Figure 5: Top view with arrow pointing towards output tray.

The printer will now be re-calibrated for the intensity of the current paper.

2.3 Resetting Printer

In the event of a fault condition, simply disconnect the printer's power connector to reset. Once the printer is re-connected, it will go through a startup routine and reset itself.

Figure 6: Resetting Printer

2.4 Paper Feed Button

Use the Paper Feed Button to advance the paper by one complete ticket. After the ticket has advanced it will also be cut.

Figure 7: Paper Feed Button

2.5 Status LED

Condition	LED Status (Green)	LED Status (Red)
Unit Ready	On	Off
Unit Reset	On	On
Unit Booting	On	On
Unit Standby	Off	Off
Unit Powered Off	Off	Off
Paper Low	On	Off
Paper Out	On	Slow Blink
Paper Jam	On	Fast Blink
Black Index Mark Missing	On	Fast Blink
Temperature Error	On	Medium Blink
Voltage Error	On	Slow Blink
Print Head Error	On	Fast Blink
Cutter Error	On	Fast Blink

Table 2: LED Information

Figure 8: LED Positions - Red on Top, Green on Bottom.

2.6 Testing the Printer

Run this test to check the printer. The test prints and cuts a resident test ticket. Verify this ticket to judge the printing quality.

Model:	PAYCHECK HSC
Firmware:	HSC-3.58Z (0xD5F7)*
Protocol:	ITHACA 950
COMMUNICATION	
Interface:	Serial
Baud:	9600
Data Bits:	8
Parity:	NONE
Handshaking:	PRT+XON+RTS
Print Mode:	Line
PRINT CONTROL	
Print Method:	No HPQ
Speed:	200 mm/sec
Black Bar Index:	Right
No HPQ Burn Time:	275 us
Clear After Cut:	254 steps
Cutter PWM:	80 %
Motor Current:	3
Real Time Command:	Disabled
Validation Bit:	After Barcode
Cut Cal. (Auto):	161+258 steps
PRINTER ENVIRONMENT CONDITIONS	
Voltage:	24.4 Volts
Temperature:	20 Celsius
SYSTEM RESOURCES	
FLASH: Used=00000 Free=65535	RAM: Used=00000 Free=65535
LIBRARY INVENTORY (HSC)	
Templates:	0,1,2,3,4,5,6,7,8,9,A,B,D, E,F
Regions:	1,2,3,4,5,6,7,8,h,9,A,B,C, D,E,F,G,I,J,K,L,N,O,P,Q,R, S,T,U,Z,X,a,b,c,d,e,f,g,i, j,k,l,m,n,o,p,q,r,s,t,u,v, w,x,y,z
Fonts:	0,1,2,3,4,5,7,8,9,A,B,E,P
Graphics:	
MANUFACTURING INFORMATION	
Printer ID:	PC00014
Date Code:	20080623

A to D: 03cc,01e6,01f8,03ce

* S | 0 | HSC-3.58Z | @ | @ | @ | H | @ | P | *

*** Indicates the Firmware CRC ***

Figure 9: Status Ticket

To print the test ticket, power-on the printer while pressing and holding the Paper Feed Button for approximately 5 seconds. A test ticket similar to above will be printed approximately 3 seconds after. Press the paper feed button once more and the ticket will feed. Pressing the button again will result in blank tickets.

2.7 Clearing Jams

Remove paper output tray. Open top cover and unlatch the front mech assembly (see Figure 10: Latch), then lift up (see Figure 11: Front assembly). Finally, clear jam from the paper path (see Figure 12: Clear Jam).

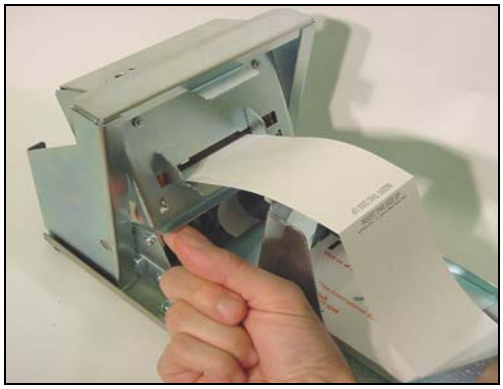

Figure 10: Latch

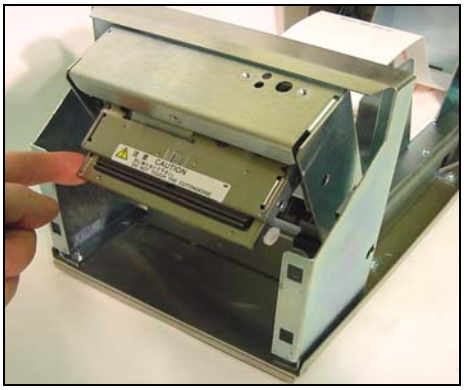

Figure 11: Front assembly

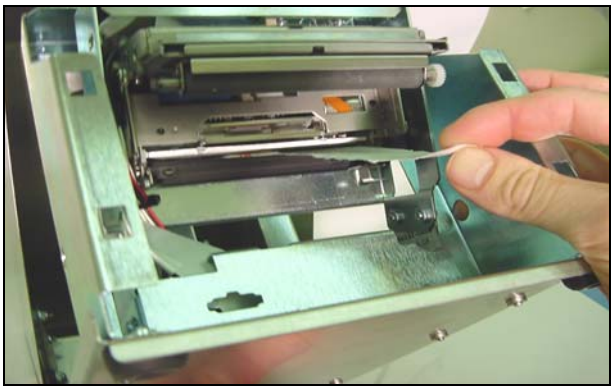

Figure 12: Clear Jam

3 Troubleshooting the Printer

3.1 Printer Interface Ports

Port Identification	Connector Type	Function
A	USB Type Mini B	USB Communication
B	DB9 Receptacle	RS-232 Communication
C	Molex 2 Pin Latching	24 VDC

Table 3: Interface Ports

Figure 13: Interface Ports

3.2 Pin Designation of Communication Interfaces

3.2.1 RS-232 (DB-9)

Pin	Signal Name	Printer I/O	Host I/O	Printer Function
1	AUX_PWR	5V Output	N/A	Aux Power (100mA)
2	RS232_TXD	Output	Input	Data Transmit
3	RS232_RXD	Input	Output	Data Receive
4	No Connect	N/A	N/A	N/A
5	DGND	Ground	Ground	Signal Ground/Aux Ground
6	No Connect	N/A	N/A	N/A
7	RS232_CTS	Input	Output	Handshake
8	RS232_RTS	Output	Input	Handshake
9	NC or PWR	No Connect	No Connect	Reserved

Table 4: 9 Pin RS232 Serial Interface

3.3 Sensors & Switches

Sensor / Switch	Function
A	Paper Low
N/A	Top of Form (Not Shown)

Table 5: Sensors & Switches

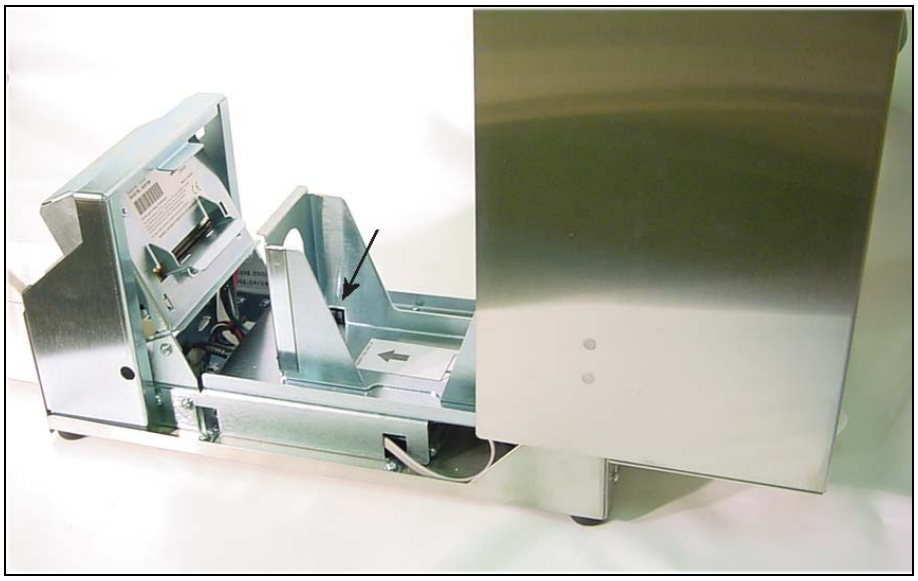

Figure 14: Sensors & Switches

3.4 Printing Problems

The table below can be used to determine the cause and resolution of the most common problems that may occur. If the information in this section does not correct the problem, contact your authorized service representative.

Problem	Possible Causes	What to Do
Receipt does not come out all the way.	Paper is jammed.	Press latch button to open cover, inspect the cutter, and clear any jammed paper.
Printer starts to print, but stops while the receipt is being printed.	Paper is jammed.	Press latch button to open cover, inspect the cutter, and clear any jammed paper.
Receipt is not cut.	Paper is jammed.	Press latch button to open cover, inspect the cutter, and clear any jammed paper.
	The printer is not configured for a cutter.	Contact your authorized service representative.
Print is light or spotty.	Paper stack loaded incorrectly.	Check that the paper is loaded properly.
	Thermal print head is dirty.	Use recommended thermal receipt paper.
Vertical column of print is missing.	This indicates a serious problem with the printer electronics.	Contact your authorized service representative.
One side of receipt is missing.	This indicates a serious problem with the printer electronics.	Contact your authorized service representative.

Table 6: Troubleshooting Printing Problems

3.5 Printer Does Not Work

Problem	Possible Causes	What to Do
Printer Does Not Function When Turned On.	Printer not plugged in.	Check that printer cables are properly connected on both ends.
		Check that the host or power supply is switched on. Check Printer LED.
	Door not fully closed.	Close the door.

Table 7: Printer Does Not Work

4 Media and Supplies Guide

4.1 Media Specifications

The printer requires qualified thermal paper with the following specifications:

- Ticket dimensions shall be 65mm +/- 1mm (2.56" +/- 0.040") x 156mm +/-1mm (6.14" +/- 0.040")
- Paper stock shall be furnished in bulk stacks of 800 tickets.
- Tickets shall be attached (chained) to one another at 156mm intervals and supplied in "fan-folded" format
- Attachment between tickets shall be made with perforations across the paper width (65mm).
- The perforations shall also define the fold point in the paper stock.
- Perforation (burst) strength, or pull force, shall be 1.3lbs +/- 0.4lbs (0.59Kgs +/- 0.18Kgs)

4.2 Ordering Thermal Paper

We recommend the following paper grade produced by Graphic Controls and Slot Tickets. There are a number of paper converters qualified to supply this paper, provided the stacks are from these recommended grades. We would be happy to provide a quote for qualifying additional grades not listed below.

Manufacturer	Contact Person	Contact Numbers
Graphic Controls LLC **400 Exchange Street** **Buffalo, New York** **14204** **United States of America**	Suzanne Talbott	800-669-1535 Tel 800-347-2420 Fax
Slot-Tickets **6972 Appling Farms Parkway** **Suite 105** **Memphis, Tennessee** **38133** **United States of America**	Susan Mitchell	901-377-1849 Tel 901-377-1102 Fax

Table 8: Ordering Thermal Paper

5 Mechanical Drawings

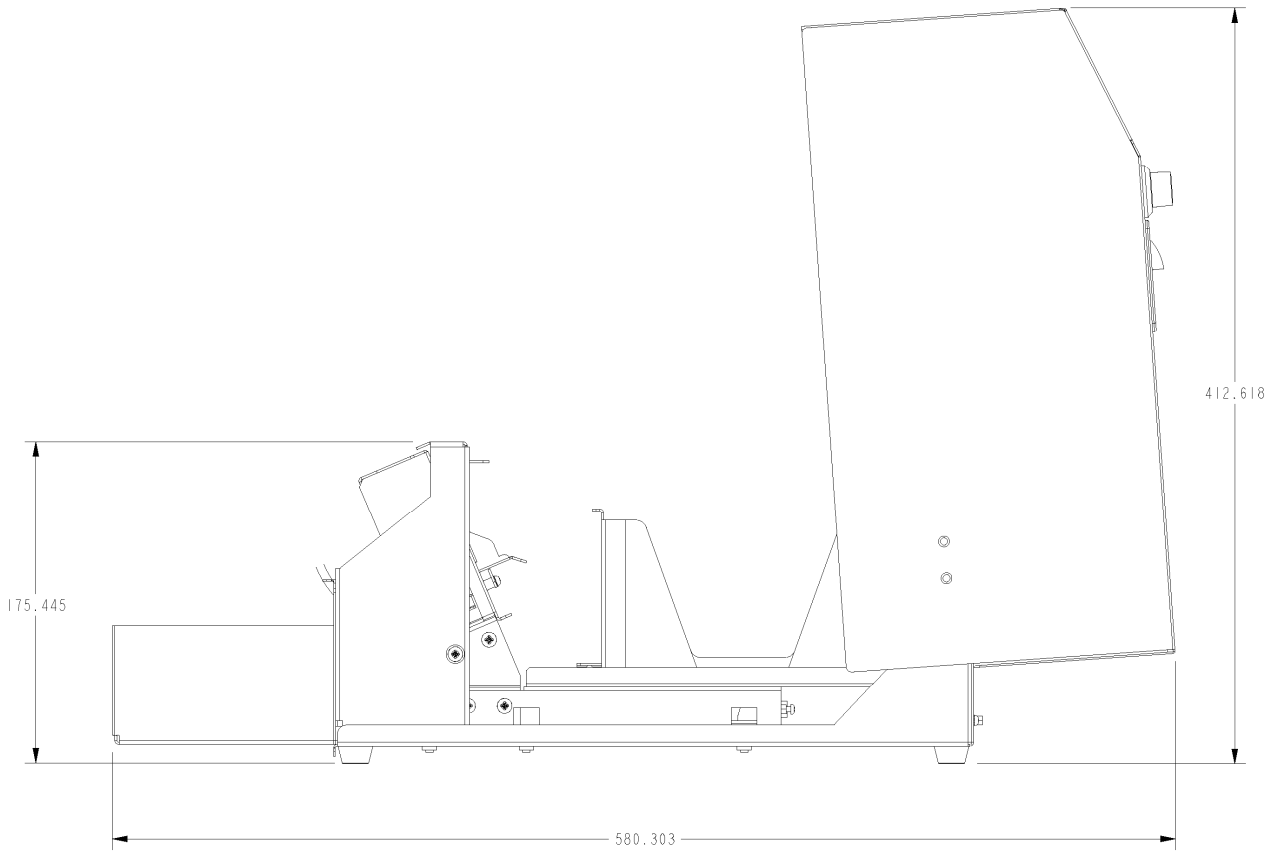

Figure 15: Side View with Cover Open (in mm)

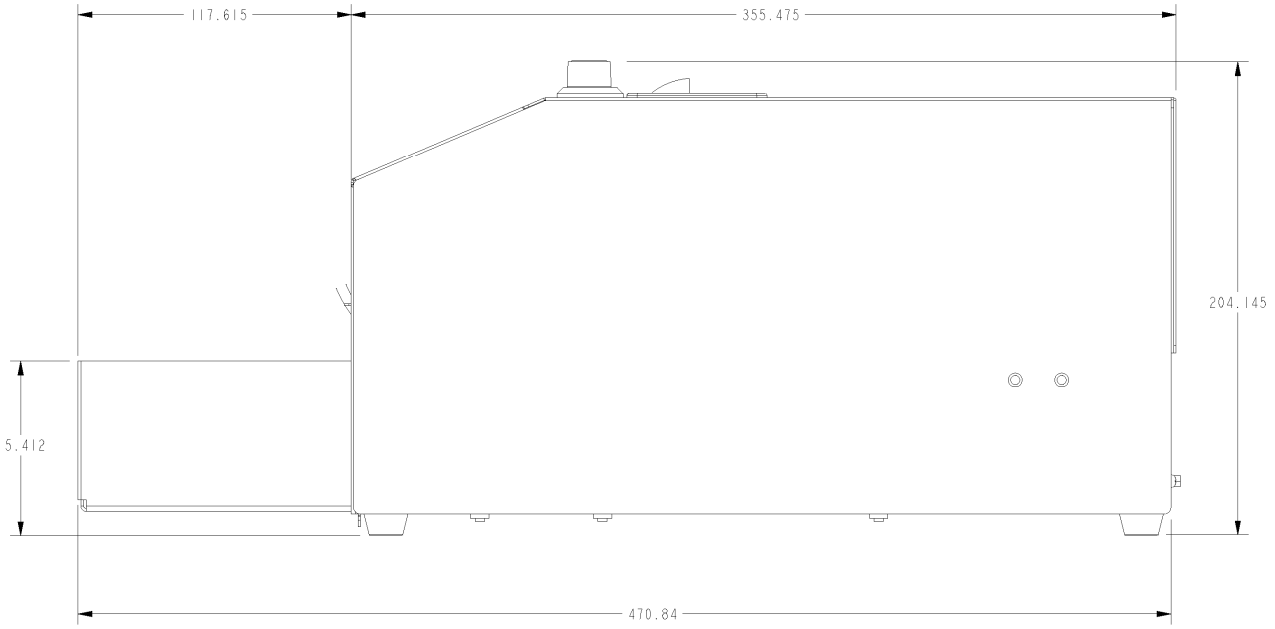

Figure 16: Side View with Cover Closed (in mm)

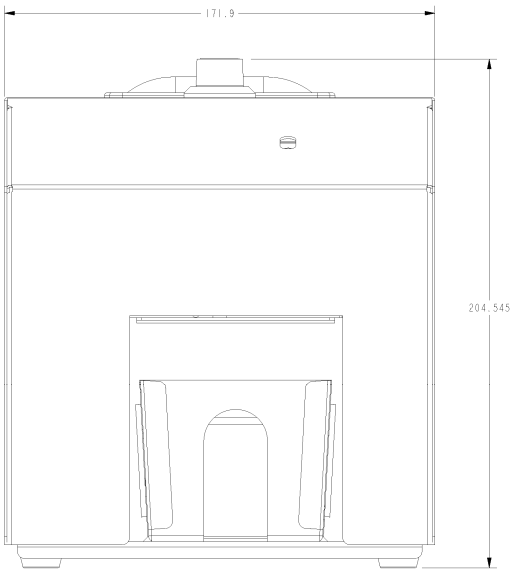

Figure 17: Front View with Cover Closed (in mm)

6 Print Cleaning Instructions

Note: Under normal operating conditions, the minimum interval for cleaning the Nanoptix PayCheck printer is *3 months* or *5 km* of paper printed, which ever comes first.
Note: Pre saturated cleaning cards are also available for cleaning the thermal print head and platen roller.

1. Open top cover and remove ticket tray.

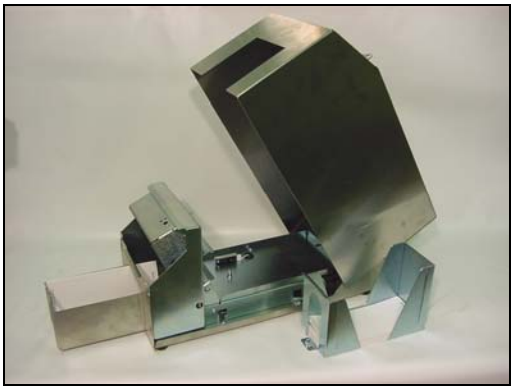

Figure 18: Open cover

2. Remove excess dust using a cloth and/or portable vacuum cleaner

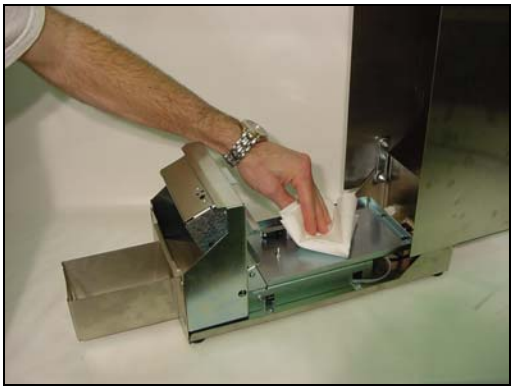

Figure 19: Remove dust

3. **Follow steps in section 2.7 to access printing mechanism area. Remove paper dust and clean the printing elements line (black line on the print head) with a cotton swab and (IPA) isopropyl alcohol**

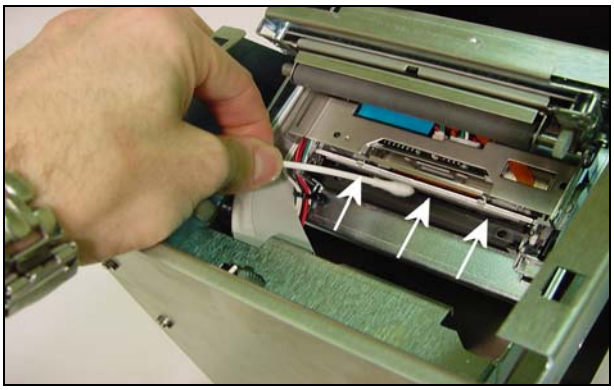

Figure 20: Clean printing head

4. **Clean the platen roller with a cotton swab and (IPA)isopropyl alcohol**

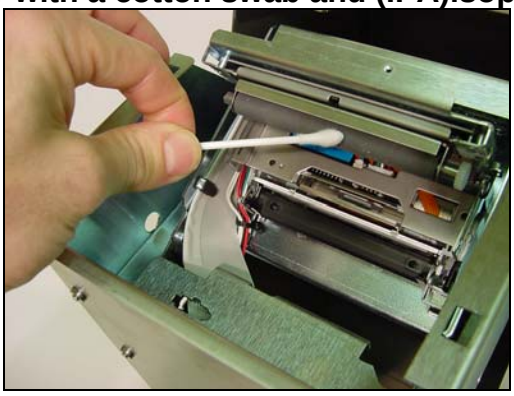

Figure 21: Clean roller

5. **Clean index mark (TOF) sensor using portable vacuum cleaner or compressed air**

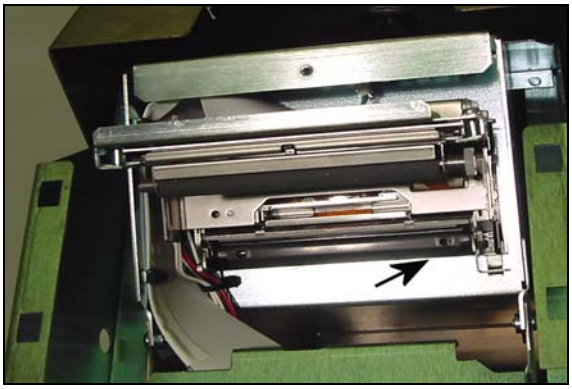

Figure 22: Clean TOF sensor

7 Service & Support

7.1 Returning Printers back to Nanoptix for Repairs (RMA)

- Send repair approval request to Nanoptix Inc. which should include:
  - Printer Model Number
  - Printer Serial Number
  - Brief problem description
- Ship defective products to Nanoptix Inc.
- Ensure that each package being sent is identified by the specified RMA Number

NOTE: A blank ticket or a piece of paper must be placed between thermal print head and roller during shipping and storage.

United States of America
RMA # XXXXXX
Nanoptix Inc.
C/o Brunswick Brokers
48 Customs Loop
Houlton, Maine
04730
United States of America

Canada and International
RMA # XXXXXX
Nanoptix Inc.
699 Champlain Street
Dieppe, New Brunswick
E1A 1P6
Canada

NOTE: It is imperative that every package clearly identified by an RMA number.

7.2 Technical Support Contact Information

Service Department
Nanoptix Inc.
699 Champlain Street
Dieppe, New Brunswick
E1A 1P6
Canada
Telephone: 506-384-3388
Fax: 506-384-3588
E-mail: support@nanoptix.com
Web site: http://www.nanoptix.com