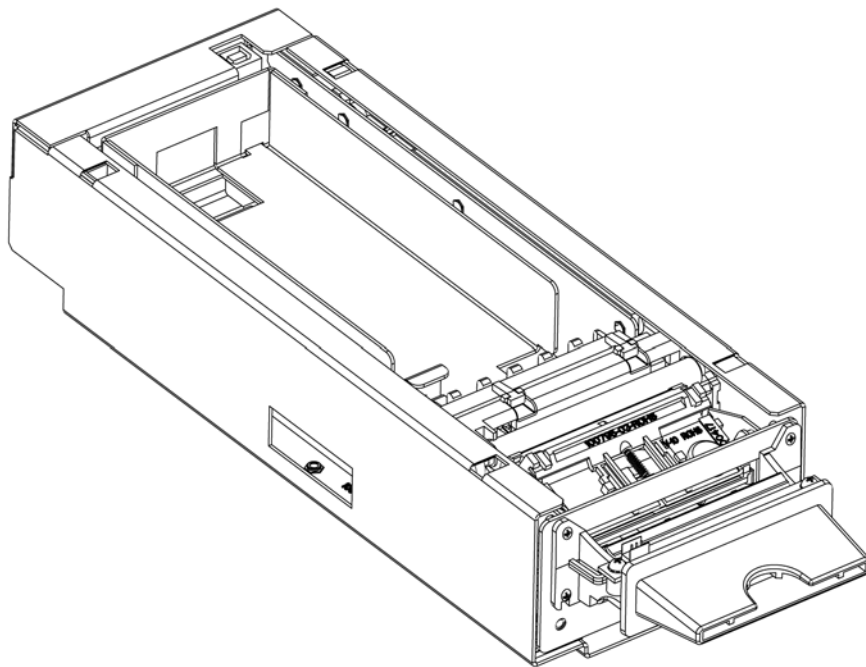




PayCheck™ • PayCheck 2™ • PayCheck 3™ • PayCheck 4™

## ***Technicians Manual***



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## Legal Notices

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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 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 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 cable, 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 B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

*Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.*

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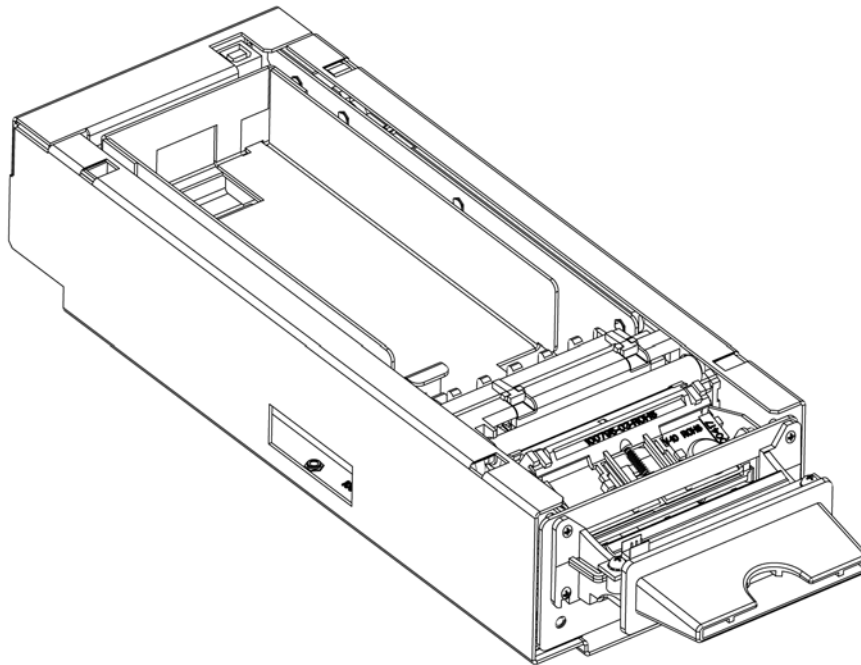
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## About the Printer

### 1.1 Description of Printer

The Nanoptix PayCheck™ printer, is extremely fast, quiet, and very reliable. With thermal printing technology, there is no ribbon cassette to change, and paper loading is extremely simple. The printer is small enough to fit almost anywhere and is easy to use with the ticket exiting from the front.



**Figure 1: Nanoptix PayCheck™ Printer**

## 1.2 General specifications

<b>Print Method</b>	Direct Thermal
<b>Resolution</b>	8 dot/mm (203 dpi)
<b>Print Width</b>	64mm
<b>Paper Width</b>	65mm
<b>Cartridge Size</b>	200, 400, 600, 800
<b>Operating Temperature</b>	0° to 50° C
<b>Storage Temperature</b>	-40° C to 65° C
<b>Operating Relative Humidity</b>	5% to 90% RH at 50C (non-condensing)
<b>Communication Interface Options</b>	Bidirectional RS-232C Dedicated USB Comm Dedicated USB Maintenance Port
<b>Memory/Firmware</b>	<u>PayCheck™ &amp; PayCheck 2™:</u> 1 Mbit of RAM, 2 Mbit flash & 16Kbit EEPROM <u>PayCheck 3™ &amp; PayCheck 4™:</u> 2 Mbit Flash, 1 Mbit Ram & 16 kbit EEPROM
<b>Resident Character Sets</b>	Support 32 fonts Approx. (16 resident 16 user defined)
<b>Integrated Bar Codes</b>	UPC-A, UPC-E, interleaved 2 of 5, Code 39, Code 93, Codabar, EAN 8, EAN 13, Code 128. Note: Other Bar Codes can be programmed quickly
<b>Speed</b>	<u>PayCheck™ &amp; PayCheck 2™:</u> Up to 125 mm/sec. (monochrome) <u>PayCheck 3™ &amp; PayCheck 4™:</u> Up to 200 mm (8 in.) per sec. (monochrome) Up to 125 mm (5 in.) per sec. (two-color mode)
<b>Sensors</b>	Paper low, paper out, ticket taken, drawer open, ticket jam, ticket in chute, black mark
<b>Duty Cycle (max.)</b>	5 tickets per minute
<b>Human Interface</b>	Drop-in paper loading, status LEDs, paper feed button
<b>Dimensions</b>	113mm width x 67mm height x 286mm depth
<b>Weight</b>	2.3 Kg
<b>Immunity</b>	EN 55024 Information Technology Equipment
<b>Emission Standards</b>	United States - FCC Part 15 Subpart A Canada - Industry Canada ICES-003 Europe – EN 55022 Class B emissions Information Technology Equipment
<b>Safety</b>	QPS Certified Control Number: LRE1123

**Table 1: Specifications**

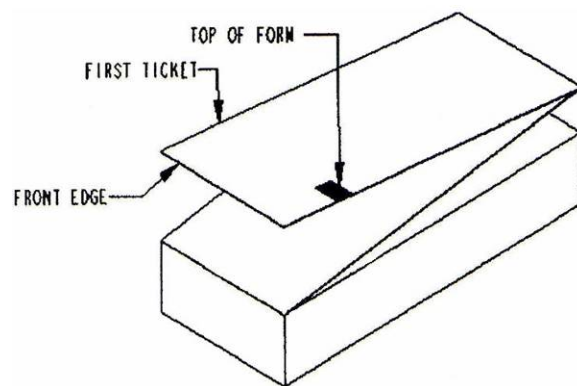


## 1.3 Paper Loading

The paper stack should be changed when it is low or out.

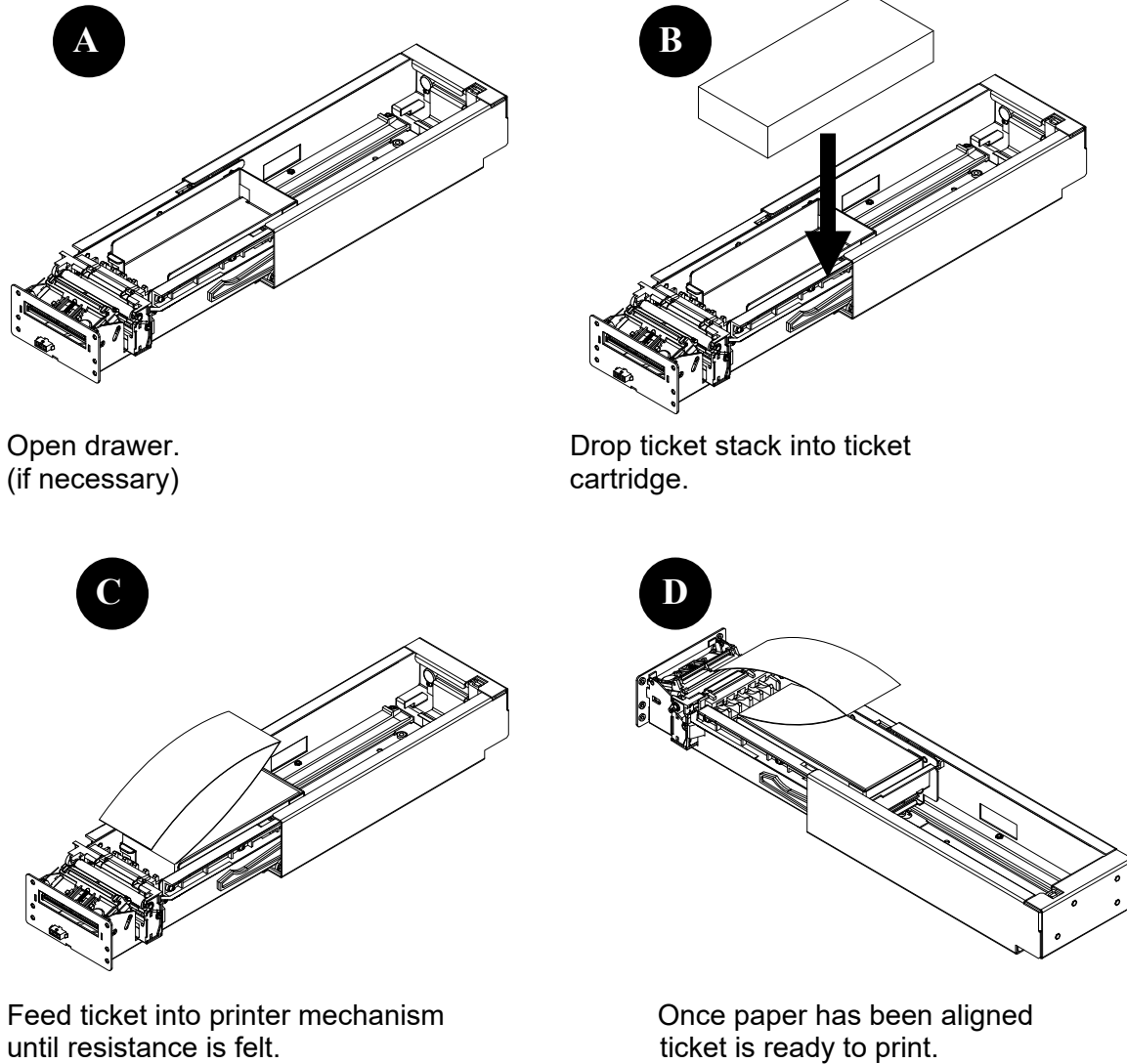
**Caution:** The printer will not operate without paper, but it may continue to accept data from the host computer. Since the printer cannot print any transactions, the data may be lost.

The maximum stack that will fit in the ticket cartridge is 200, 400, 600 or 800 tickets depending on the cartridge option that was purchased with the printer.



Ticket stack orientation:  
The stack must be oriented so that its top of form mark is on the leading edge of the ticket.

**Figure 2: Ticket Stack Orientation**



**Figure 3: Loading Paper**

1.4 Printer Interface Ports

Port Identification	Connector Type	Function
A	14 pin “Molex type”	Power & dual serial communication
B	USB type B	USB communication
C	USB type B	USB maintenance
D	3 pin “Molex type”	Bezel illumination

Table 2: Interface Ports

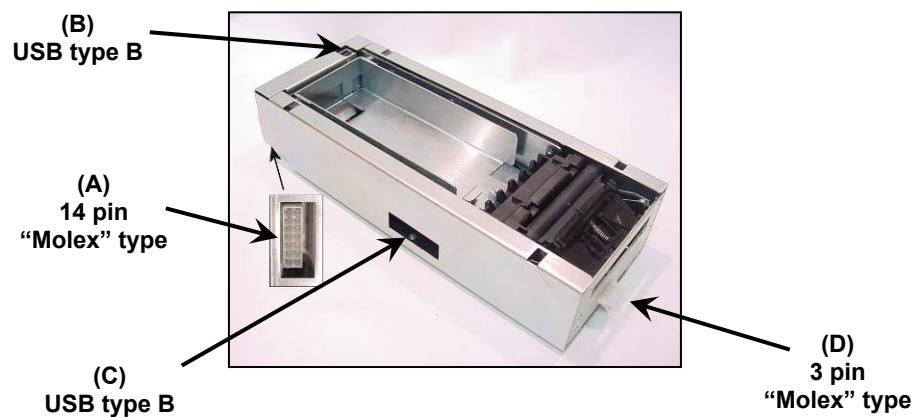
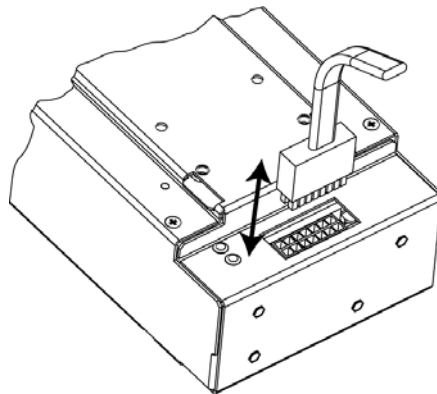


Figure 4: Interface Ports

## 1.5 Printer Controls

### 1.5.1 Printer Reset (Service use only)

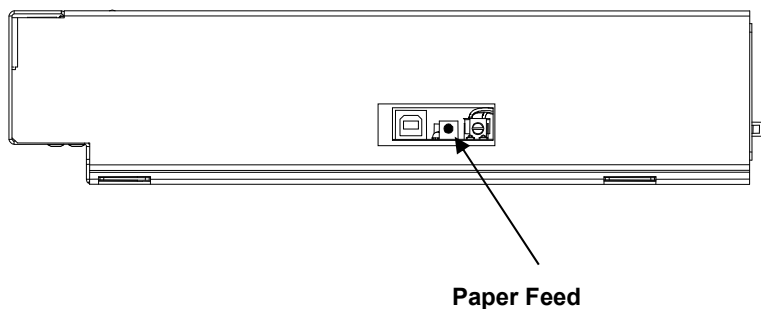
The printer is reset by disconnecting and reconnecting the power/communication cable. Once connected, the printer goes through a startup routine and resets itself.



**Figure 5: Printer Reset**

### 1.5.2 Paper Feed Button

The paper feed button is used to advance the paper. Once the ticket removed, the printer will realign the paper to the ready position.

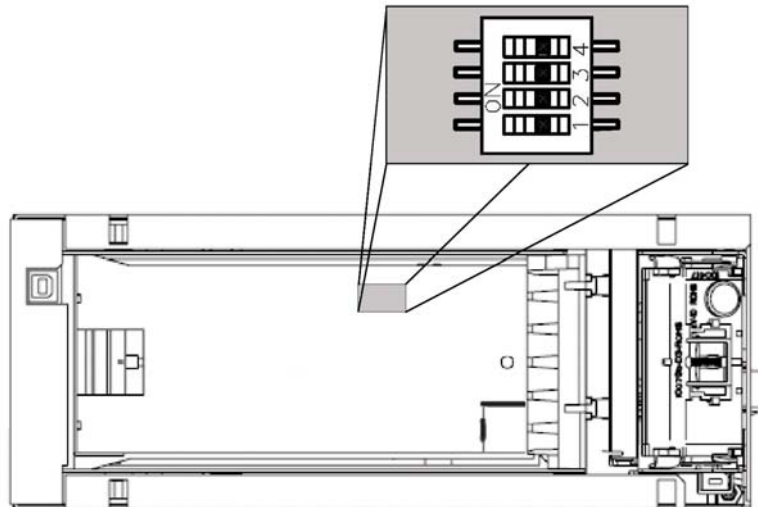


**Figure 6: Paper Feed Button**

## 1.5.3 Firmware Selector DIP switches

PayCheck 3™: Remove the ticket tray to access the firmware selector DIP switches.

PayCheck 4™: DIP switch is available through access hole in paper tray. Various firmware and setting configurations are available by selecting the 16 different DIP switch combinations. (Applies to PayCheck 3™ & PayCheck 4™ only)



**Figure 7: F/W DIP Switch**

DIP switch functions vary in different firmware versions

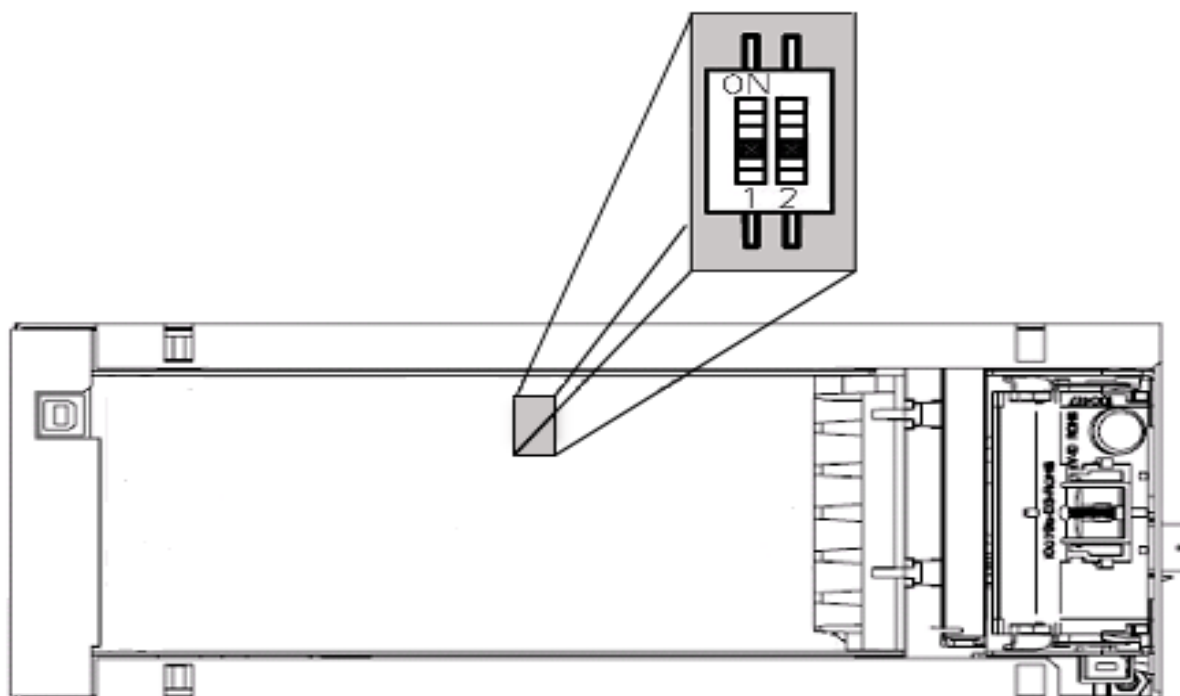
## 1.5.4 Boot mode Selector DIP switches

### PayCheck 3™:

Remove ticket tray and plate to access the boot mode selector DIP switches.

### PayCheck 4™:

Remove ticket tray plate to access the boot mode selector DIP switches. Different boot options are available by selecting the 4 different DIP switch combinations.



**Figure 8: Boot Selector**

DIP switch settings	Function
OFF-OFF	Run mode (default setting)
OFF-ON	Future
ON-OFF	Future
ON-ON	Recovery mode (Corrupted firmware)

**Table 3: Boot Selector**

## 1.5.5 Watch Dog jumper



Figure 9: Watch Dog (PayCheck 3™ & PayCheck 4™ only)

Jumper setting	Function
ON	Run mode (default setting)
OFF	Recovery mode (disable watch dog)

Table 4: Watch Dog jumper

## 1.5.6 Bezel illumination control jumper

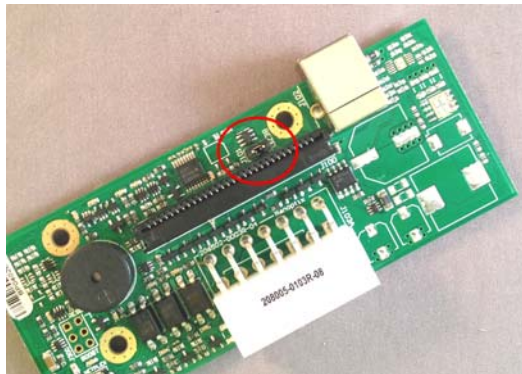
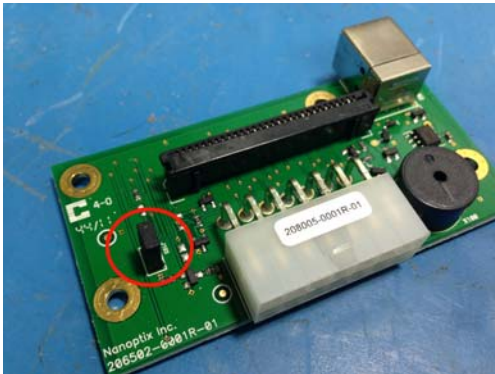


Figure 10: Bezel Control

Jumper setting	Function
ON	Bezel illumination control connected to pin 9 of host I/O
OFF	Bezel illumination control not available on Pin 9 of host I/O

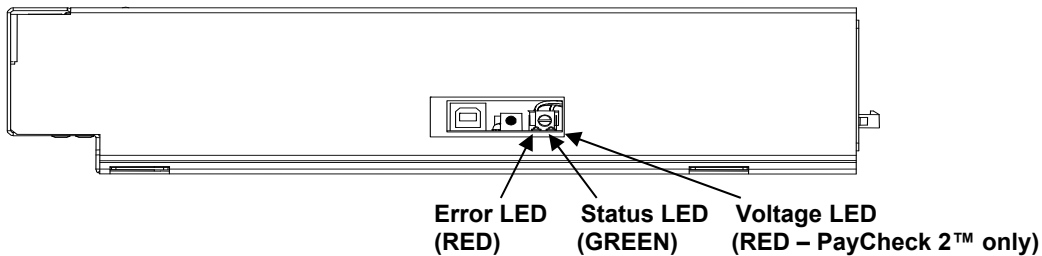
Table 5: Bezel Control

## 1.5.7 LED

Note: An external LED bezel can be connected through the front 3-pin “Molex” type connector. (Pin-out is described in section 2.2.3)

Error LED (Red)	Status LED (Green)	Voltage LED (Red) (PayCheck 2™ only)	Condition
OFF	ON	OFF	Printer Ready
ON	OFF	OFF	Paper Out
MED BLINK	OFF	OFF	Temperature Error
SLOW BLINK	OFF	ON (Bright)	Voltage Error (Over 26.2 VDC)
FAST BLINK	ON	OFF	Print Head Error
FAST BLINK	ON	OFF	Missing Black Index Mark
FAST BLINK	ON	OFF	Paper Jam

**Table 6: LED Information**



**Figure 11: LED Positions**



## 1.6 Testing the Printer

### 1.6.1 Configuration Ticket

This test can be used to verify the correct operation of the printer. The test prints a resident ticket listing the current printer settings. This ticket can also be used to verify the printing quality.

#### PayCheck™ & PayCheck 2™:

To print the test ticket, the printer must be powered “ON” while holding the paper feed button for approximately 5 seconds. Once repetitive beeping is heard, release the paper feed button. A test ticket similar to the one below will be printed. Pressing the button again will result in blank tickets.

#### PayCheck 3™ & PayCheck 4™:

To print the test ticket, the printer must be powered “ON” while holding the paper feed button for approximately 5 seconds. A status ticket similar to below will be printed. Pressing the button again will result in blank tickets.


Model:	PAYCHECK 4
Firmware:	PAY-4.82H (0x1CB1)
User Version:	S R.2.4.0
Protocol:	NTL
COMMUNICATION	
Interface:	Serial
Baud Rate:	38400,8,NONE
Handshaking:	PRT+RTS
Print mode:	NTL
Back USB :	Fw Controlled
PRINT CONTROL	
Speed:	100 mm/sec
Black Bar Index:	Right
No HPQ Burn Time:	250 us
Motor Current:	2
Real-Time Command:	Enabled
Auto Reset Status:	Disabled
Validation Bit:	Smart TOF
Save Valid Bit:	Enabled
PRINTER ENVIRONMENT CONDITIONS	
Voltage:	24.7 Volts
Temperature:	25 Celcius
SYSTEM RESOURCES	
FLASH Used=00000	RAM: Used=00000
Free=65535	Free=65535
LIBRARY INVENTORY (CUSTOM)	
Templates: 6	
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,s,t,u,v,w 0,1,2,3,4,5,6,7,8,9,A,B
Fonts :	
Graphics:	
MANUFACTURING INFORMATION	
Printer ID:	P312681
Date Code:	20100215
A to D: 03d8, 021a, 0231, 03c6	
Dip Switch Config (1234): 0000	
Status: *S 0 PAY-4.82H @ @ @ @ @ P *	

**Figure 12: Sample Test Ticket**

### 1.6.2 Printer Performance Metrics

This ticket lists the performance metrics recorded by the printer since the printer was installed. The test prints a resident ticket listing various errors and status.

Available on PayCheck 3™ & PayCheck 4™ most firmware versions released after 2011: To print this ticket, *the printer must be turned “ON” and operating in normal “Run Mode”.* Press and hold the paper feed button for approximately 5 seconds. A performance ticket similar to below will be printed.



(B8D52E31) Performance Report (B8D52E31)

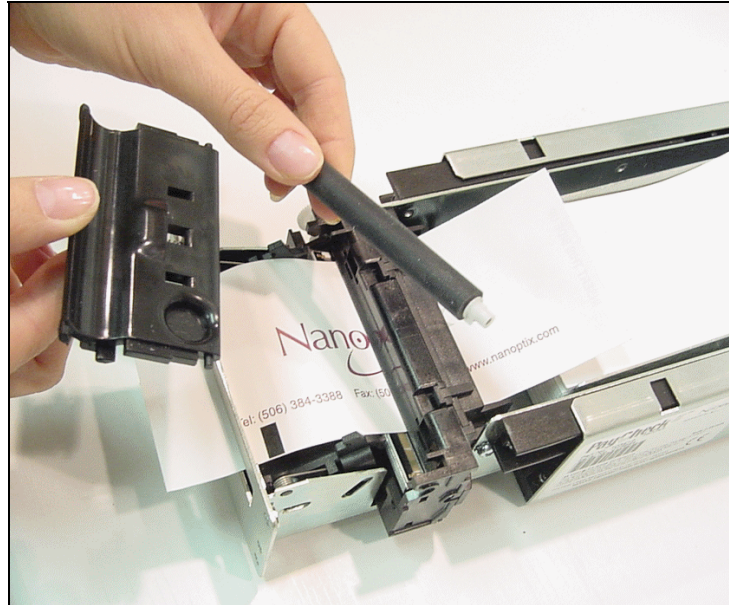
Nanoptix Paycheck USB printer Statistics

Printer ID:	P4B3671
Model:	PAYCHECK 4
Firmware:	N4U00512Q (0x9D8A)
Power Cycles:	39
Tickets printed:	2906
Jams:	2
Voltage errors:	0
TOF. Errors:	1
Drawer opened:	57
Paper low:	46
Paper out:	23
Platen open:	19
Paper in chute:	2845
Max tickets (1 m):	5
Max tickets (10 m):	10
Max tickets (1 hr):	10
Max tickets (24 hr):	10
Max temp.:	28 Celcius
Min temp.:	17 Celcius
Max voltage:	24.7 Volts
On time	0132D:08H:52M:43S

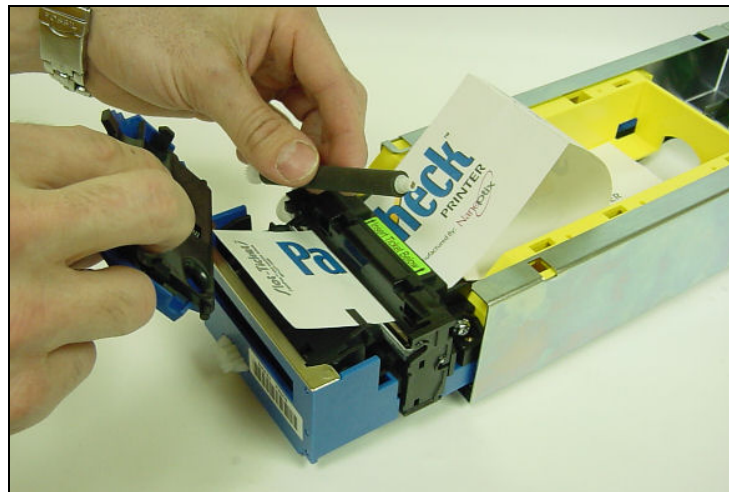
**Figure 13: Sample Test Ticket**

## 1.7 Clearing Jams

The Nanoptix PayCheck™ printer's paper guide and printing mechanism roller are easily removed, giving full access to the paper path.



**Figure 14: Clearing Jams – PayCheck™ 1, 2 & 3**



**Figure 15: Clearing Jams – PayCheck 4™**

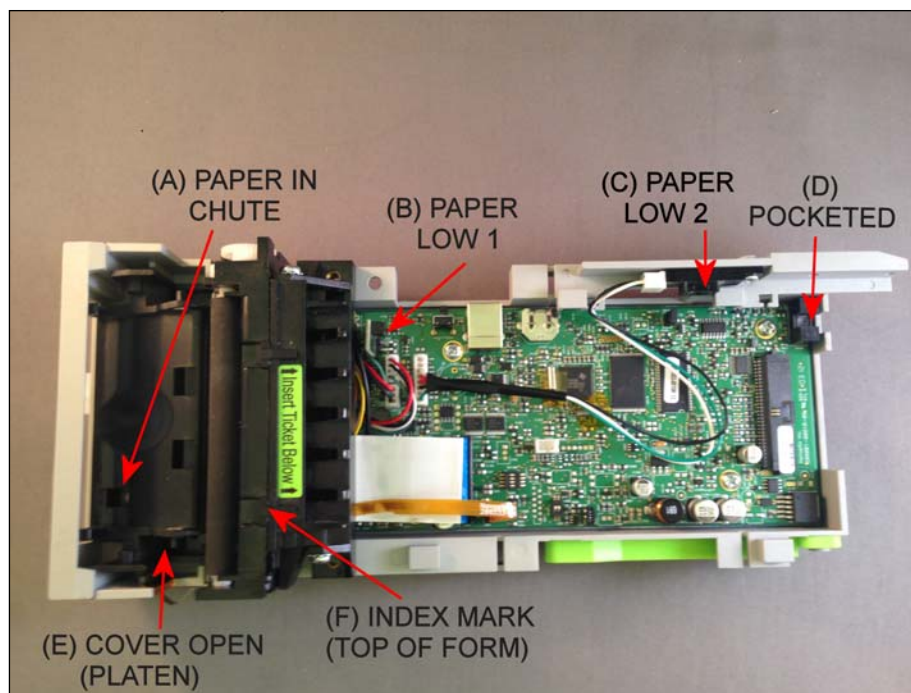
## 2 Troubleshooting the Printer

### 2.1 Basic Printer Operation

Although the Nanoptix PayCheck™ printer is a complex device, its operation is fairly simple. The printer requires two consumables to operate, (1) a regulated 24 VDC power source and (2) approved thermal paper. The printer is equipped with three communication interface ports: one power/communication port situated at the bottom rear of the unit, one USB port at the top rear of the unit and one maintenance USB port situated on the side of the printer. A 3-pin I/O connector situated at the front of the unit can be used to control an external illuminated bezel.

The two main components of the printer, the base assembly and the main bracket are connected together via a white flat cable. A photo-interruptible sensor (D) is used to detect the main bracket's pocketed (open/close) status. A reflective optical sensor (B) situated at the front of the ticket tray is used to detect a low paper condition. On newer models of the Paycheck™, the paper low detection has been moved to the side of the ticket tray (C). A third optical sensor (F) is used in the printing mechanism assembly to detect the presence of paper and start the feeder motor when loading paper. This sensor also works in conjunction with a fourth optical sensor (A) situated in the paper chute to realign paper back to its "ready" position.

When the sensors are not reporting any errors and a recognized data stream is sent to the printer, a printed ticket will result.



**Figure 16: Sensors**

## 2.2 Communication Cables Pin-Out

### 2.2.1 Universal Communication interface

The table below describes the connection pin-out for the Universal Interface (14-pin “Molex” type)

Pin	Signal Name	Printer I/O	Host I/O	Printer Function
1	Reset	Input	Output	Resets Printer
2	PRT_AUX_RXD	Input	Output	Auxiliary Receive
3	VAUX	Input	Output	Auxiliary Power
4	PRT_AUX_TXD	Output	Input	Auxiliary Transmit
5	AUX_Ground See note 2	Signal / Frame Ground	Signal / Frame Ground	Signal / Frame Ground
6	24V	Power Input	n/a	Power Input
7	Signal / Frame Ground	Signal / Frame Ground	Signal / Frame Ground	Signal / Frame Ground
8	24V	Power Input	n/a	Power Input
9	Bezel_pwm	24V Output	n/a	Bezel Driver
10	Signal / Frame Ground	Signal / Frame Ground	Signal/ Frame Ground	Signal/ Frame Ground
11	PRT_RS232_RXD	Input	Output	Data Receive
12	PRT_RS232_TXD	Output	Input	Data Transmit
13	PRT_Status	Output	Input	Printer Ready
14	PRT_RS232_RTS	Output	Input	Handshake

Note1: Bezel illumination control jumper must be present for Bezel modulation to be present on pin 9

Note 2: On backplane PCB 208005-0103R pin 5 is isolated from pin 7 & 10, on backplane 208005-0001R pin 5 is connected to pin 7 & 10

**Table 7: 14 Pin RS232 Serial Interface**

## 2.2.2 Serial Interface Connection pin-out

The table below describes the connection pin-out for the Serial interface (12-pin: “Molex” type), (Applies to PayCheck™ & PayCheck 2™ only)

Pin	Signal Name	Printer I/O	Host I/O	Printer Function
1	24V	Power Input	n/a	Power Input
2	PRT_RS232_TXD	Output	Input	Data transmit
3	PRT_RS232_RXD	Input	Output	Data receive
4	n/a	No connect	n/a	None
5	Signal Ground	Signal Ground	Signal Ground	Signal Ground
6	RS232_DSR	4K7 pull up to 24V	Input	Printer Ready
7	n/a	No connect	n/a	none
8	PRT_RS232_RTS (host CTS)	Output	Input	Handshake
9	Bezel pwm	24V Output	n/a	Bezel driver
10	Signal Ground	Signal Ground	Signal Ground	Signal Ground
11	Signal Ground	Signal Ground	Signal Ground	Signal Ground
12	24V	Power Input	n/a	Power Input
Shell	Frame Ground	Frame Ground	Frame Ground	Shield

Note: Bezel illumination control jumper must be present for Bezel modulation to be present on pin 9

**Table 8: RS-232 Serial Interface Pin-Out**

## 2.2.3 Illuminated bezel interface

The table below describes the connection pin-out for the front Bezel Connector (3-pin “Molex” type).

Pin	Signal	Printer I/O
1	Bezel PWM	Output
2	24VDC	Output
3	GND	GND

**Table 9: Bezel Interface**

## 2.3 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 a Nanoptix service representative.

Problem	Possible Causes	What to Do
Printer Does Not Function When Turned On	Printer not plugged in	Check that printer cables are properly connected at both ends
		Check that the host and power supply are getting power
	Tray not fully closed	Close the tray
	Flat cable incorrectly or not fully inserted into receptacle	Fully insert flat cable in the into receptacle at both ends
Paper jam	Paper width out of specification	Test paper width for compliance
	Debris or partial ticket stuck in paper path	Open paper guide and detach roller, remove debris
	Paper's perforation burst strength out of spec	Test paper perforation for compliance
Noisy Feeder Motor (paper disengaged)	Printer is meant to be operated with paper engaged in the printing mechanism, failing to do so will cause gears to grind and slip, noise may result	Do not operate printer without any paper engaged in the printing mechanism Note: <u>Never</u> lubricate gears or any other part of the printer
Paper does not realign itself when a ticket is printed	Paper's alignment mark, (which is the black dot printed on the non-sensitive side of thermal paper) may be out of specification	The maximum reflectance of the alignment mark is 15% (infrared). Simply put, this means that the alignment mark's color should be an even/crisp black. If any white or gray is visible, it is an indication that the reflectance could be more than 15%
Line of print or section missing lengthwise on entire ticket	Paper's thermal coating inconsistent	Change the paper stack to make sure the thermal coating is not the source
	Thermal printing mechanism damaged	Contact customer service representative
Print is light or spotty	Thermal print head is dirty	Clean print head by following recommended procedure (Section 6)
	Paper's thermal coating inconsistent	Change the paper stack to make sure the thermal coating is not the source

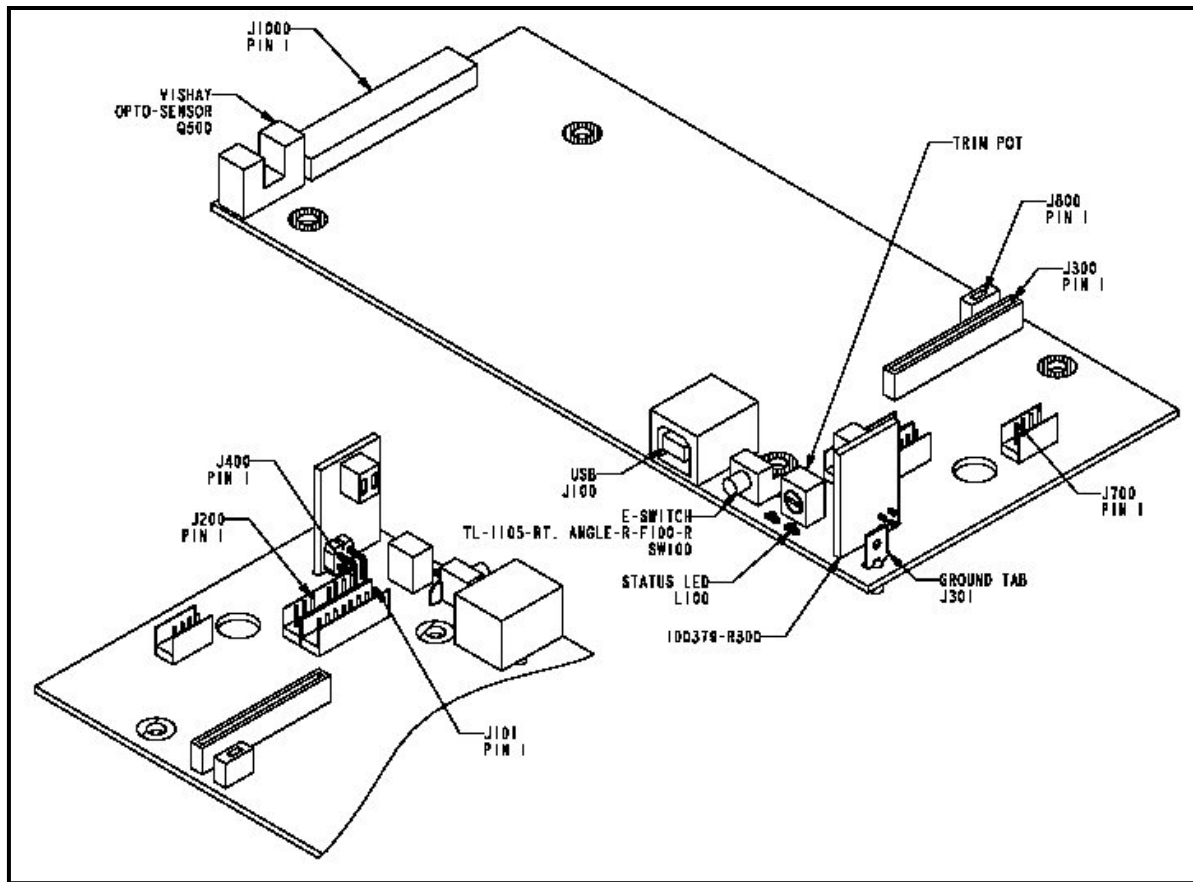
**Table 10: Troubleshooting Printing Problems**



## 2.3.1 Main Controller PCB Connector Layout

J100	USB
J101	Future
J200	Bezel
J300	Thermal Print Head
J301	TPH Grounding Tab
J400	Paper In
J700	Motor
J800	Top Of Form
J1000	Daughter PCB I/O

**Table 11: Connector Functions**



**Figure 17: Connector Layout (PayCheck™ shown)**



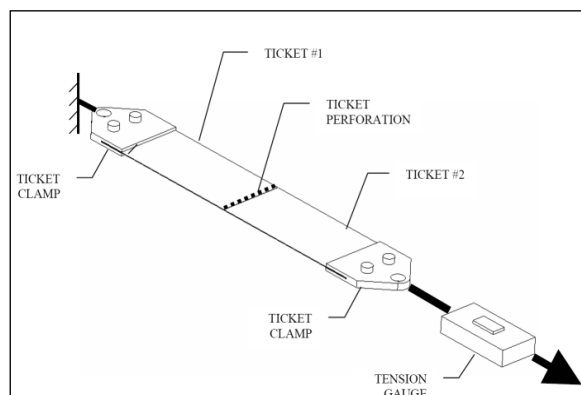
## 3 Media and Supplies Guide

### 3.1 Thermal Paper Specifications

**NOTE:** Qualified thermal paper with the following specifications is required for proper operation.

<b>Width</b>	65 mm +/-1 (2.56 IN)
<b>Length</b>	156 mm +/- 1 (6.14 IN)
<b>Thickness</b>	4.5 +0.1 -0.3 mil
<b>Brightness</b>	89%
<b>Smoothness</b>	2000 sec Avg.
<b>Perforation burst strength</b>	3.5 +/- 0.6 LBS (1.59 +/- 0.27 Kg)
<b>Alignment Mark (TOF)</b>	Optical Density 1.10 min.

**Table 12: Paper Specifications**



**Figure 18: Perforation Test**

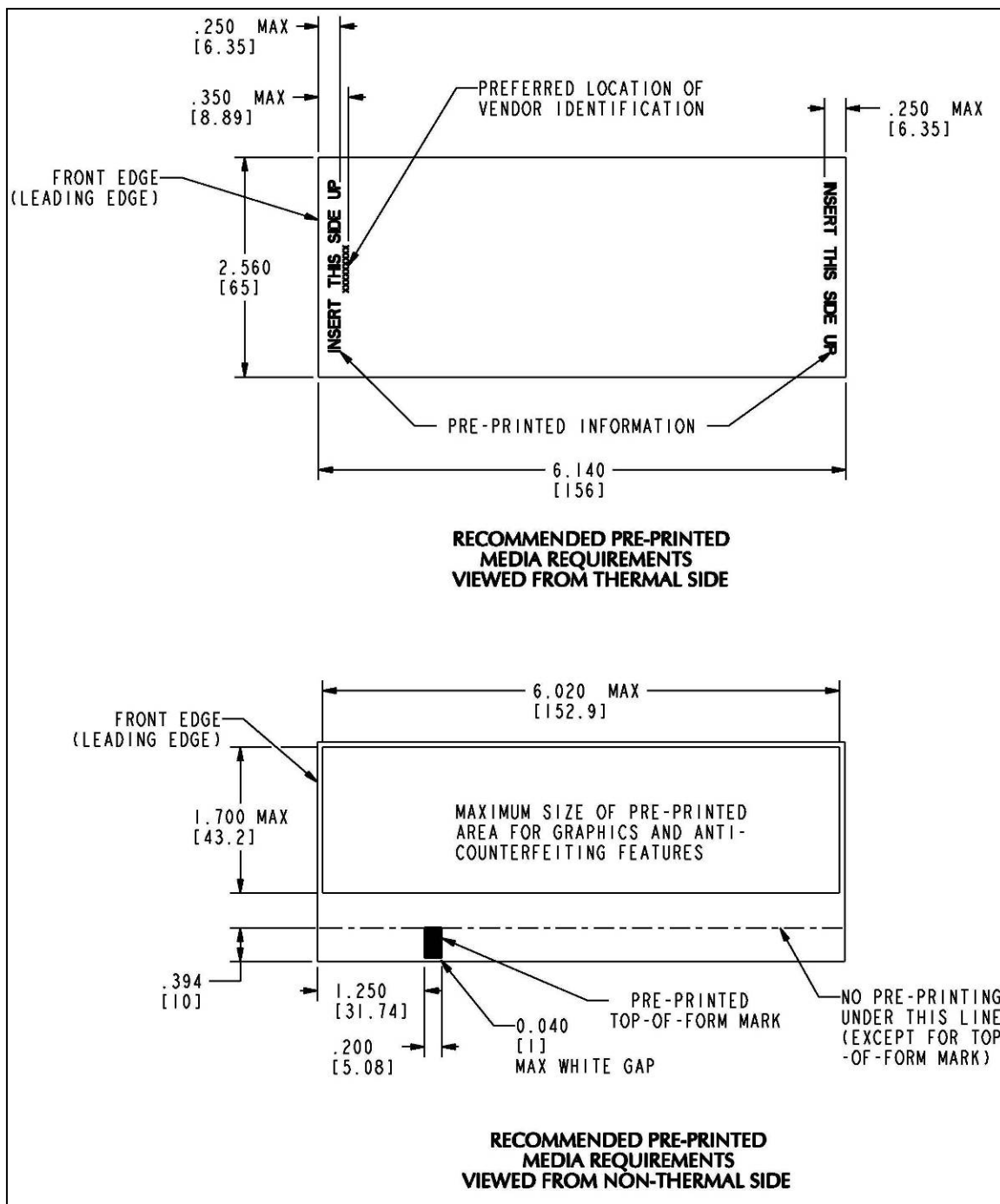


Figure 19: Ticket Specifications

## 3.2 Ordering Thermal Paper

The following paper grade produced by Appleton and Kanzaki Specialty Papers are recommended by Nanoptix. There are a number of paper converters qualified to supply this paper, provided the stacks are from these recommended grades.

Paper qualification services are offered by Nanoptix for additional grades not listed below.

Manufacturer	Numbers	Nanoptix part no.	Paper Grade
<b>Appvion Papers</b>	Tel:920-991-8438	100505-3024R (200 stack) 100505-3025R (400 stack) 100505-3026R (600 stack) 100505-3027R (800 stack)	Royale 800-4.5
<b>Kanzaki Specialty Papers (USA)</b>	Tel:888-526-9254 Fax: 413-731-8864	100505-3012R (200 stack) 100505-3013R (400 stack) 100505-3014R (600 stack) 100505-3015R (800 stack)	TO-381-N
<b>Kanzan Spezialpapiere GmbH</b>	Tel: +49 2421 5924-0 Fax: +49 2421 5924-19	N/A	KANZAN KL 69

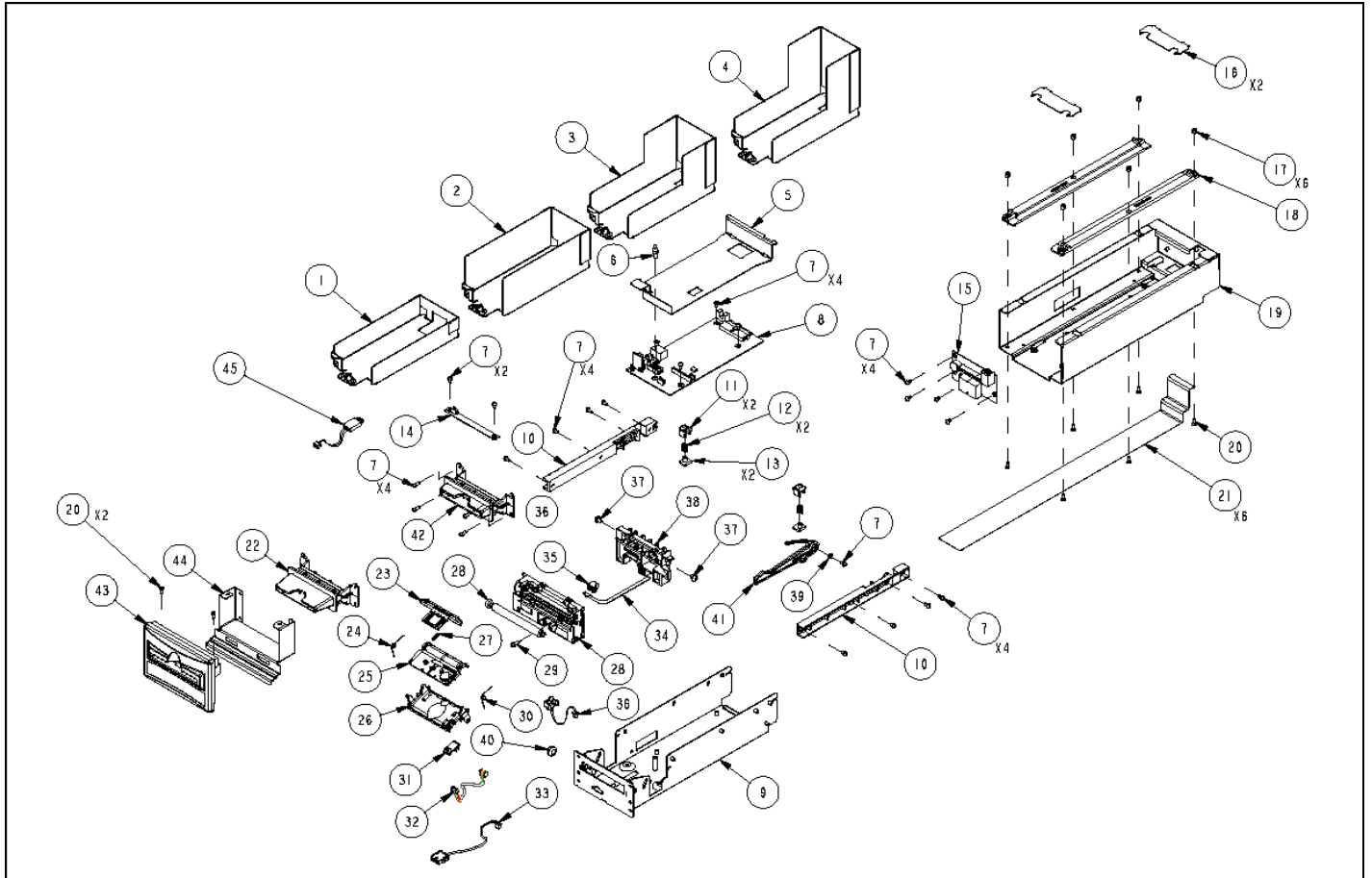
**Table 13: Ordering Thermal Paper**

## 3.3 Ordering Communication Cables

Contact your sales representative to order the communication cables listed in the table. The numbers are for reference only. Suppliers may use other numbers.

Part	Part Number
RS232 communication cable (14-Pin "Molex" type to DB-9)	210036-0004R
OneCheck In-Line Cable	210036-0003R
USB Cable 2M (A to B)	100390-0001R

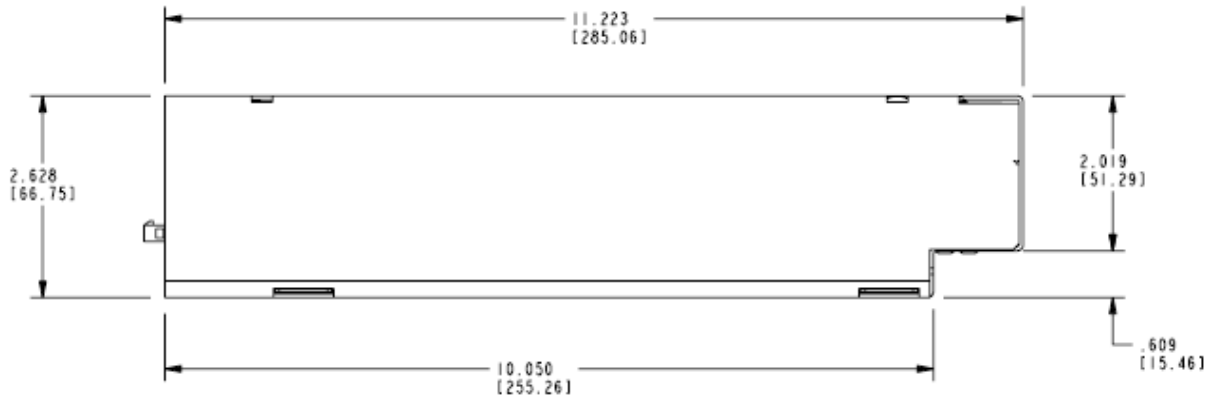
## 3.4 Parts List



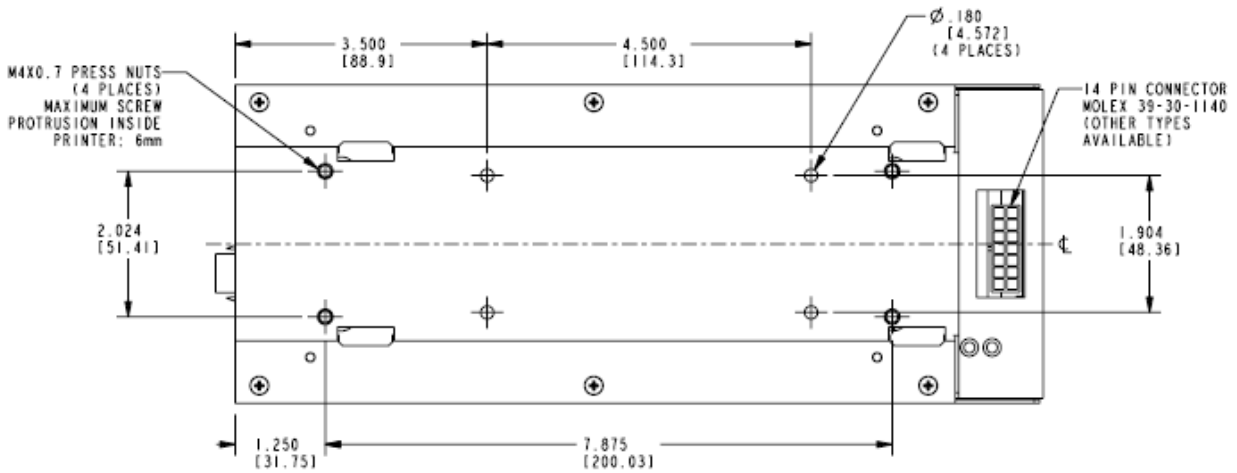
Item #	Part #	Description
1	102952-0001	Ticket Tray 200 Version II
2	102952-0002	Ticket Tray 400 Version II
3	103027-0001	Ticket Tray 600 Version II with Notches
4	103027-0002	Ticket Tray 800 Version II with Notches
5	102953-0000	Baseplate Version II
6	100351-0002	Ball Stud
7	100041-1164	M3 x 6mm, SEMS Screw, (Daughter Boards) Note:Use Thread Lock
8	103554-0000	Main Board DSP, Ticket Printer III
9	103561-0000	Main Bracket w Paperfeed Switch
10	102590-0000	Upper Slide with Custom Plunger
11	102398-0000	Plunger
12	100069-2005	Compression Spring 0.563" Long
13	102399-0000	Plunger Retainer
14	100378-0000	LED Bezel board - Indirect light - 285 mcd BRIGHTNESS
15	103433-0000	Universal Interconnect - RoHS
15	103483-0000	Ticket, Universal, 14Pin Plug (Power Only) to 14Pin Receptacle and DB9 Female
16	100414-0000	Cable Retainer
17	100050-0103	M3 Nylon Lock Nut
18	100880-0000	Lower Slide
19	103560-0000	Frame Assembly with Paperfeed Switch
20	100041-0683	M3 x 8mm, Flat Head Screw (Lower Slides)
21	102971-0000	Flat flex; 528mm; connects main board and interconnect (reorder #: 102971-02-01)
22	103490-0001	Bezel, 65mm, Long, Green
22	103490-0002	Bezel, 65mm, Long, Blue
23	100795-0000	Ticket Chute Lock
24	100069-1001	Torsion Spring Left
25	100417-0000	Upper Paper Chute
26	100612-0000	Lower Ticket Chute
27	100069-2003	Compression Spring 0.625" Long
28	100350-0001	Axiohm MHTP Mechanism; FS24; 80mm (Default)
29	100041-1166	M3 x 10mm, SEMS Screw, (Mech)
30	100069-1002	Torsion Spring Right
31	100420-0000	Paper In; Rohs
32	100413-0000	Paper In Harness
33	100416-0000	Bezel Harness (connects main board to a panel mount 3pin)
34	100781-0000	Top of form flex circuit (125mm straight)
35	100878-0000	TOF Sensor Clip
36	103596-0000	Front paper feed harness
37	100041-1244	M4 x 8mm, SEMS Screw, (Mech Mount)
38	100352-0000	Mech Mount
39	100051-0107	M3 Flat Washer
40	100063-1005	Black Vinyl Grommet, 5/16" hole
41	100881-0000	Latch
42	103491-0001	Bezel, 65mm, Short, Green
42	103491-0002	Bezel, 65mm, Short, Blue
43	103622-0001	External Bezel (Plastic, label and foam)
44	103621-0000	External Bezel Bracket
45	102904-0000	102904 - (Ticket Printer, LED Bezel Harness; connects LED board to panel mount 3pin)

**NOTE:** Part numbers listed are for the PayCheck 3™ printer only. Should parts for either PayCheck™, PayCheck 2™ or PayCheck 4™ printers be required, please contact your Nanoptix service representative.

## 4 Mechanical Drawings



**Right Side View**



**Bottom View**



Document # 720004-0000  
April 27, 2023

## 5 Spare parts replacement instructions



Use ESD protection (such as a wrist strap) anytime a PCB is exposed



### Instruction A: Removal of the main bracket

1. Lift latch, slide bracket forward and out
2. Disconnect flat cable

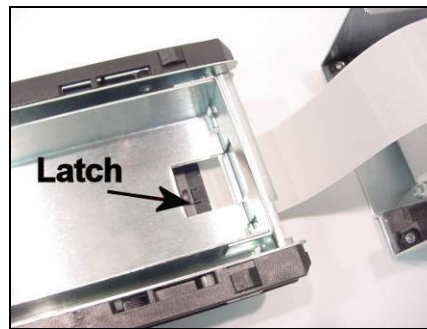


Figure 21: Main Bracket

### Instruction B: Removal of the ticket tray

PayCheck™ 1, 2 & 3: Lift on access tab, Remove ticket tray  
PayCheck 4™: Remove mounting screw and slide tray to the right

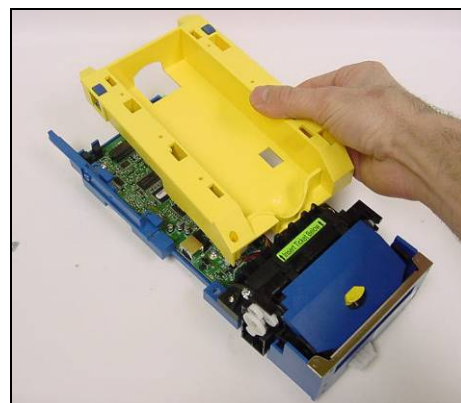
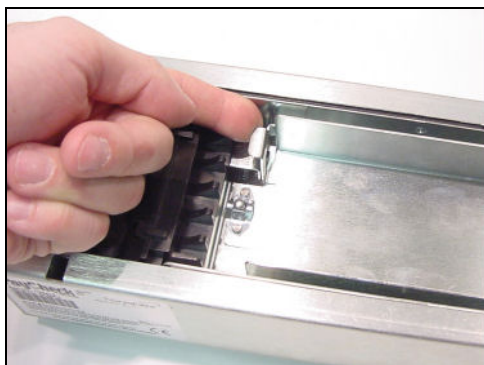


Figure 22: Ticket Tray



**Instruction C: Removal of the base plate (PayCheck™ 1, 2 & 3 only)**

Remove Tinnerman screw (using ¼ inch nut driver) and slide base plate back

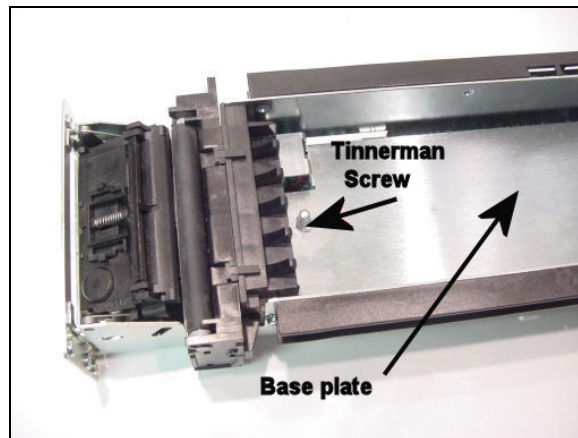


Figure 23: Base Plate

**Instruction D: Removal of flat cable**

1. Disconnect the main controller PCB end of the cable by following **Instruction A**

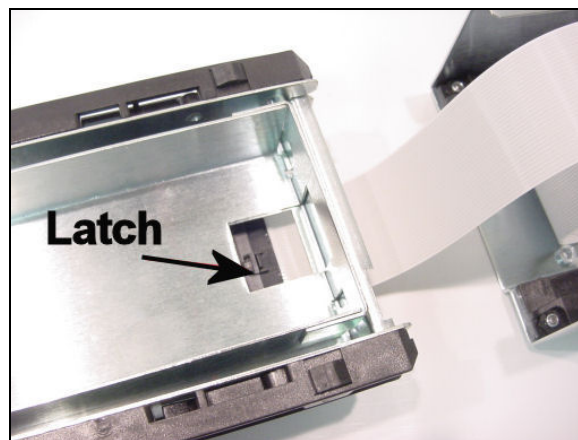
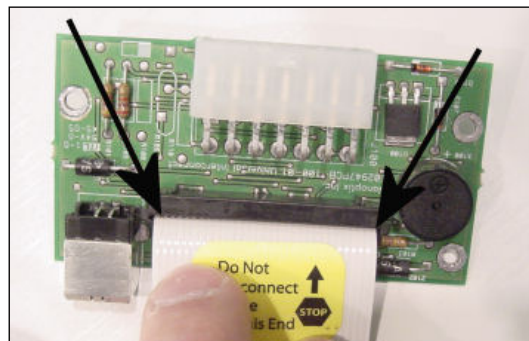
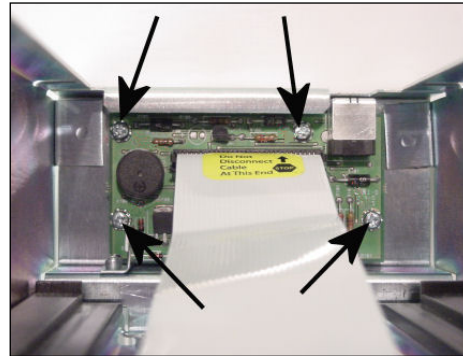
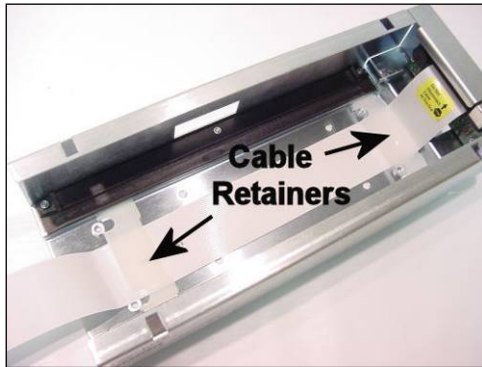


Figure 24: Flat Cable A

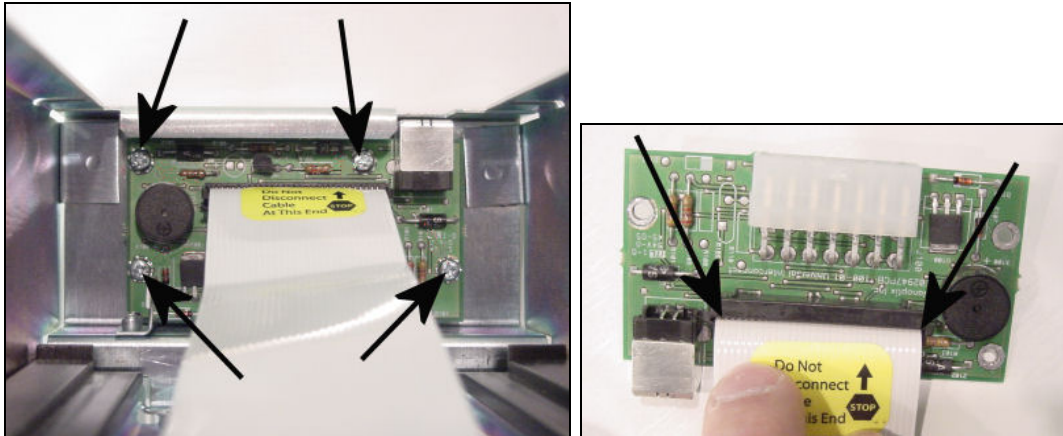
2. Disconnect daughter PCB end of the cable:
  1. Remove the two cable retainers
  2. Remove the universal daughter PCB by removing the four mounting screws
  3. Unlatch cable by lifting the two side connector tabs



**Figure 25: Flat Cable B**

## Instruction E: Removal of the universal daughter PCB

1. Remove the main bracket by following **Instruction A**
2. Remove the universal daughter board by removing the 4 mounting screws
3. Remove cable by unlatching the two side tabs of the connector

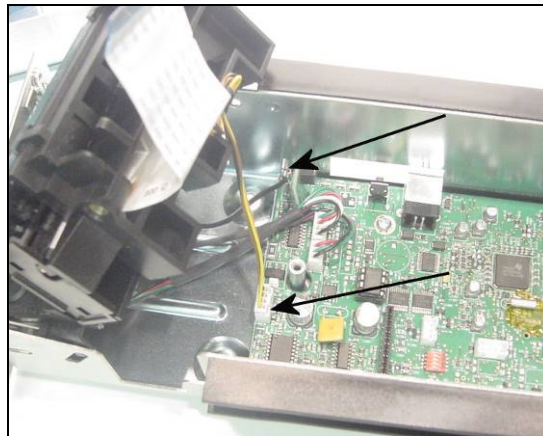
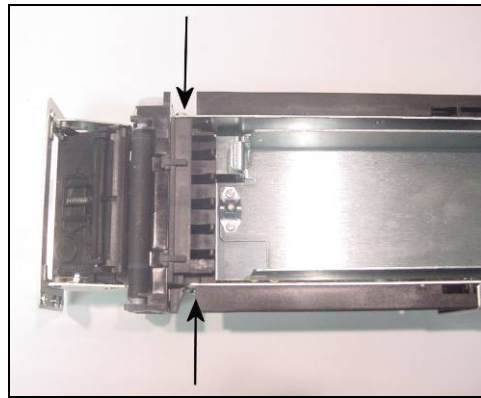
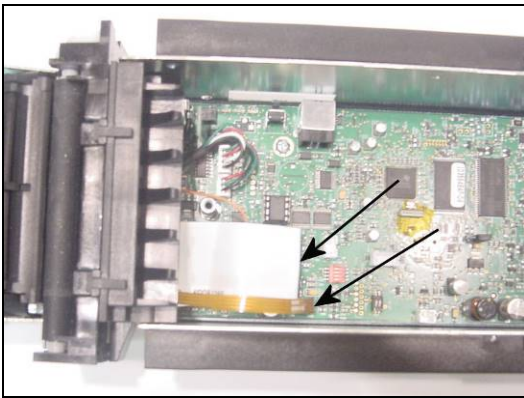


**Figure 26: Daughter PCB**

## Instruction F: Removal of the printing mechanism Kit

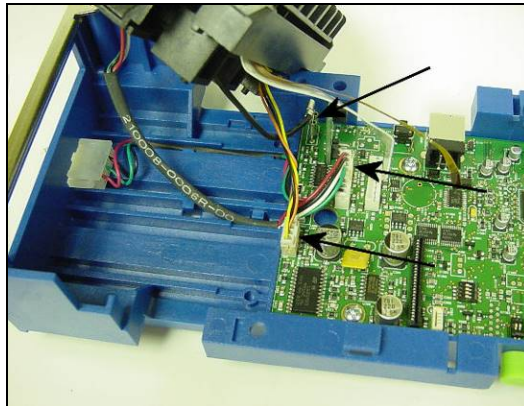
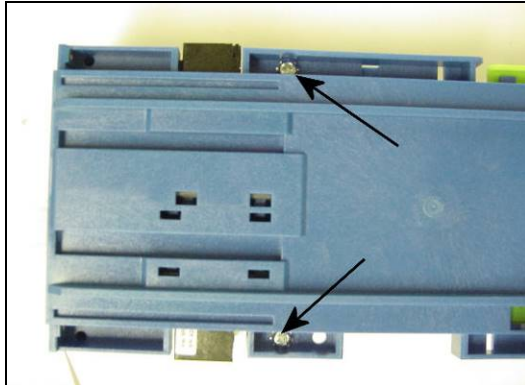
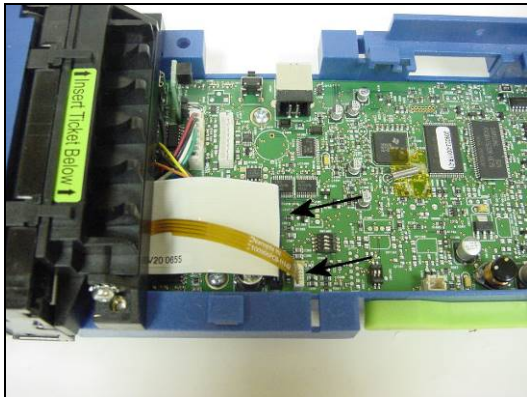
### For PayCheck™ 1, 2 & 3

1. Remove ticket tray by following **Instruction B**
2. Remove base plate by following **Instruction C**
3. Disconnect the TOF flex circuit and printing mechanism flat cable
4. Remove the 2 mounting screws
5. Lift printing mechanism straight up
6. Disconnect motor connector
7. Disconnect mech grounding tab using “long nose” pliers



**Figure 27: Printing Mechanism – PayCheck™ 1, 2 & 3**

1. Remove ticket tray by following **Instruction B**
2. Disconnect the TOF flex circuit and printing mechanism flat cable
3. Remove the blue top paper guide (not shown)
4. Remove the 2 mounting screws
5. Lift printing mechanism straight up
6. Disconnect motor and paper guide connector
7. Disconnect mech grounding tab using “long nose” pliers

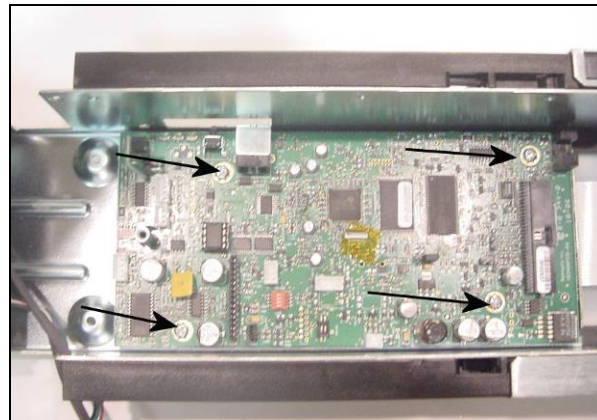
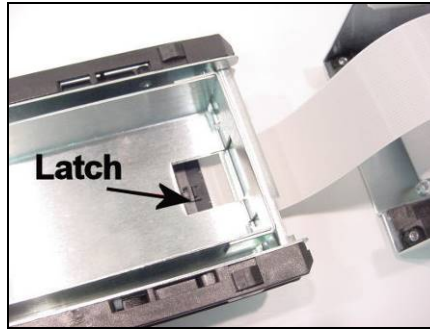


**Figure 28: Printing Mechanism PayCheck 4™**



## Instruction G: Removal of the main controller PCB

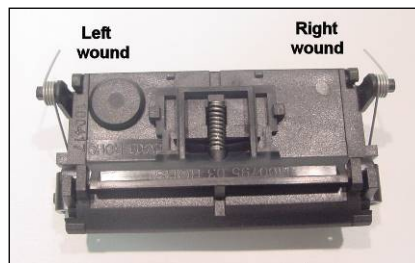
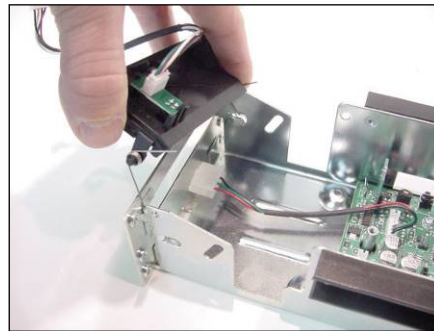
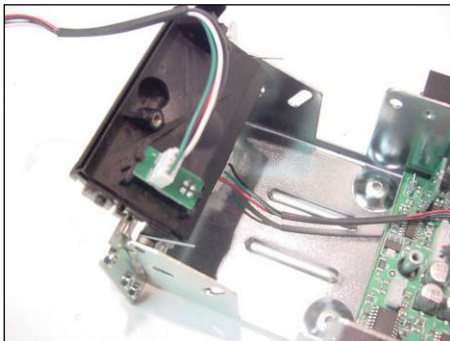
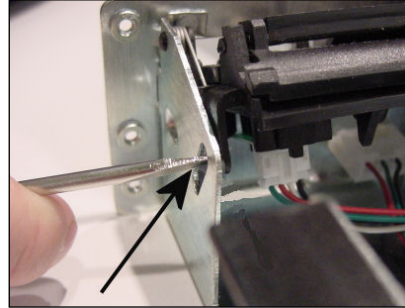
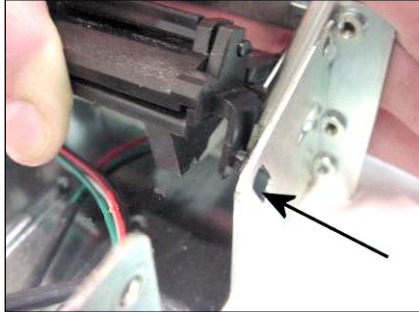
1. Remove the printing mechanism kit by following [Instruction F](#)
2. Disconnect bezel & paper guide harnesses
3. Disconnect flat cable
4. Remove 4 mounting screws



**Figure 29: Main PCB**

## Instruction H: Removal of paper guide kit (PayCheck™ 1, 2 & 3 only)

1. Remove the printing mechanism kit by following **Instruction F**
  2. Pry one side and hold
  3. Keeping an upwards pressure, push on the other side's tab
  4. Then remove by unlatching the final 2 tabs
- Note: during reassembly, make sure to install the right spring on the right side and the left spring on the left side.



**Figure 30: Paper Guide**

## Instruction I: Removal of the paper guide sensor

### For PayCheck 1, 2 & 3

1. Remove paper guide kit by following [Instruction H](#)
2. Remove PCB by carefully prying latch

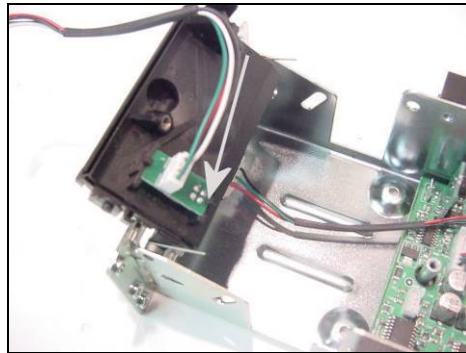


Figure 31: Paper Guide Sensor – PayCheck™ 1, 2 & 3

### For PayCheck 4™

1. Remove print mechanism kit by following [Instruction F](#)
2. Remove top paper guide (blue)
3. Remove bottom paper guide (black)
4. Remove PCB by carefully prying latch

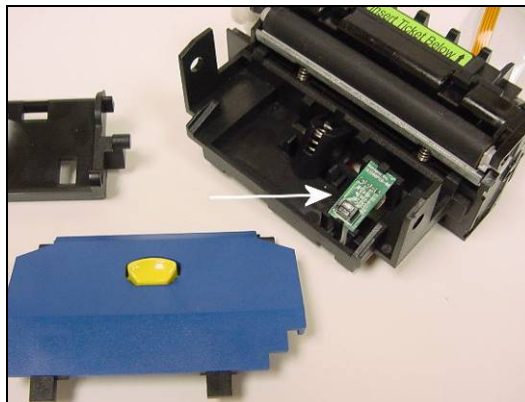


Figure 32: Paper Guide Sensor – PayCheck 4™

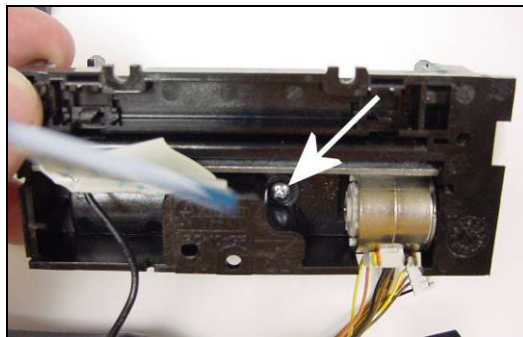
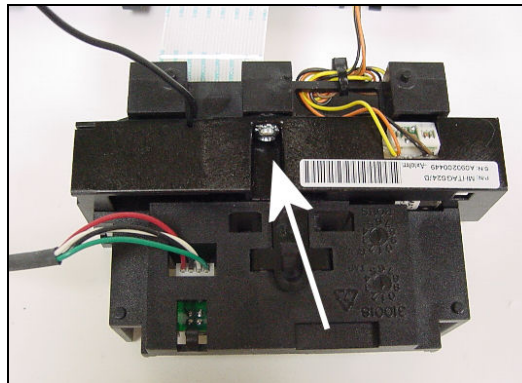
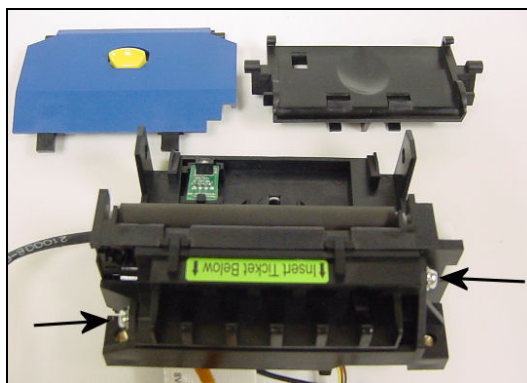


## Instruction J: Disassembly of printing mechanism kit

1. Remove print mechanism kit by following **Instruction F**

### Additional steps for PayCheck 4™ only

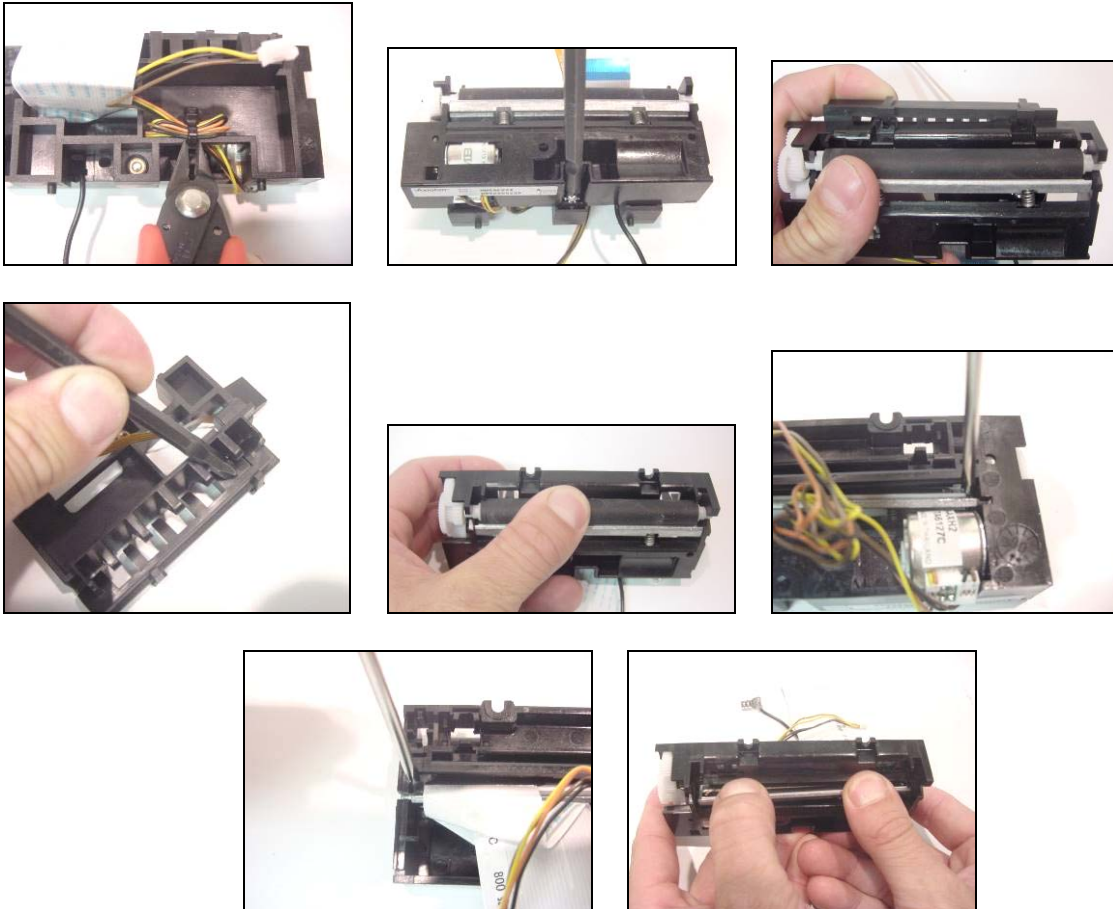
2. Remove top paper guide (blue)
3. Remove bottom paper guide (black)
4. Remove the Axiohm mount by remove the 2 mounting screws
5. Remove the mech mount by removing the mounting screw
6. Remove Front Axiohm module by removing mounting screw



**Figure 33: Mech Kit – PayCheck 4™**

## For PayCheck™ 1, 2, 3 & 4

7. Cut tie wrap
8. Remove mech mount mounting screw (PayCheck™ 1, 2 & 3 only)
9. Separate mechanism by sliding mount upwards (PayCheck™ 1, 2 & 3 only)
10. Push sensor out using a screw driver
11. Remove print head by prying with a small screw driver  
(Make sure not to apply any pressure to the print head white flat cable)
12. Remove head by pushing down and back  
(Attention: springs may pop out of position)



**Figure 34: Disassembly**

## 6 Printer Maintenance 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.

### 1. Slide printer drawer open and remove ticket tray

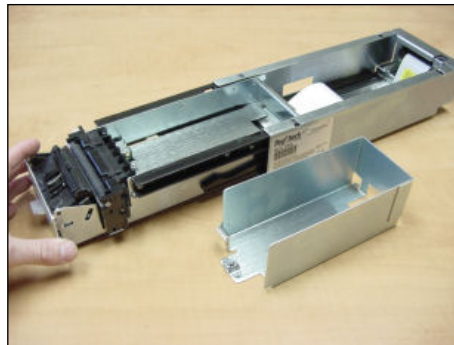


Figure 35: Remove Ticket Tray

### 2. Remove excess dust using a portable vacuum cleaner or wipe clean with a damp cloth

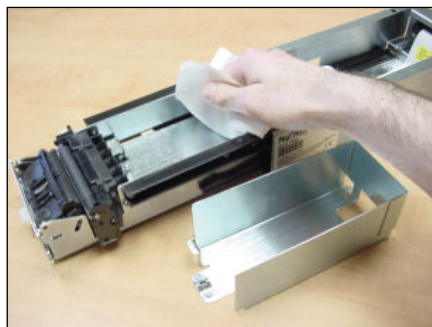


Figure 36: Remove excess dust

### 3. Blow clean air on the TOF sensor area

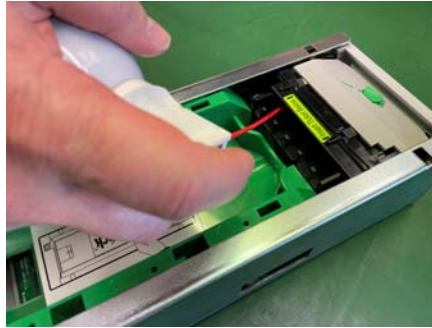


Figure 37: Clean TOF sensor

### 4. Remove paper guide cover (when in use) & top paper guide. Then press down on bottom paper guide

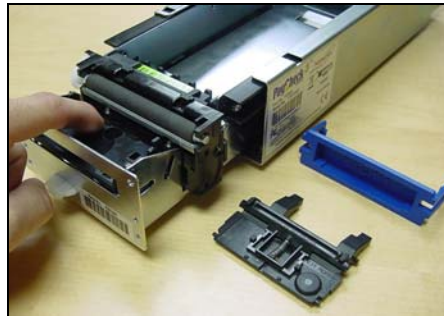


Figure 38: Remove top paper guide

### 5. Remove roller by pressing down and rolling out towards front of printer



Figure 39: Remove Roller

6. Clean the roller with a cotton swab and a mild soap solution.



Figure 40: Clean Roller

7. Clean paper guide sensor using cotton swab

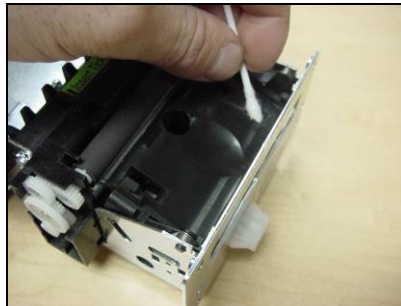


Figure 41: Clean paper guide sensor using cotton swab

8. Make sure that bottom paper guide can move up and down freely. Ensure that the gaps pointed by the arrows are equal and measures approximately  $\frac{1}{2}$  a millimeter (20 mils or the thickness of 5 sheets of TITO paper). If not, readjust the frame to ensure proper alignment.

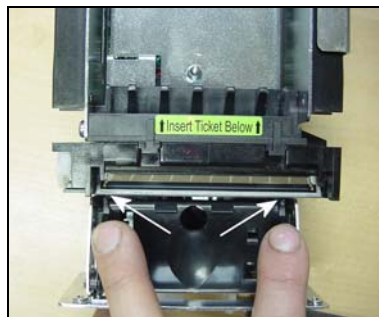
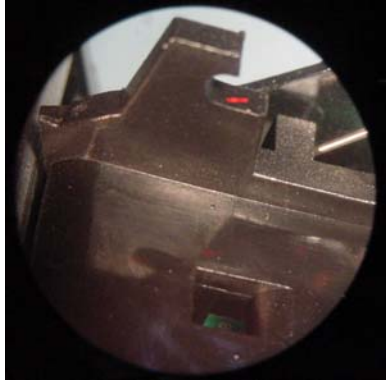


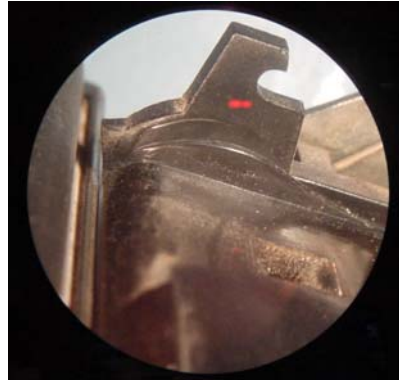
Figure 42: Bottom paper guide inspection



9. Visually inspect the two inner sides of the bottom paper guide. If excessive wear is visible (deep grooves caused by paper), bottom paper guide should be replaced



**Good**



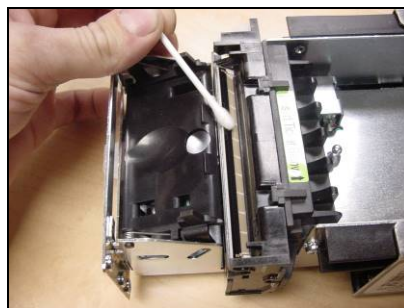
**Replace**

10. Remove dust from gear using brush



**Figure 43: Remove dust from gears using brush**

11. Clean the heating elements (black line on the print head) with a cotton swab and isopropyl alcohol.



**Figure 44: Clean Heating Elements**

12. Clean the printer gears with compressed air, checking for any kind of buildup between the teeth.
13. If there is any indication that the gears are slipping (audible or performance-based), replace the gears

## 7 Service & Support

### 7.1 Returning printers to Nanoptix for repairs (RMA)

- Send repair approval request to Nanoptix Inc. which should include:
  - Printer model #
  - Serial #
  - Brief problem description
- Ship defective products to Nanoptix Inc.
- Ensure that the RMA number is clearly visible on the outside of each package being sent.

**NOTE:** Make sure to place a blank ticket or a piece of paper between thermal print head and roller for shipping and storage.

**Ship to address:**

RMA # XXXXXX  
Nanoptix Inc.  
699 Champlain St  
Dieppe, NB, Canada  
E1A 1P6

### 7.2 Technical Support Contact Information

Service department  
Nanoptix Inc.  
699 Champlain St.  
Dieppe, NB, Canada  
E1A 1P6  
Tel: +1 506.384.3388  
Fax: +1 506.384.3588  
E-mail: [service@nanoptix.com](mailto:service@nanoptix.com)  
Web site: [www.nanoptix.com](http://www.nanoptix.com)