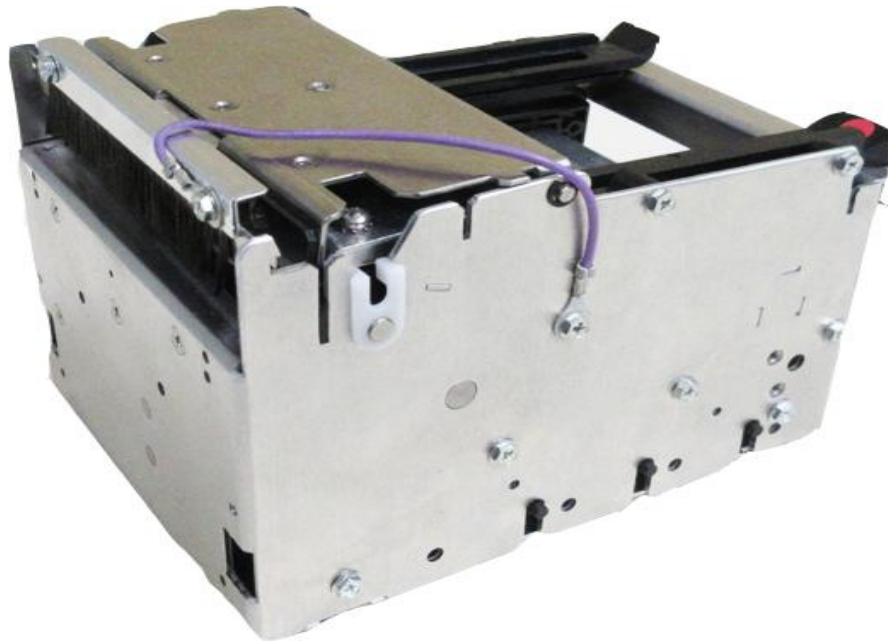


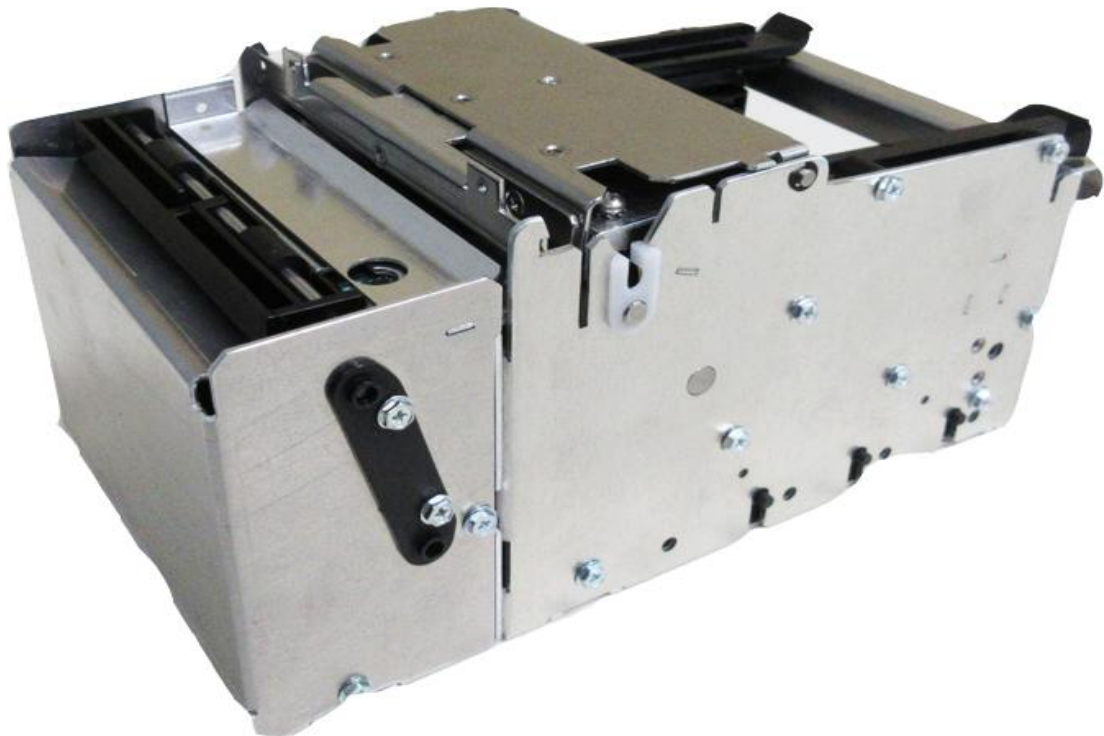


# **Boca Systems**

LEMUR-X UPG PRINTER  
Operator's Manual



Lemur-X



Lemur-X(P)

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# FCC NOTICE

NOTE: The 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 the user's expense.

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.

NOTE: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance.

## WARRANTY INFORMATION

All warranty work is to be performed either by BOCA or by an [authorized BOCA service center](#). Shipping charges to the repair center are the customer's responsibility. BOCA will pay for the equipment's return via ground service. Parts damaged by negligence or misuse (bad ticket stock, improper operating conditions, etc.) are excluded from this warranty. (NOTE: The print head is a consumable part and is warranted for ninety days.)

**New Equipment** - BOCA warrants the equipment manufactured and sold by it to be free from defects in material and workmanship under normal use and service for one year from the date of shipment.

**Repairs** - A factory repaired printer is warranted for ninety days after being received by the customer. The repair warranty covers only the specific repair work performed and does not cover subsequent failures unrelated to the repaired components.

**Parts** - Spare parts carry a ninety-day warranty.

**Tickets** - Tickets are warranted, under proper storage conditions, for a period of three years.

Please go to the link below if you have any reported issues with your new BOCA printer.

[www.bocasystems.com/online-support-form.html](http://www.bocasystems.com/online-support-form.html)

Equipment damaged in shipping should be reported immediately both to BOCA and to the shipper.

**EXTENDED WARRANTY PLAN** - BOCA offers [extended warranty plans](#) for all printer models. These plans cover all parts and labor. All labor is to be performed at the BOCA facility. Equipment damaged by misuse or negligence, including damage to print heads caused by defective ticket stock, is excluded from this extended warranty. The customer, at its option, may request BOCA to ship individual parts to expedite simple repair procedures. In certain cases where the customer is unable to wait for the normal repair cycle, BOCA will ship an exchange printer within one business day after notification by the customer. All freight charges are the responsibility of the customer.

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# 1.0 Unpacking the Printer

The printer is shipped in a ruggedized container. **Please save packing material for future use.** Remove the printer and accessories from the box and inspect for obvious damage. If damage is noticed, please report it immediately to BOCA.

Email: [cathy@bocasystems.com](mailto:cathy@bocasystems.com) Tel: (561) 998-9600 Fax: (561) 998-9609

The following items should be in the box:

- A) Lemur- X UPG Printer or Lemur-X(P)
- B) 24VDC power supply
- C) AC cord
- D) May come with below options items (depending on what was ordered):
  - a. Interface cable
  - b. Receipt Roll Holder, Desktop ([P/N 424184](#))
  - c. Receipt Roll Holder, Kiosk (P/N 424051-U)
  - d. Low Paper Sensor for roll holder ([P/N 424078](#))
  - e. Low Paper Sensor for fan folded stock ([P/N 424084](#))
  - f. Low Paper Sensor see-through (P/N 423862-XZ)
  - g. Eject Bezel
  - h. Top Plate (for vertical mount printer)



Above show typical packing of printer with accessories located at bottom

Click here to return to > [Table of Contents](#)

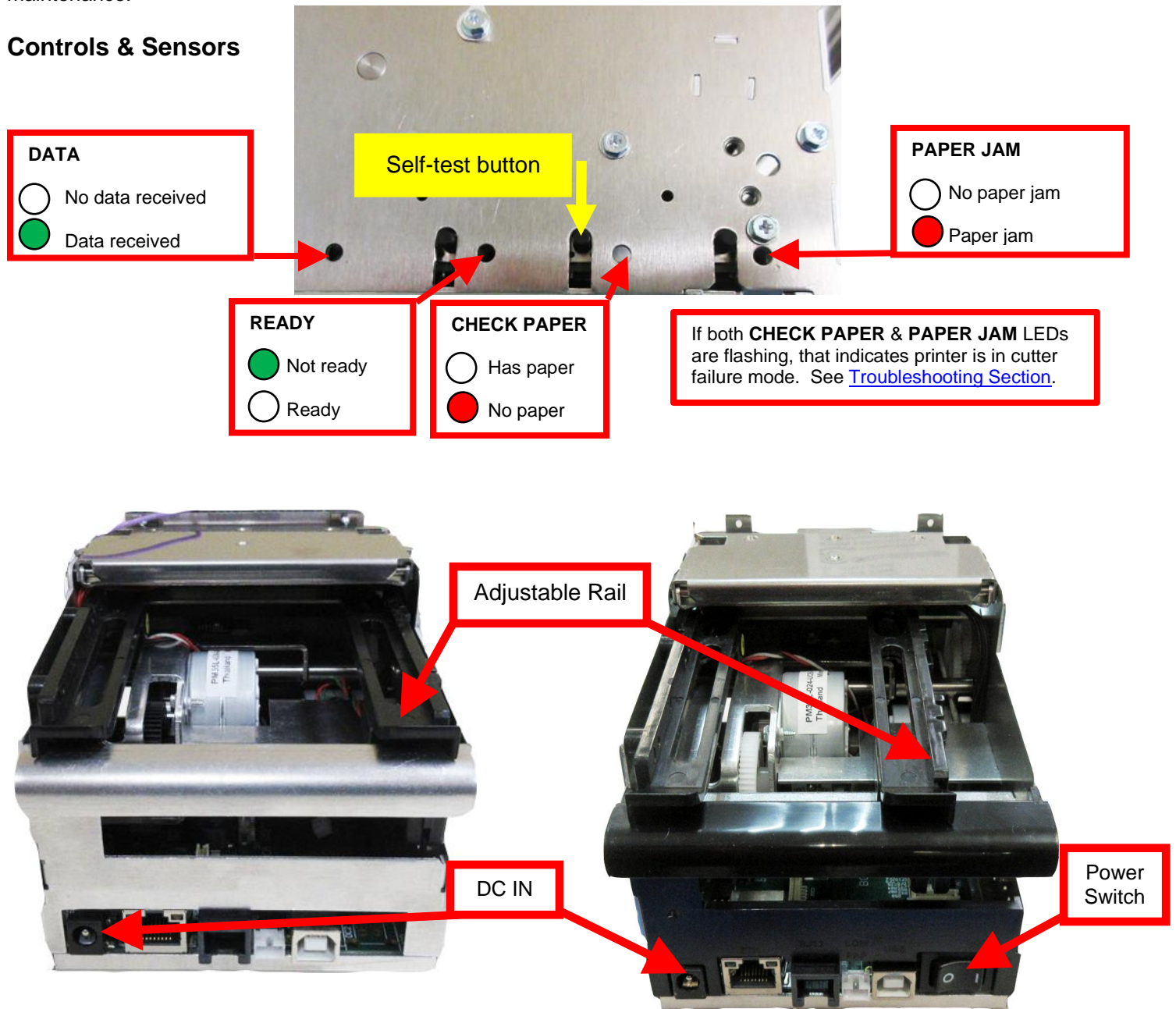
## 2.0 Introduction Lemur-X

The Lemur-X UPG is a direct thermal ticket printer that may be ordered with (default) or without (optional) an integrated cutting mechanism. This manual will provide the user with general information regarding printer set-up, configuration and troubleshooting. Please read the important safety information section before installation is conducted. Review the [programming guide](#) for additional details.

The Lemur-X series are low-cost point of sale or kiosk printers designed for use with 1" (25.4mm) to 3.25" (82.5mm) wide thermal media. The printer may be configured for use with rolled receipt stock or fan folded media with black timing mark using direct thermal printing. The following is a link to the black timing mark specs [www.bocasystems.com/ticket\\_specs10.html](http://www.bocasystems.com/ticket_specs10.html) . The printer features integrated auto cut mechanism (or optional non-cutting) and easily adjustable paper guide.

The print head may be easily opened to give the operator easy access to the paper path and print head for routine maintenance.

### Controls & Sensors



Printer s/n 539458 & higher has a power switch

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## 3.0 Important Safety Information



**WARNING:** The appearance of this symbol indicates the proximity of an exposed high voltage area. Please follow all directions carefully for your personal safety. You must read the following safety information carefully before working on the printer.

**As a safety precaution, all service to the printer should be done by **qualified persons** with power off and the AC cord unplugged from the printer. Following any procedure requiring the removal of covers and/or doors, please verify that they have been properly attached and fastened prior to operating the printer.**

**WARNING:** "Provide an earthing connection before the mains plug is connected to the mains. And, when disconnecting the earthing connection, be sure to disconnect after pulling out the mains plug from the mains."

**WARNING:** Power Cord Set: This must be approved for the country where it is used:

### U.S.A. and Canada

- The cord set must be UL-approved and CSA certified.
- The minimum specification for the flexible cord is:
  - No. 18 AWG
  - Type SV or SJ
  - 3-conductor
- The cord set must have a rated current capacity of at least 10A.
- The attachment plug must be an earth-grounding type with a NEMA 5-15P (15A, 125V) or NEMA 6-15P (15A, 250V) configuration.

### United Kingdom only

- The supply plug must comply with BS1363 (3-pin 13 amp) and be fitted with a 5A fuse which complies with BS1362.
- The mains cord must be <HAR> or <BASEC> marked and be of type H03VVF3GO.75 (minimum).

### Europe only:

- The supply plug must comply with CEE 7/7 ("SCHUKO").
- The mains cord must be <HAR> or <BASEC> marked and be of type H03VVF3GO.75 (minimum).

**Denmark:** The supply plug must comply with section 107-2-D1, standard DK2-1a or DK2-5a.

**Switzerland:** The supply plug must comply with SEV/ASE 1011.

**China:** The product label is located in the bottom of the equipment. It is also located near where the AC cord plugs into the printer.

产品的标识在设备的底部

**WARNING:** The appliance coupler (the connector to the unit and not the wall plug) must have a configuration for mating with an EN60320/IEC320 appliance inlet.

**WARNING:** The socket outlet must be near to the unit and easily accessible.

**WARNING:** France and Peru only:

This unit cannot be powered from IT<sup>+</sup> supplies. If your supplies are of IT type, this unit must be powered by 230V (2P+T) via an isolation transformer ratio 1:1, with the secondary connection point labelled Neutral, connected directly to earth (ground).

**WARNING:** RJ-45 Ports. These are shielded RJ-45 data sockets. They cannot be used as standard traditional telephone sockets, or to connect the unit to a traditional PBX or public telephone network. Only connect RJ-45 data connectors. Either shielded or unshielded data cables with shielded or unshielded jacks can be connected to these data sockets.

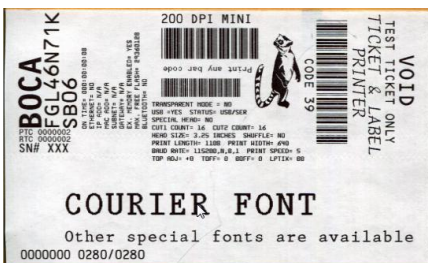
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## 4.0 Installation

The Lemur-X UPG are designed to be mounted in a kiosk (see section 5.0 PRINTER MOUNTING), optional desk top model or vertical mount (See Appendix K – VERTICAL PRINTER INSTALLATION)

Prior to site preparation and installation, the printer should be powered up and run in the self-test mode.

- Lay the printer flat on a counter top.
- Install optional items onto the printer.
  - Receipt roll holder, Desktop (P/N 424213)
  - Receipt roll holder, Kiosk ([P/N 424051-U](#))
  - Low paper sensors ([P/N 424078](#) or [424084](#) or 423862-XZ)
  - Bezel
- Attach the round DC connector of the 24VDC power supply into the printer.  
**NOTE: For printer without a power switch, do not power the printer on/off by unplugging this connector. Turn the printer on/off by plugging or unplugging the AC cord from the power pack.**
- Plug the AC cord into the 24VDC power pack.
  - Printer without power switch will automatically power up once the AC cord is plugged into its AC source. To power off the printer unplug the AC cord from the power pack.
  - Printer with power switch will need to be turned on and off by said switch.
- Recommend that fan folded media be fanned prior to use. This may be done by securely holding one side of the stack and fanning the other. You will want to do both sides. This fanning will help remove any paper dust or debris that may be on the ticket stock, as well as reduce the paper dust in the printer too.
- Wait five seconds after power up, during this time you will hear the cutter knife cycle. Begin loading tickets through the entrance slot with a smooth motion until the printer automatically positions the ticket. See section [5.0 Ticket Load Procedure](#).
- After the ticket is automatically positioned (the green READY led will be illuminated), press the center TEST button located on the control panel to print a test ticket.



Your printout may vary depending on printer configuration and ticket stock used

- **When the Lemur-X leaves the factory, it may be configured one of two ways depending how it was ordered from the factory:**
  - For use with receipt rolled stock (stock with no black timing mark).  
or
  - For use with thermal media that has a black timing mark then it will need to be taken out of paper mode. See [Appendix D – DOWNLOADING SOFTWARE COMMANDS](#) to download the appropriate software command.
  - **<pmdd>** this will configure the printer for use with ticket stock with a black timing mark.
  - **<pmr>** this will configure the printer for use with receipt stock without a black timing mark.
- Verify that the printer properly works with your system by issuing a ticket through your computer system. You may also use our customer-based program to test the printer independently of your ticketing system (see [Appendix C](#))

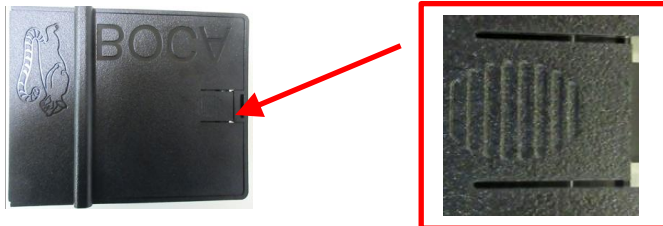
You may now install the printer in its permanent location. Adequate room should be provided behind the printer for the smooth feeding of ticket stock.

**COVER** The desktop version of the Lemur-X comes with a cover and rubber feet.



On a printer with a plastic cover, you may get access to the print head by sliding back the lid.

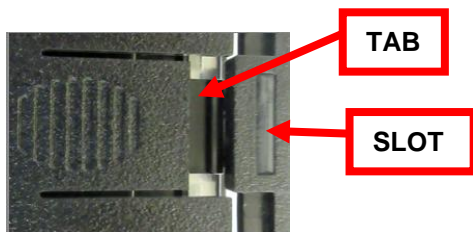
1. Gently push down on the cover tab.



2. Slide the cover back.



3. The cover may be locked in place by sliding the cover fully forward until the tab on the lid snaps into the slot on the cover.



**Lemur-X cover removal** - The cover may be removed by removing the two Philip head screws (in front) that hold it in place. When the cover is installed back on, the screws should be tightened to where they are snug. Over tightening, may strip out the screw.



**Metal Cover**

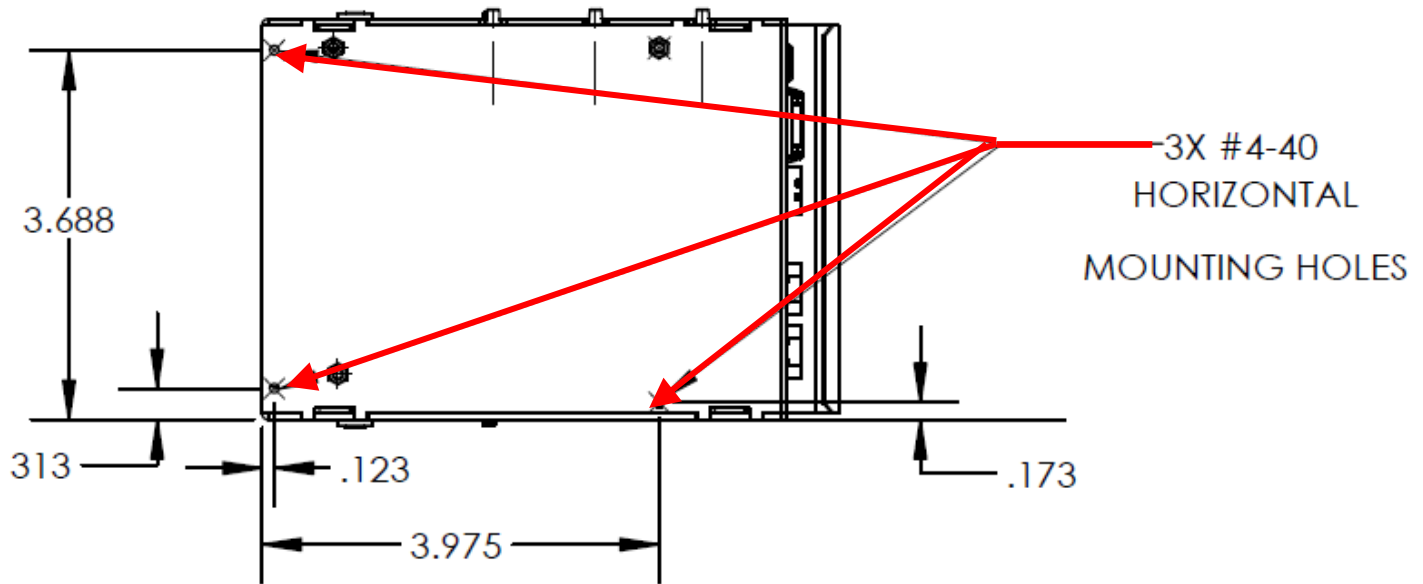


**Plastic Cover**



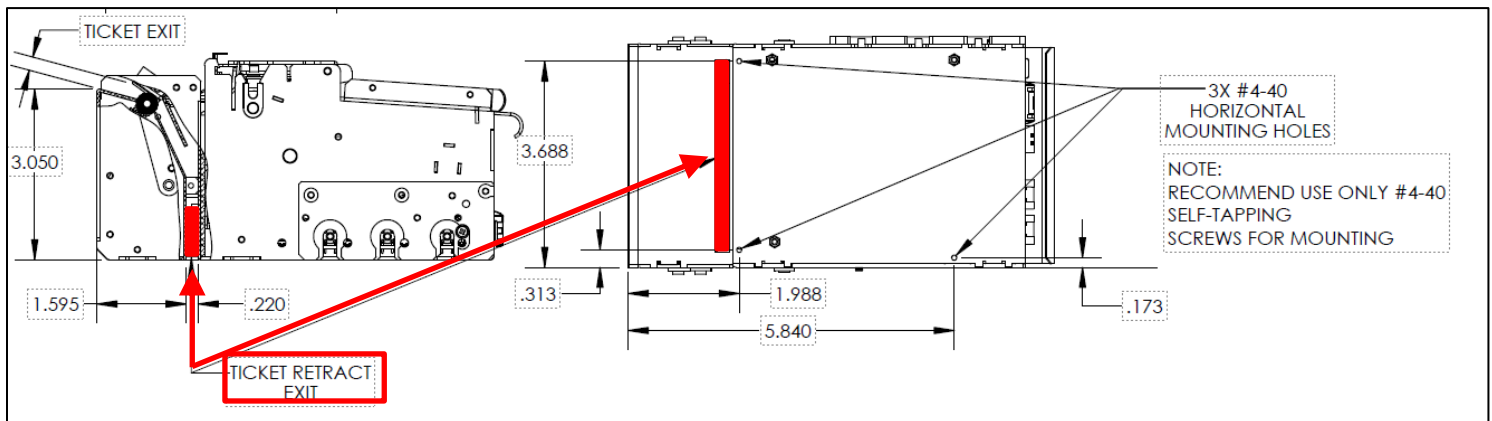
## 5.0 Printer Mounting

It is recommended the kiosk version of the printer (Lemur-X and Lemur-X(P)) be mounted to the kiosk using the three printer mounting screw holes shown in the illustration below. The printer is most secure when using all of these mounting locations attaching the printer's base within the kiosk.



Recommend using only #4 -40 self-tapping screws for mounting. Three 4-40 x .3125" self-tapping screws are included with the printer.

On a Lemur-X(P) that has a presenter. You need to ensure there is an opening in the kiosk below the Ticket Retract Exit area if you intend for the printer to retrace the media back. Below is an excerpt from APPENDIX M – LEMUR-X UPG PRESENTER REFERENCE DRAWING.



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## 5.1 Media Supply

The Lemur-X has several basic requirements for dispensing the media to the printer from a roll or fan-fold media which include:

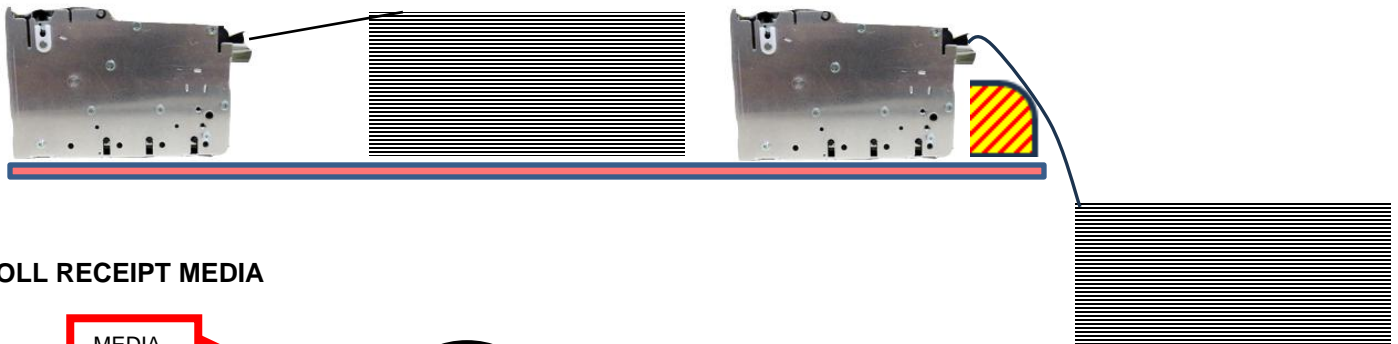
- **Align printer with media** – The media roll or fan-fold stack should align with the left side of printer (from where stock is loaded into the printer) to keep the media un-damaged and prevent ticket jams. The [6.1 Ticket Width Adjustment](#) section provides a visual reference of this.
- **Media only contact media mounting and printer in kiosk** – The media should not touch cable, other kiosk components, or surface other than media guides or the fan-fold media tray.
- **Direct sunlight, incandescent or infrared lighting or heat sources** – These light sources can come from various sources and the printer should be shielded from them. For example, exposure to direct sunlight (possibility to the location of a kiosk vent) will affect the printer's sensors that may lead to reliability issues.
- **Media dispensing must be smooth and easy**
  - Fan-fold media must have sufficient room to unfold and not bind on media guide surfaces or at the media perforations (avoid sharp entrance angle into the paper path) or sides (make sure the media is centered with the paper path).
  - Roll media must be able to turn with little or no drag, and allow the printer to smoothly pull media without jerking and stopping. Must be centered with the paper path. Minimize roll to roll holder contact and avoid sharp contact surfaces. Recommend the use of an optional BOCA roll holder: Kiosk version [p/n 424051-U](#) or Desktop version p/n 424184.

The printer can produce a distorted print (e.g., compressed print, short receipts, etc.), motor stalls, and jamming if media dispensing to the printer is not smooth and easy for the printer.

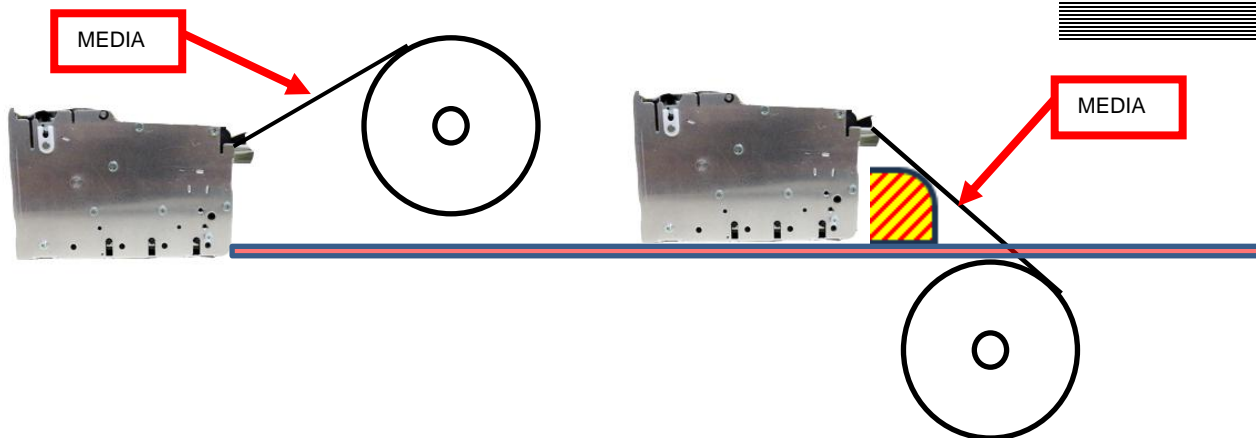
### Media Input Aperture


The printer has a wide aperture to support a range of media mounting locations. The media can enter the printer directly or indirectly with the addition of optional or custom-made guides.

**FAN FOLDED STOCK** – Want to have the stock back far enough away to clear the cables that plug into the back of the printer.



### ROLL RECEIPT MEDIA

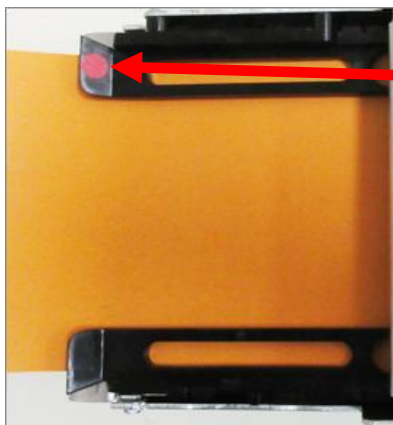
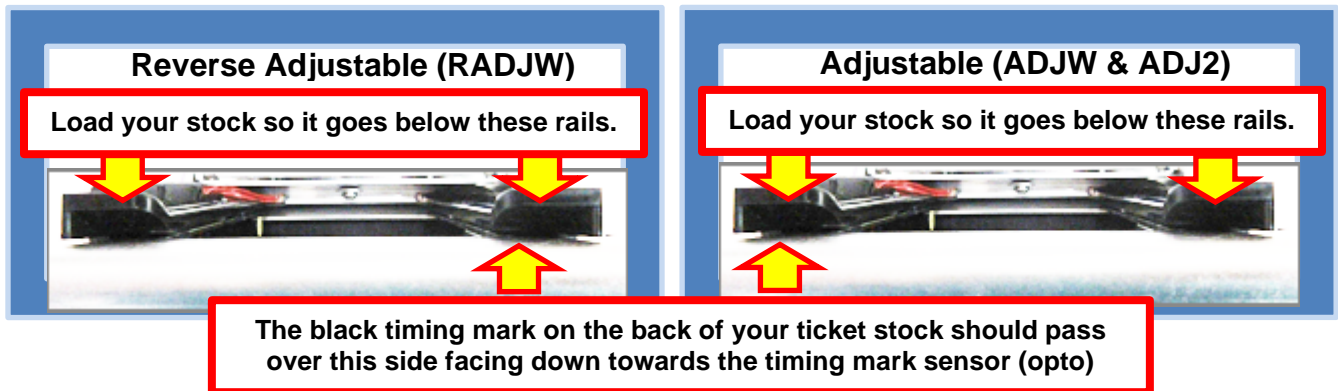
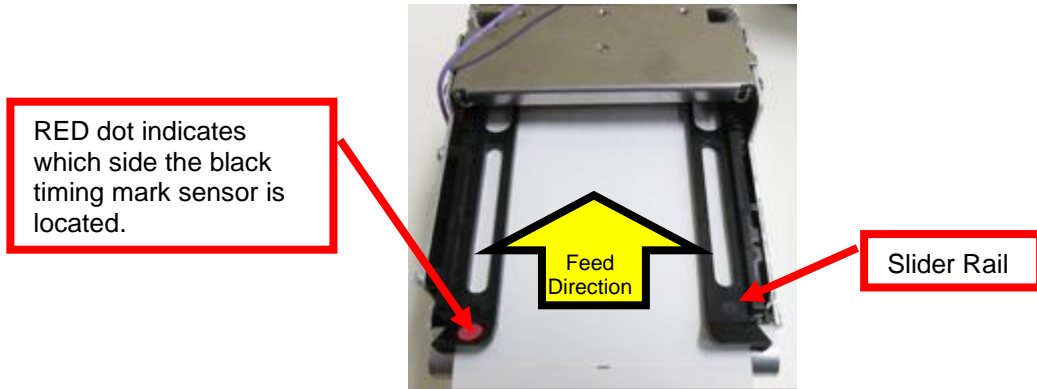


If the entrance of the media into the printer will fall below the red highlighted area shown above, then the highlighted yellow area  should have a continuous physical barrier separating the media from coming in contact with the cabling, printer body, kiosk chassis seams, avoid a sharp feed angle into the paper path, etc. Recommend the use of the Printer Mounting Plate (P/N 424213).

## 6.0 Media Load Procedure

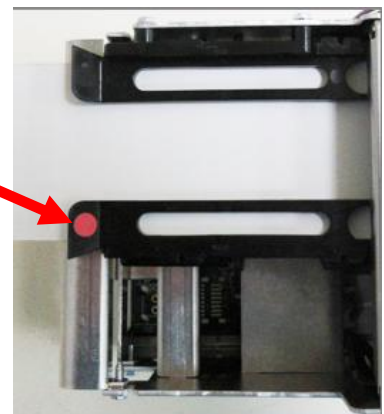
1. Plug the power pack into the printer and the printer will automatically turn on when the AC cord is plugged into the AC cord. The red **CHECK PAPER** led will be illuminated. You will also hear the cutter knife cycle during this time, if cutter is equipped with a cutter.
2. Begin loading the tickets through the entrance slot with a smooth motion until the ticket stock comes to a stop (at this point the stock is between the thermal head and platen). Keep pressure against the stock and the printer will automatically feed the ticket stock.

If your printer is configured for use with a media that has a black timing mark. Then the stock needs to be orientated so the black timing mark is on the same side as the rail that has the RED dot.



Adjustable (ADJW & ADJ2)

The black timing mark on the back of your ticket stock must pass under the side with the dot and is facing down towards the black mark sensor.

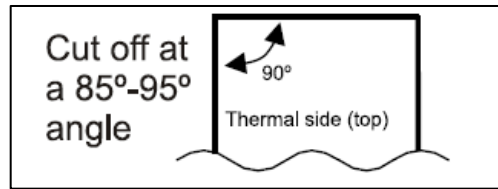


Reverse Adjustable (RADJW)

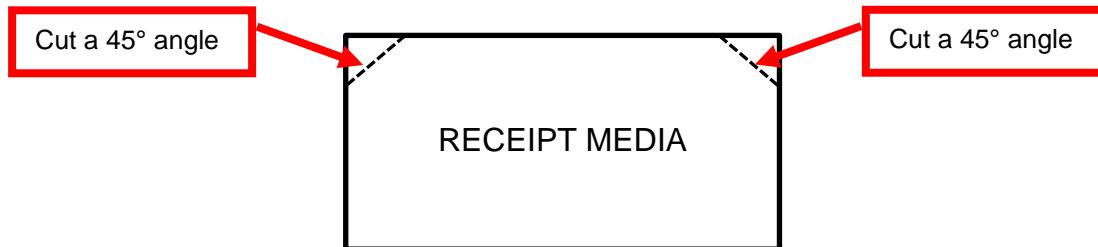
3. The printer will feed the stock forward toward the front of the printer and then reverse it back to the print (idle) position. If the printer was originally configured for use with wristband, then it will feed out one blank and cut it.

## RECEIPT MEDIA

The leading part of the media should have a clean edge and be as flat as possible. If the media is curled upwards then it will need to be flattened prior to loading into the printer. The loading process works best with the media having as a square, straight edge. Cut the paper in a suitable angle.

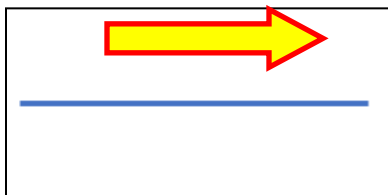


Also cutting a 45° angle on each side will help the flimsy media load through the paper path better.

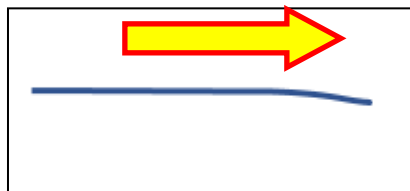


## WRISTBANDS

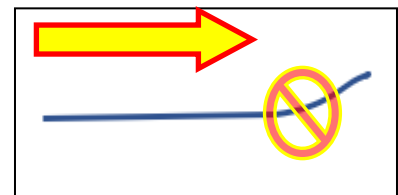
When feeding wristband stock into the printer the leading edge of the wristband should be lying flat and not curled upwards. An upward curled wristband may not feed properly into the printer and may lead to possible ticket jams on a printer with auto cutter.



GOOD – wristband lying flat



ACCEPTABLE – wristband has a slight curl downward.



**May cause feed issues** – wristband is curled upwards.

If wristband media has square corners, cutting a 45° angle on each side will help it feed through the paper path better.



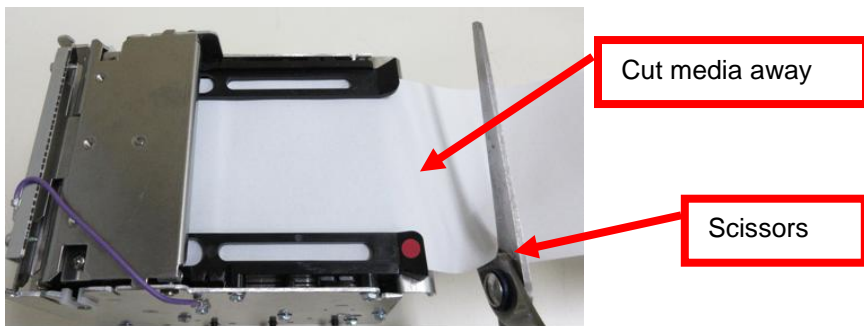
If you have any ticket load or jamming issues then make sure the paper path width is properly adjusted for the media being used (see [5.1 Ticket Width Adjustment](#) ).

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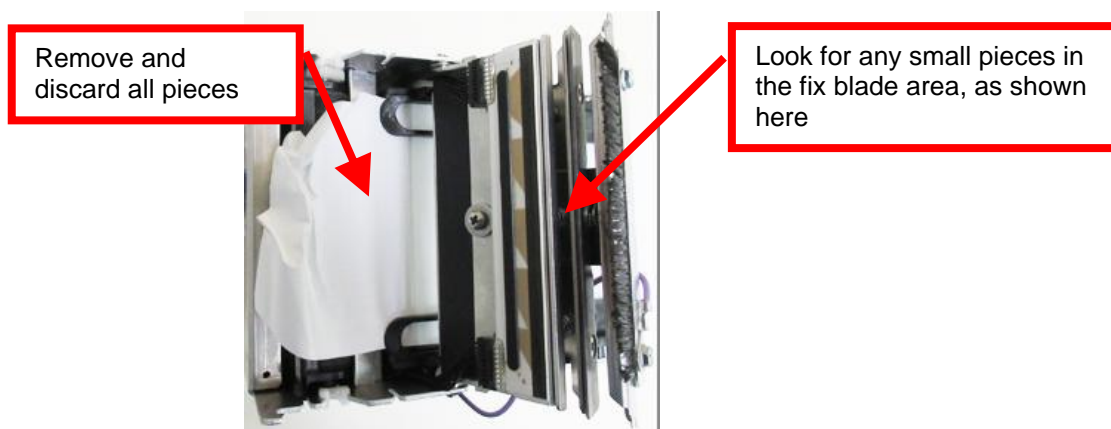
## 6.1 Clearing Paper Jams

Should a paper jam occur (the red paper jam LED will be illuminated), follow the procedure below:

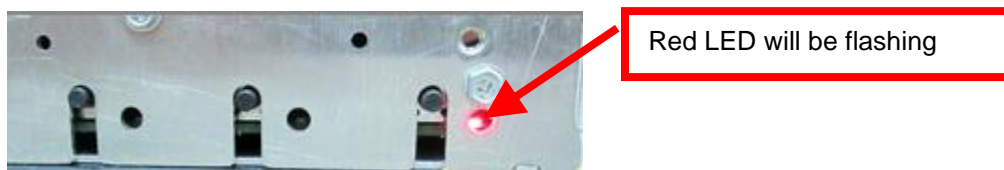
1. **Disconnect AC cord from the power pack to turn off the printer.**
2. Cut the media off the from where it is loaded into the printer, if using receipt roll stock.



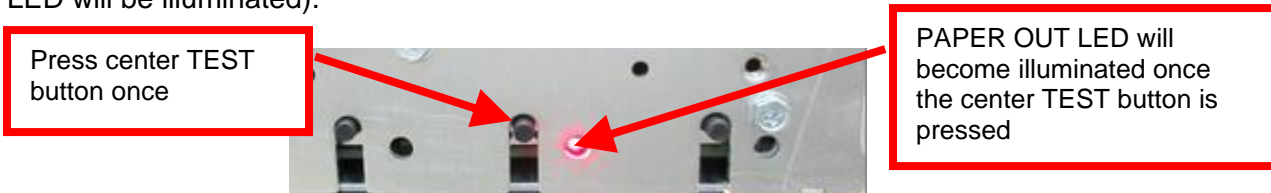
3. Open the print head assembly. See section 9.2 THERMAL PRINT HEAD.
4. Remove and discard the damaged media.



5. Close the print head assembly and make sure latches on both sides are locked.
6. The printer will still be showing a paper jam error (red LED flashing).



7. Press the center TEST button to clear the jam error and put printer in out of paper mode (paper out LED will be illuminated).

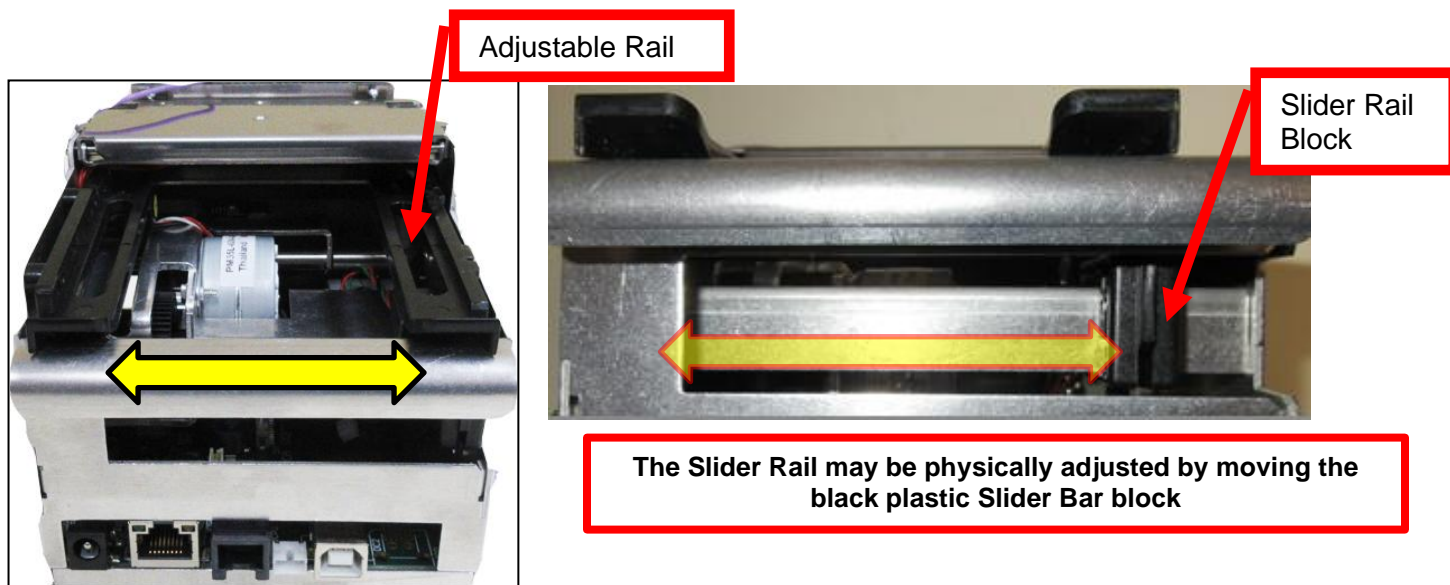


8. Feed the media back into the printer. See section [6.0 Media Load Procedure](#).



## 6.2 Ticket Width Adjustment

To adjust the paper path for use with a different ticket width, adjust the adjustable rail to the fully open position. Insert your media into the paper guide. Adjust the adjustable rail down to the proper ticket width, making sure the rail is not too tight against the ticket. *The media should move freely in the paper path.*



### CAUTION:

If the adjustable rail is adjusted too tightly against the media, then this will lead to feed or media jam issues. You may notice the media will either be buckled upward or downward. If there is a feed or jamming issue then move the adjustable rail away from the media a little (no more than 1/16").

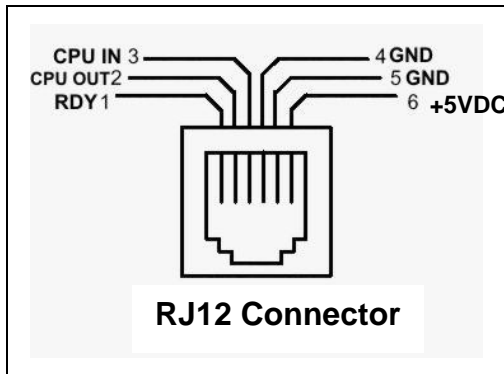


If the adjustable rail is adjusted too wide then the media may have too much free play side to side. This will cause the printout to move around on the ticket. If the printer is configured for black timing mark use then this may not allow the black timing mark to pass over the cut sensor, which will lead to paper jam errors, miscutting of the media.

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## 7.0 Standard Interface Pinouts

### RJ12 Serial Connection



#### TYPICAL DB9 to RJ12 PIN CONNECTIONS

9 pin host	BOCA RJ12	
2	2	Transmit
3	3	Receive
5	4	GND
6	1	RDY
8	6	CTS

**USB** USB 2.0 compliant devices.

**LOW PAPER PORT** used in conjunction with the roll holder with low paper sensor.

**BLUETOOTH** (Optional) Allows connection via Bluetooth interface.

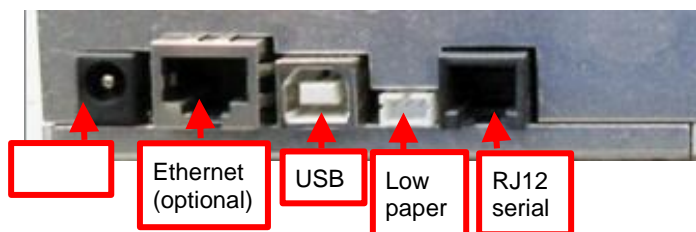
**WI-FI** (Optional) is compatible with 802.11b/g/n Wi-Fi router and supports security settings WEP/WPA/WPA-2. Printers built after July 2020 (s/n 452607 and higher) are able to support 802.11b/g/n Wi-Fi router. On dual-band router our printer needs be configured for the 2.4GHz band.

**ETHERNET** (Optional) is a standard RJ45 Ethernet cable connection. Printer serial number 533493 and higher the printer will physically have this connector but it will be disabled if the printer was not originally ordered with the Ethernet feature. We offer an Ethernet activation license code to activate this port if it was originally disabled.

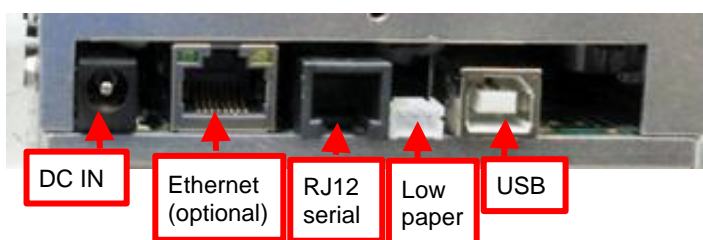
#### RJ12 CASH DRAWER PORT (Optional)

Pin	Function
2	CD1- cash drawer #1
4	24Vdc
5	CD2 – cash drawer #2

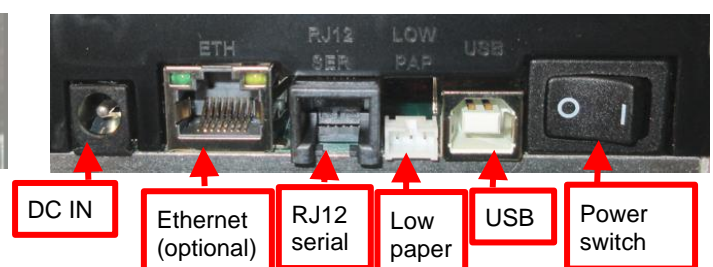
Below is a K46 & KJ46 board printer



Below is a KR46 board printer  
(s/n 488034 & higher)



Below is a KR46 board printer w/ power switch  
(s/n 539458 & higher)



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## 8.0 Thermal Paper - Theory & Specification

Refer to the BOCA Systems website at [www.bocasystems.com](http://www.bocasystems.com), [THERMAL TICKETS](#) section for the most current [paper specifications](#).

The print head's life expectancy is composed of both a mechanical and an electrical component. Both of these factors are strongly influenced by the quality of the thermal paper used.

### **MECHANICAL**

The print head has a theoretical rating of 60 kilometers. This number is based upon the assumption that the head will be used with a good quality, top coated thermal paper. Uncoated and poorly top coated thermal papers are abrasive to the print head and have been found to wear through the head after less than one kilometer.

Other factors which may contribute to premature mechanical wear are the use of non-thermal inks and stray metallic particles stuck in ticket perforations. Certain ink colors such as opaque white (which contains titanium dioxide) are also highly abrasive.

Unfortunately, there are no available devices for quantitatively measuring the abrasiveness of a given ticket. Fortunately, we have developed a slightly subjective, but effective method of weeding out overly abrasive ticket stock.

### **ELECTRICAL**

Each heat element, dot, on the print head has a theoretical life expectancy of 100 million activations. This is based on the assumption that each activation will cause the dot temperature to approach the dot's maximum recommended temperature. Running at lower temperatures will increase the theoretical life expectancy, while slight temperature increases will seriously (exponentially) degrade the head life.

The thermal paper can affect the electrical head life in two ways. Insensitive, slow papers will typically encourage the user to increase the voltage to darken the printed image. This will directly increase the head temperature resulting in reduced head life. Additionally, the higher temperatures will frequently cause the ink to peel off the ticket and deposit onto the print head. The ink debris will disrupt the normal transfer of heat from the head to the paper. This further increases the head temperature above the desired level. The use of non-thermal inks and/or non-top coated papers also will cause the ink to release and deposit on the print head.

### **SPECIFICATION**

Based upon the above technical information, BOCA has always tried to encourage our customers to use the proper thermal papers to maximize the life of their print heads. BOCA provides an extensive series of papers which meet the above criteria for low abrasion and high sensitivity. We have also tested and approved a number of Ricoh thermal papers which meet our criteria. While we have not had the opportunity to test other manufacturers' thermal papers, we feel confident that other papers manufactured with the above goals in mind should be acceptable for use in our printers. The following list of papers have been approved by BOCA.

#### **200 dpi usage**

Lemur-X            T4, T5, BS7, SKI7 & T7

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## 9.0 Maintenance

Your ticket printer is solidly constructed and requires minimal care to provide maximum service.



**WARNING:** The appearance of this symbol indicates the proximity of an exposed high voltage area. Please follow all directions carefully for your personal safety. You must read the following safety information carefully before working on the printer.

This section provides an overview of printer maintenance.

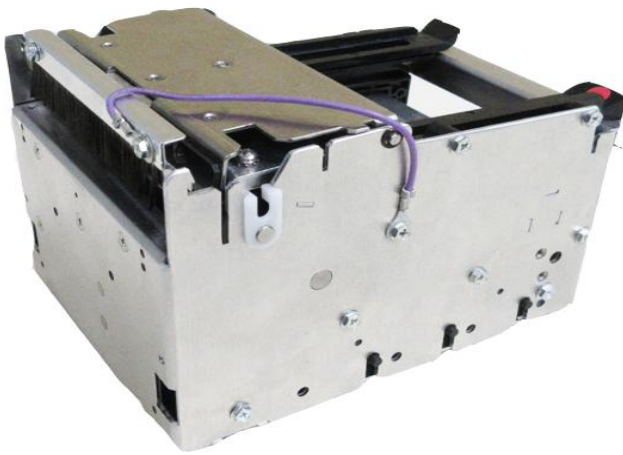
For discussion purposes, the printer consists of three major modules or assemblies:

- Paper path rails, sensors (optos) and print head assembly
- Cutter
- Logic board

As a safety precaution, all service to the printer should be done by **qualified persons** with power off and the AC cord unplugged from the printer. Following any procedure requiring the removal of covers and/or doors, please verify that they have been properly attached and fastened prior to operating the printer.

**Routine Maintenance** – Routine maintenance should normally be done a minimum once a year. Printer may require increased maintenance due to usage and environmental conditions.

See following link: [https://www.bocasystems.com/documents/RoutineMaintenanceLemurX\\_UPG.pdf](https://www.bocasystems.com/documents/RoutineMaintenanceLemurX_UPG.pdf)



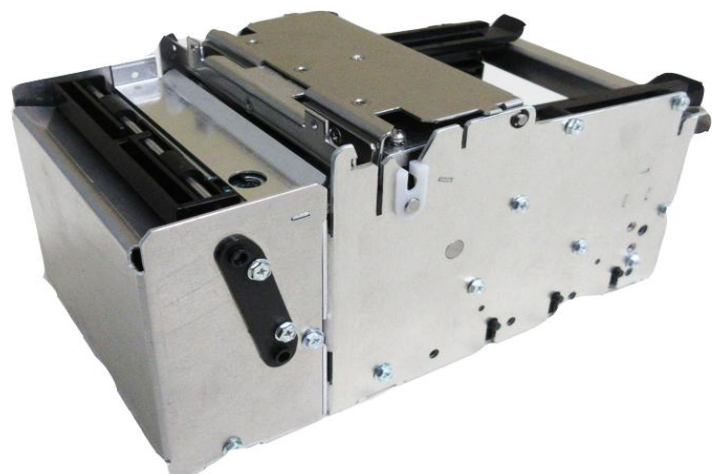
With Cutter



Without Cutter



Desktop



Presenter (Lemur-X(P))

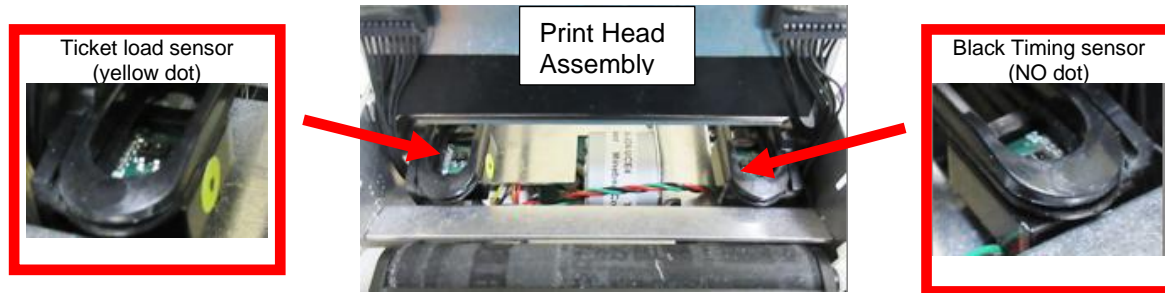


## 9.1 Optical Sensors

There are two optical sensors (opto) which are responsible for detecting where the ticket stock is as all times.

**Once a year the sensors should be blown off with air.** This interval will vary depending upon the environment and the quality of the ticket stock. You may get access to the sensors by opening up the print head assembly.

The location of these sensors may vary depending how your printer was configured when it left the factor.

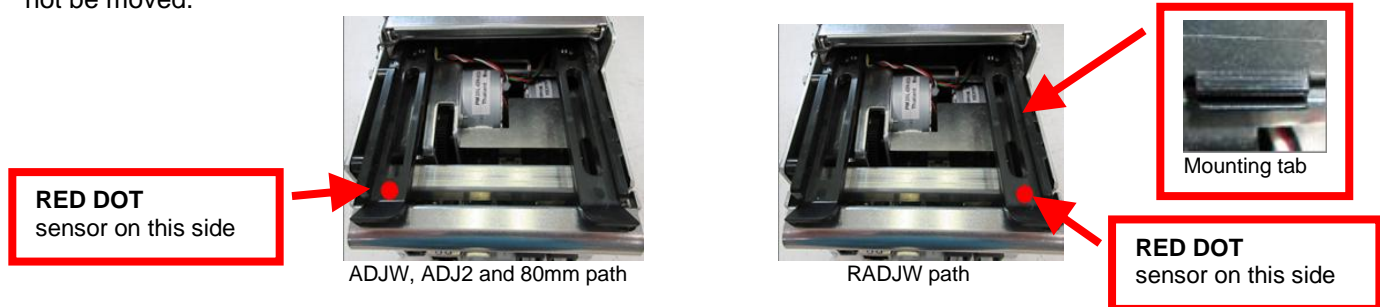


On a Lemur-X (P) that has a Presenter module, the ticket taking sensor should also be cleaned too.



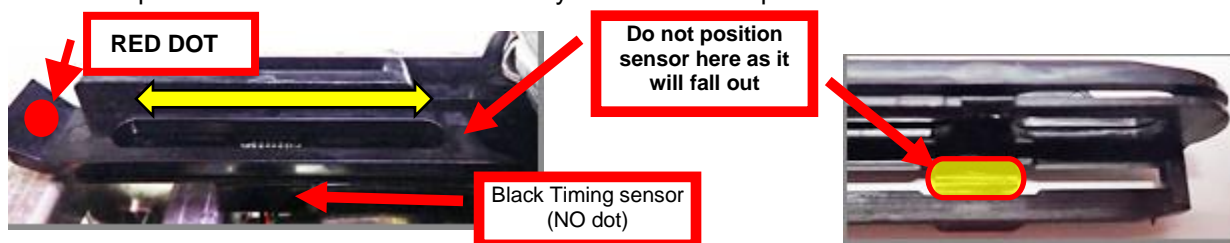
### Black Timing Sensor Adjustment

There is one optical sensor (opto) mounted on the aluminum or plastic rail (with RED dot on it) that senses the black timing mark on the thermal media, this opto controls the cut or tear position. The ticket load sensor (yellow dot) should not be moved.



**The following steps must be done with the printer powered off.**

1. The sensor may be moved forward or backwards to achieve the desired cut or tear location. On a printer with auto cut the cut position should be a 1/16"-1/8" away from the media perforation.



2. Sliding the sensor forward (in the ticket feed direction) will increase the ticket travel before it is cut or torn. Sliding it backwards will decrease the ticket travel before it is cut or torn.



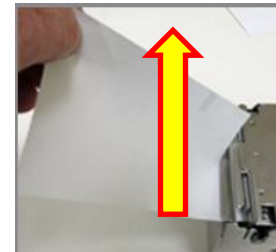
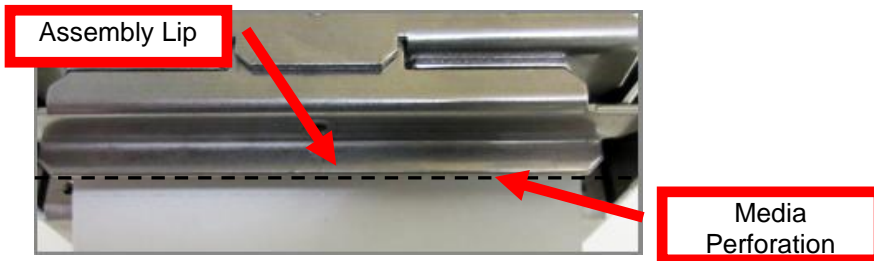
3. Slide the sensor to the desired location. The sensor must not be position under the bridge between the openings as the opto will fall out.



4. Power up the printer and load media. Press the center TEST button on the printer to print some self-test tickets.
5. If the cut or tear position is not in the desired location then repeat steps 2-3.

## Lemur-X without cutter

To adjust the cut or tear position, physically adjust the opto sensor forward or backwards to achieve the desired cut or tear location. On a printer with auto cut the cut position should be a 1/16"-1/8" away from the ticket perforation. On a printer without auto cut the media perforation should line up with the edge of the print head assembly lip (see below photos). The media it torn in an upwards motion and not pulling forward.



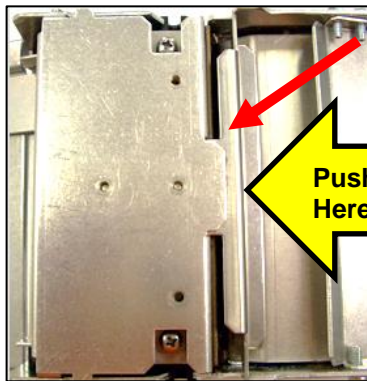
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## 9.2 Thermal Print Head

The print head should be cleaned periodically to prevent debris from building up on the print element. The required cleaning interval varies greatly depending on the quality of the ticket stock and the amount of dust entering the print area. Excessive dirt buildup on the print head will result in reduced quality. Continuing to run the print head in a dirty condition will reduce its life expectancy, as it is unable to diffuse heat properly.

The thermal print head can easily be accessed for cleaning or replacement, as follows:

1. **Power off the printer.**
2. A desktop version of the printer will have a cover. See page # to see how to gain access to the print head.
3. **DO NOT UNPLUG CABLES FROM PRINT HEAD.**
4. Open the print head by pushing down and back on the Print Head lock/ cutter guard to unlock the print head. Lift up on the head mounting assembly/ thermal head and tilt back.



Print Head  
lock/ cutter

Push  
Here

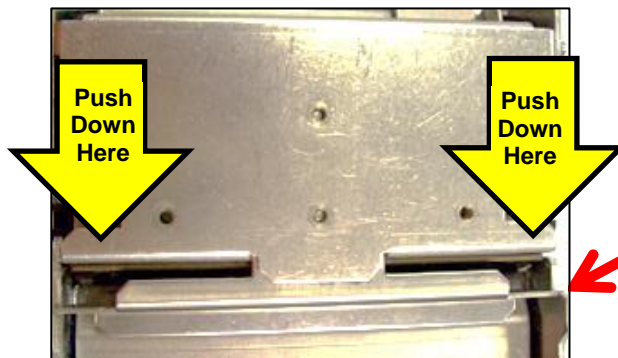


5. Clean the entire thermal print head surface (the side that makes contact with the paper) with isopropyl alcohol.

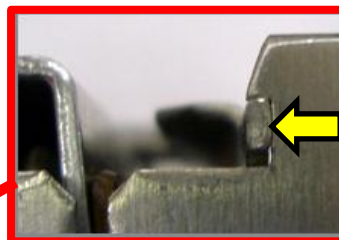


Clean this

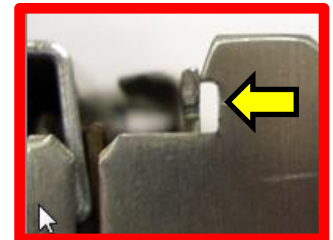
6. Gently lower the head mounting assembly/ thermal head and push down to center to lock in place. You will want to confirm that both sides of the latch are locked.



**Side View of Latch**



LOCKED



UNLOCKED

7. The printer is now ready for operation. If the print quality is still poor then the thermal head needs to be replaced (see section 8.2.1).

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## 9.2.1 Thermal Print Head Replacement

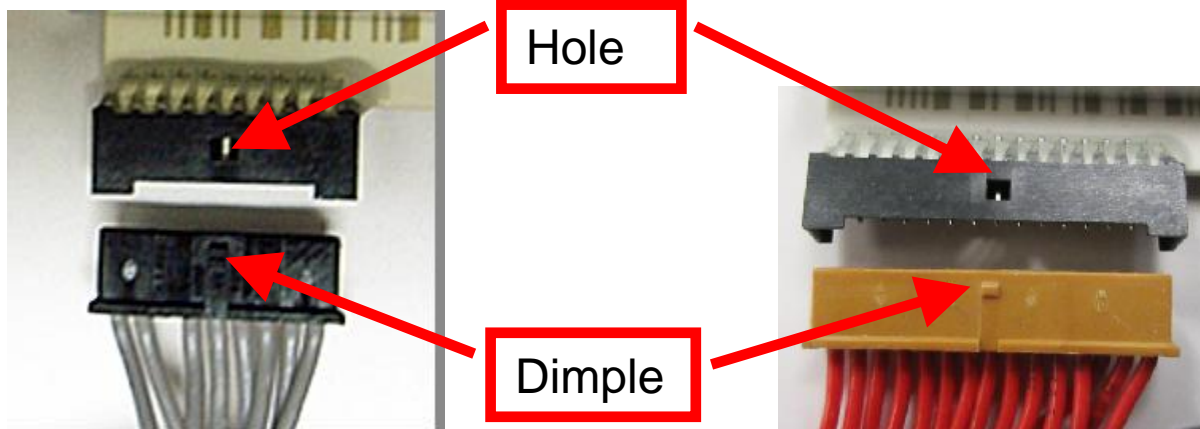
Below reviews how to replace the thermal print head in your printer.

The follow needs to be done with the AC cord unplugged from the power pack.

1. Unlock and lift open the print head assembly as show in [section 8.2](#).
2. Once the head plate has been removed; loosen the two Philip head screws until the thermal print head disengages from the head plate. Take care not to lose the screws.



3. Gently unplug the cable from the old print head and plug it into the new print head. The print head has two cables then this should be done one cable at a time so not to mix them up. The cables are keyed (see examples below). The keyed position must be lined up while plugging the cable into the print head. **You should not have to use excessive force to do this.**



Above show a 200dpi (200C3)

Above shows a 300dpi (3003X)

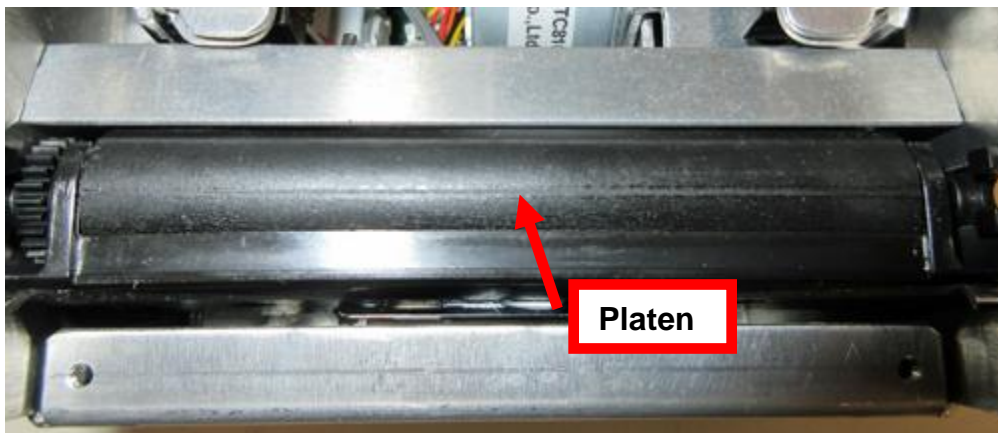
4. Install the print head back onto the print head mounting plate and secure it back in place with the two Philip head screws.
5. Lock the print head assembly back in the closed position.

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## 9.3 Platen (Rubber Driver Roller)

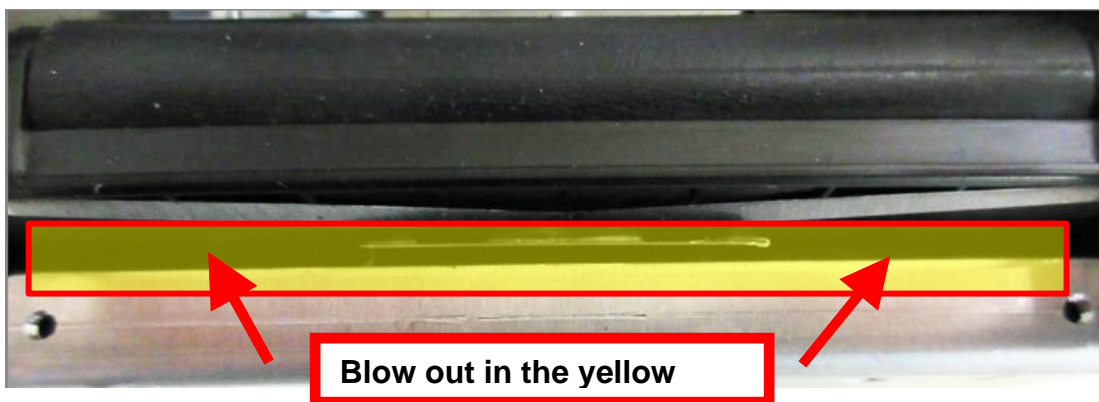
The Platen (rubber drive roller) should be cleaned once a year to prevent paper dust from building up on the roller. (NOTE: The platen may require more frequent cleaning in dusty environments or when using inferior ticket stock.)

1. Disconnect AC cord from the power pack to turn off the printer.
2. Unlock the cam lock lever and remove head mounting assembly/thermal head. (Refer to section [8.2 Thermal Print Head](#)).
3. Apply a small amount of Isopropyl alcohol onto a paper towel to clean the rubber roller.
4. Clean only the part of the rubber roller where the ticket stock makes contact.
5. Rotate the rubber roller clockwise a little and repeat step 4; continue in the same manner for one full revolution of the rubber roller.
6. Lock the head mounting assembly/thermal head back in place. Printer is now ready for normal operation.



## 9.4 Cutter Assembly

The cutter area should be blown out with air periodically to prevent debris from building up inside the cutter area and clean off the cutter knife sensor. The required cleaning interval varies greatly depending on the quality of the media and the amount of paper dust entering the cutter area. This is done while the print head is open. Blow out the area highlighted in yellow.



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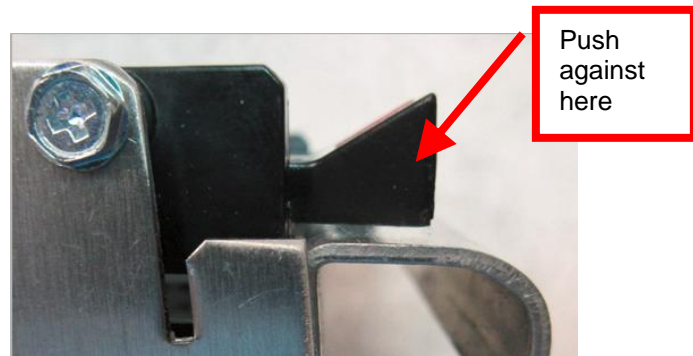
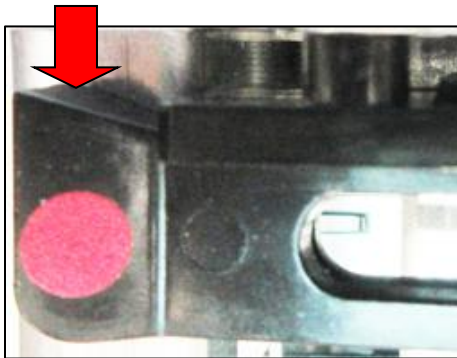


## 9.5 Remove Upper Rail

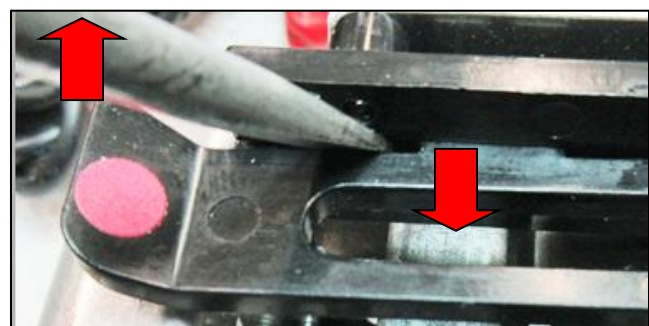
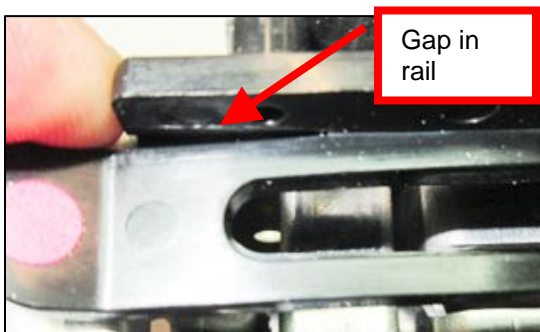
When adhesive media is used in a printer there is a possibility that a label may get stuck between the paper path rail requiring removal of rail for cleaning.

**Make sure power is off and the AC cord is disconnected from the printer.**

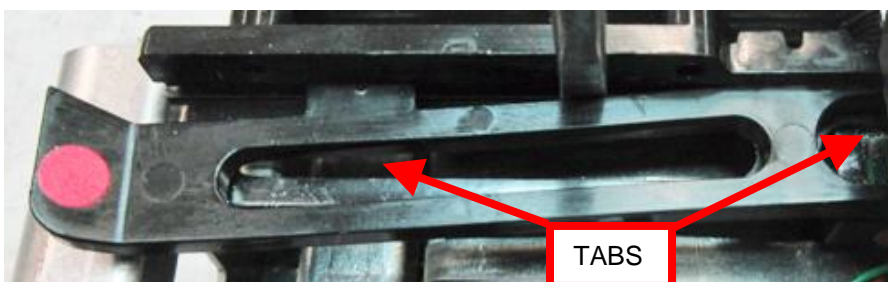
1. Gently push against the area of the upper rail where it extends out beyond the side rail it is seated into. You want to apply enough force to disengage the upper rail tabs (2) from their respective side rail slots (2).



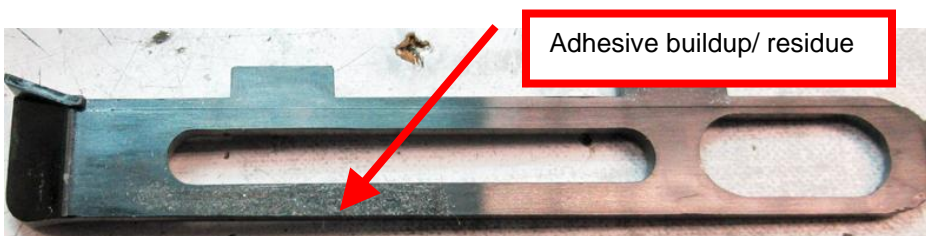
2. If the upper rail is not easily detaching, then you can put a flat screwdriver blade in the gap that has formed and gently pry upper rail out.



3. Continue down along the upper rail to unseat the remaining tabs, taking care not using excessive force that may damage the upper or said rails. The rail will come out once all two tabs are unseated. Use screwdriver blade if needed.

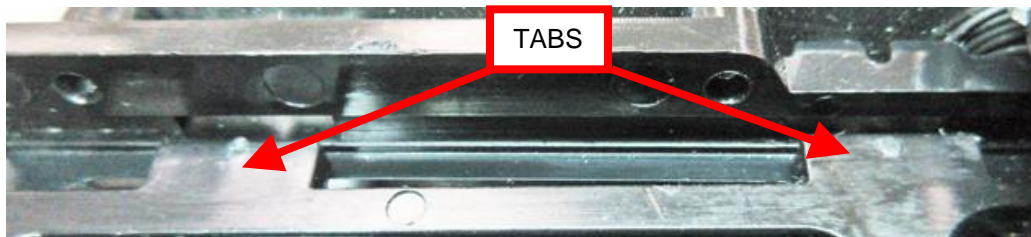


4. Use Goo Off or Goo Gone or similar product to remove adhesive buildup/ residue from the upper and lower rail. For example, below shows adhesive residue on an upper rail. Rail must be wiped clean of any excess liquid cleaner before being installed back in.

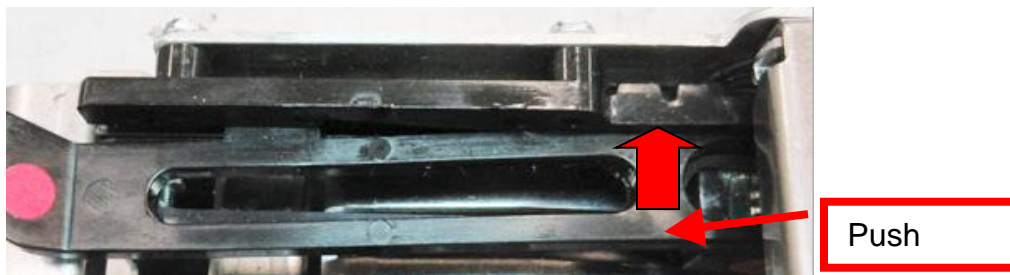




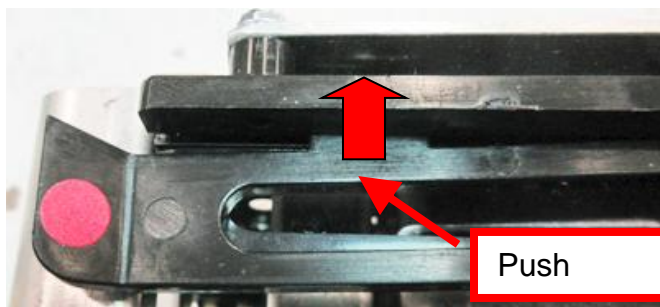
5. To install the rail back in, align the 2 upper rail tables with their respective 2 side rail slots.



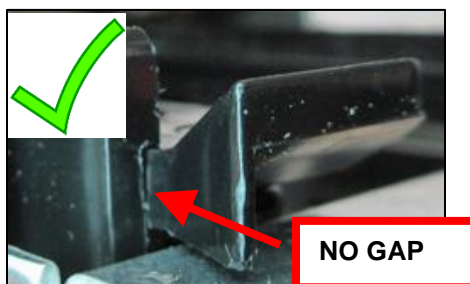
6. Gently push the front upper rail in towards the side rail, until it is fully seated into the side rail. You may hear a snapping sound with tab is seated into slot.



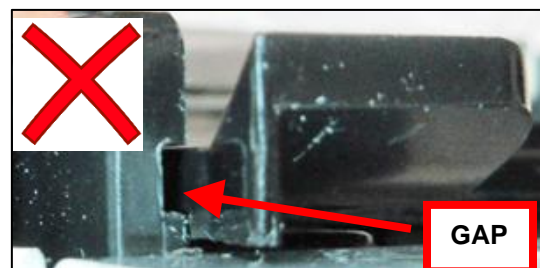
7. Gently push the back upper rail in towards the side rail, until it is fully seated into the side rail. You may hear a snapping sound with tab is seated into slot.



8. You want to make sure the extended end of the upper rail is fully seated into the side rail so there is **no** gap between the two. A gap would be due to the upper rail not being fully seated in that area.



**GOOD**



**NO GOOD**

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# 10.0 Troubleshooting Guide

This is a simplified troubleshooting guide listing some of the typical problems. It is not intended to provide technical details or repair methods, but can serve as a guide to fault isolation in the field. **As a safety precaution, all service to the printer should be done by qualified persons with power off and the AC cord unplugged from the printer. Following any procedure requiring the removal of covers and/or doors, please verify that they have been properly attached and fastened prior to operating the printer.** If you need additional help, please visit the link below

[www.bocasystems.com/online-support-form.html](http://www.bocasystems.com/online-support-form.html)

1. NO OPERATION, LED'S DON'T LIGHT UP UPON POWER UP
  - a. Unplug the AC cord from the power source and wait 30 seconds then plug it back in.
  - b. Check the power cord for proper installation at both ends.
  - c. Check that there is power at the AC outlet.
  - d. Replace the 24 VDC power supply.
  - e. Contact your system provider or [BOCA](#) for further assistance.
2. POWER IS ON BUT NO OPERATION
  - a. Make sure the stock is being loaded properly into the printer. Consult section [5.0 Ticket Load Procedure](#).
  - b. Perform routine maintenance on the printer. Consult section [8.0 Maintenance](#)
  - c. If cutter knife does not go up and down after power up, See # 6.
  - d. Default the printer settings. With the printer powered off, hold down the center TEST button and then power up the printer. Keep the TEST button held down for 10 seconds and release (printer will reset).
  - e. Contact your system provider or [BOCA](#) for further assistance.
3. POWER ON BUT NO OPERATION (2 RED LED ARE FLASHING)
  - a. Make sure there is no media jammed in the cutter area.
  - b. Perform routine maintenance on the printer. Consult section [9.0 Maintenance](#).
  - c. Default the printer settings. With the printer powered off, hold down the center TEST button and then power up the printer. Keep the TEST button held down for 10 seconds and release (printer will reset).
  - d. Contact your system provider or [BOCA](#) for further assistance.
4. POWER IS ON BUT MEDIA WILL NOT LOAD
  - a. See # 2
  - b. Make sure the print head/cam lock assembly is fully locked in the closed position.  
Consult [Thermal Print Head](#) section.
  - c. Check that the ticket stock is being loaded correctly. Consult [5.0 Ticket Load Procedure](#) section.
  - d. If using the paper guide then make sure the slider bar is properly adjusted for the width stock being used.  
Consult [5.1 Ticket Width Adjustment](#) section
  - e. Contact your system provider or [BOCA](#) for further assistance.
5. ERRATIC CUT POSITION
  - a. Clean off the opto sensors. Consult [8.1 Optical Sensors](#) section.
  - b. If using the paper guide then make sure the slider bar is properly adjusted for the width stock being used.  
Consult [5.1 Ticket Width Adjustment](#) section
  - c. Check that the platen is clean. Consult [8.1.3 Platen \(Rubber Driver Roller\)](#) section.
  - d. If using wristbands or adhesive media, remove upper rails to check for an adhesive buildup.  
Consult [6.5 Remove Upper Rail](#)
  - e. Contact your system provider or [BOCA](#) for further assistance.
6. ERRATIC PRINT POSITION
  - a. See # 4
7. POOR PRINT OUT (light print out)
  - a. Try a different stack of ticket stock.
  - b. Make sure the print head/cam lock assembly is fully locked in the closed position.  
Consult [Thermal Print Head](#) section.
  - c. Clean print head. Consult [Thermal Print Head](#) section.
  - d. Replace thermal head. Consult [8.2.1 Thermal Print Head Replacement](#).
  - e. Contact your system provider or [BOCA](#) for further assistance.

8. POOR PRINT OUT (white voids in print out)
  - a. Clean print head. Consult "[Thermal Print Head](#)" section. For Lemur-R see "[Thermal Print Head](#)"
  - b. Replace thermal head. Consult [8.2.1 Thermal Print Head Replacement](#).
  - c. Contact your system provider or [BOCA](#) for further assistance.
9. NO PRINT OUT
  - a. Try a different stack of ticket stock.
  - b. Check head cable for electrical connection at both sides of print head.
  - c. Check to make sure head cable is plugged in properly into the thermal head. Consult "[Thermal Print Head](#)" section
  - d. Replace the thermal head. Consult [8.2.1 Thermal Print Head Replacement](#).
  - e. Contact your system provider or [BOCA](#) for further assistance.
10. PRINTER SKIPS WHILE PRINTING
  - a. Check position and quality of black mark on the ticket stock.
  - b. If using the paper guide then make sure the slider bar is properly adjusted for the width stock being used. Consult "[5.1 Ticket Width Adjustment](#)" section.
  - c. Clean off SQ optical sensors (see [8.1 Optical Sensors](#)) with air.
  - d. Check that the platen is clean. Consult "[8.1.3 Platen \(Rubber Driver Roller\)](#)" section.
  - e. If using wristbands or adhesive media, remove upper rails to check for an adhesive buildup. Consult [6.5 Remove Upper Rail](#)
  - f. Contact your system provider or [BOCA](#) for further assistance.
11. PRINTER SKIPS WHILE PRINTING AND DIES
  - a. See # 10.
12. TICKET JAM ENTERING THE CUTTER AREA
  - a. Make sure the entrance to the cutter area is not blocked.
  - b. If using the paper guide then make sure the slider bar is properly adjusted for the width stock being used. Consult "[5.1 Ticket Width Adjustment](#)" section.
  - c. If using receipt roll media make sure the roll is properly aligned with the printer's entrance.
  - d. Contact your system provider or [BOCA](#) for further assistance.
13. ETHERNET WILL NOT CONNECT
  - a. When the Ethernet cable is connected to the printer the DATA LED should start flashing. If it does not:
    - Check to make sure the Ethernet setting is not set to NO. The self-test ticket printout shows the status.
    - Check to make sure the Ethernet connect on the cable is good.
  - b. Your Network IP server may not support the use of a DHCP protocol and require the Ethernet to be set to a static IP address. Ethernet Interface Addendum of the [FGL programing guide](#) reviews how to do this.
14. WI-FI WILL NOT CONNECT OR INTERMITTENT CONNECTION
  - a. Make sure you are connecting to Wi-Fi router that supports 802.11b/g/n devices.
  - b. If using a 802.11 N device, make sure 2.4GHz channel is being use.
  - b. On initial setup, have the printer as close as possible to the Wi-Fi router.
  - c. Check to make sure you have the correct SSID and security values for the Wi-Fi router you are trying to connect to. Please note these values are case sensitive.
  - d. If you have multiple routers change the channel setting to 1, 6 or 11. Multiple routers using the same channel will cause connection and drop single issues.

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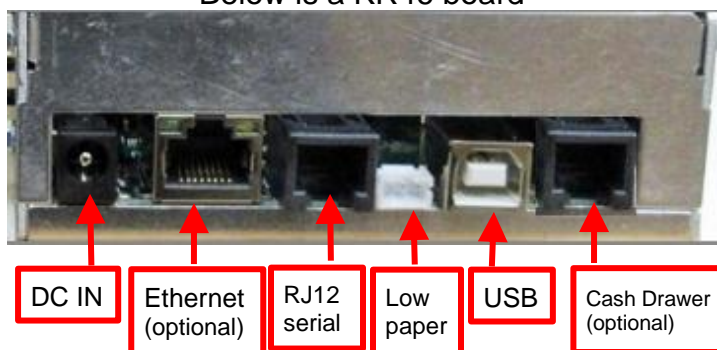
# 11.0 Spare Parts List

#	Part Number	Description
1	423534-X	Anti-static brush
2	200C3	Print Head 200dpi (2C) <i>DPI on s/n tag will be 2C</i>
2A	3003X	Print Head 300dpi <i>DPI on s/n tag will be 300</i>
2B	200C3-ADJ2	Print Head 200dpi (2C) <b>for ADJ2 path printers only</b>
2C	3003X-ADJ2	Print Head 300dpi <b>for ADJ2 path printers only</b>
3	424181	Cable, Print Head 200dpi (single cable, each side)
3A	171113-01	Cable, Print head 300dpi
4	423760-L3B-Z	Platen complete
5	424012-PG-5	Platen Paper Guide
6	SQ OPTO-L-U	Opto Detector load (JST connector) <b>yellow dot on housing</b>
7	SQ OPTO-U	Opto Detector cut or tear (JST connector)
7*	SQ OPTO-DCU	Opto Detector cut or tear (JST connector) die cut label stock
8	PM35I-024	Stepper Motor
9	SQ OPTO-C-UX	Opto Detector cutter knife
10**	sKR46	Logic Board (200dpi) R firmware
10**	sKR46-BT	Logic Board for Bluetooth/Wi-Fi (200dpi) R firmware
10**	sKR46-RFID	Logic Board for RFID (200dpi) R firmware
10**	sKR46-E	Logic board with Ethernet (200dpi) R firmware
10**	sKR46-E-BT	Logic board with Ethernet & BT/Wi-Fi (200dpi) R firmware
10**	sKR46-E-RFID	Logic board with Ethernet & RFID (200dpi) R firmware
11**	sKR46-3X	Logic Board (300dpi) R firmware
11**	sKR46-3X-BT	Logic Board for Bluetooth/Wi-Fi (300dpi) R firmware
11**	sKR46-3X-RFID	Logic Board for RFID (300dpi) R firmware
11**	sKR46-E-3X	Logic Board with Ethernet (300dpi) R firmware
11**	sKR46-E-3X-BT	Logic board with Ethernet & BT/Wi-Fi (300dpi) R firmware
11**	sKR46-E-3X-RFID	Logic board with Ethernet & RFID (300dpi) R firmware
12	424012-BRG-1	Platen Sleeve Bearing (one on each side)
13	423938-XUPG	DC Harness
14	423445Z2	Cutter Knife
15	423456Z2	Fixed Blade
16	424129-PLS	Connector Plate for KR46 logic board w/ power switch
17	424191	Cover Base, (w/ decals)
18	424292	Cover Top,
19	424240	Cover, complete (base & top)
20	424147	Rubber Feet, (set of 4)
21	424095	Power supply 24vdc (65W)
22	423829-WB-X	Mylar head spacer ( <b>for ADJ2 path printers only</b> )
23	424239	Decal (set)
*	423192-X	Ground Wire, print head

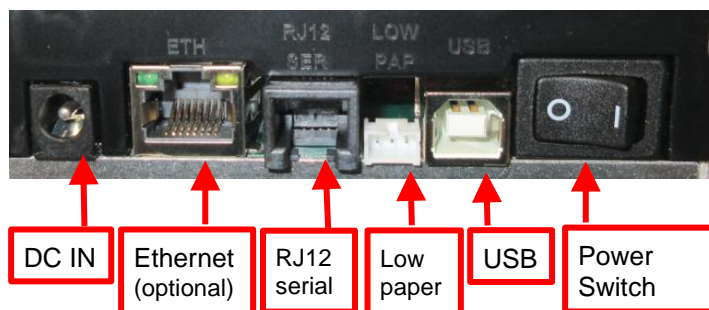
\* Customer dependent and not shown in photos

\*\* In November of 2024 printer logic boards have integrated power switch (s/n 539458 and higher).  
If you need to replacement board for a printer lower than s/n 539458, then the metal Connector Plate needs to be replaced with plastic Connector Plate (p/n 424129-PLS) due to the board having a power switch.

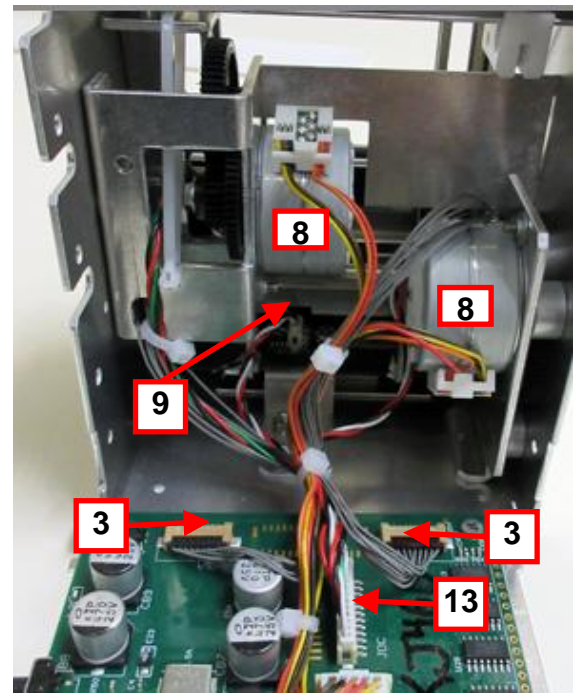
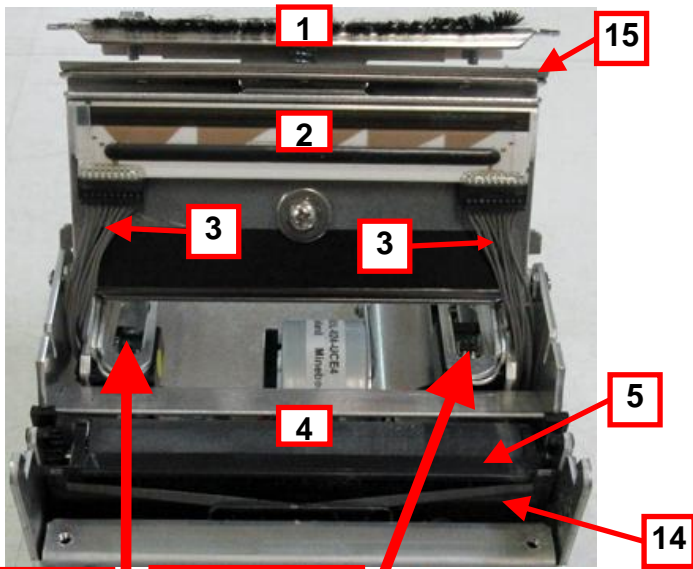
Below is a KR46 board



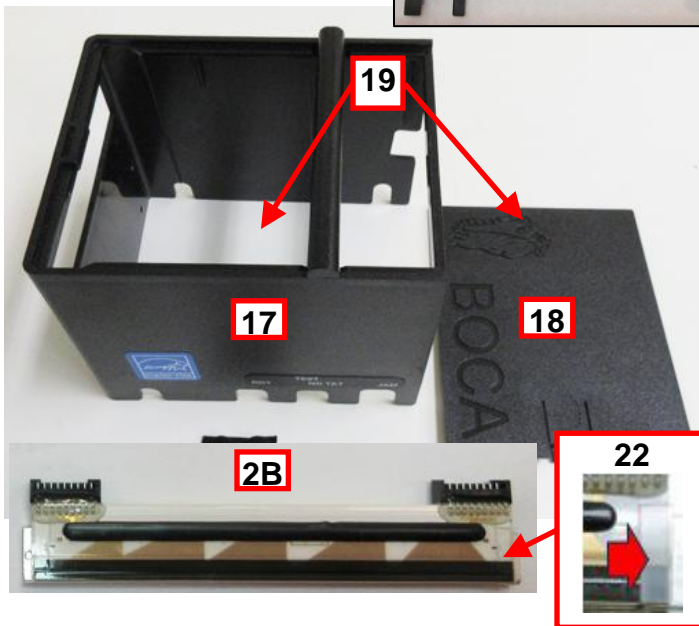
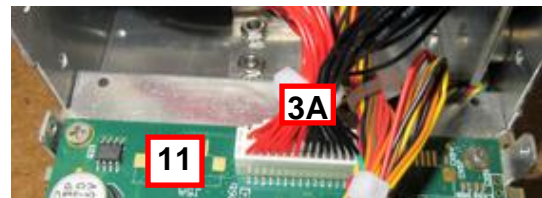
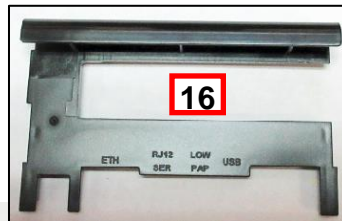
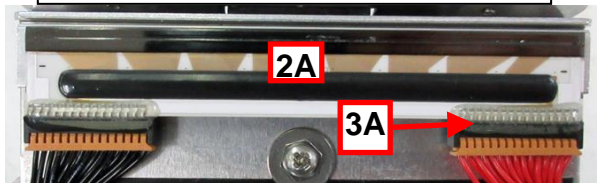
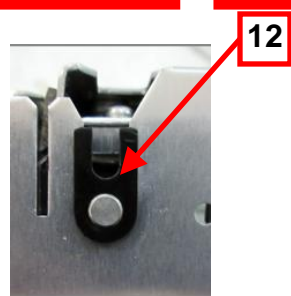
Below is a KR46 board with power switch







Below is for a 300dpi printer





## 12.0 Accessories

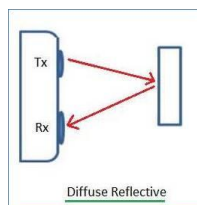
The Lemur-X printer has a wide range of accessories designed and tested to work with your printer. The accessories can be used by themselves, combined with other printer accessories, or as part of your own unique printer integration design. At the time of this guides release, the following accessories are available for your printer:

### Roll Holder

- P/N 424184 Receipt roll holder, Desktop - optional roll holder for Desktop version of the printer.
  - minimum core diameter of 1.5"
  - recommended 3" diameter core to avoid excessive curling.
- P/N 424051-U Receipt roll holder, Kiosk - optional roll holder for Kiosk version of the printer. May be used with rolls that have a core 1.0" or greater.

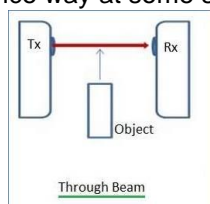
### Low Paper Sensor

The below kits use a reflective opto so it needs to be close to the stack in order to detect the presence of paper or not. The opto detects the paper by reflection. Think of it like a submarine sonar.



- P/N 424078 Low paper sensor for roll holder - This single reflective sensor is designed to be used in conjunction with either 424184 or 424051-U roll holders.
- P/N 424084 Low paper sensor for fan folder stock - This single reflective sensor is designed to be used with fan folded stock. The customer will need to make necessary modification to their ticket locator tray or existing non-BOCA roll holder to install the sensor. Has 36" length cable.

The below kit uses a see through opto. The opto detects the paper by an interruption of the sensor beam. Think of it like a sensor beam that is used at the entrance way at some stores to detect someone coming through the door.



- P/N 423862-XZ Low paper sensor see-through - This see-through sensor is designed to be used with fan folded stock. The customer will need to make necessary modification to their ticket locator tray to install the sensors. Has 36" length cable.

### Bezels

Designed to hold the stock in place to be taken.

- P/N 424076-X-TM-1C – Short Receipts or Tickets 2" to 4" in length.
- P/N 424076-UPG-X-TM-1C – Longer Receipt or Tickets 4" to 8" in length.

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## 12.1 Roll Holder Adaptor Kit, Desktop (P/N 424184)

Your printer may have come with an optional roll holder kit used for desktop and the below reviews how to install it.

Kit will include floor plate (2pcs), one roll holder arm, one spindle, one adjustable stopper and various mounting screws.

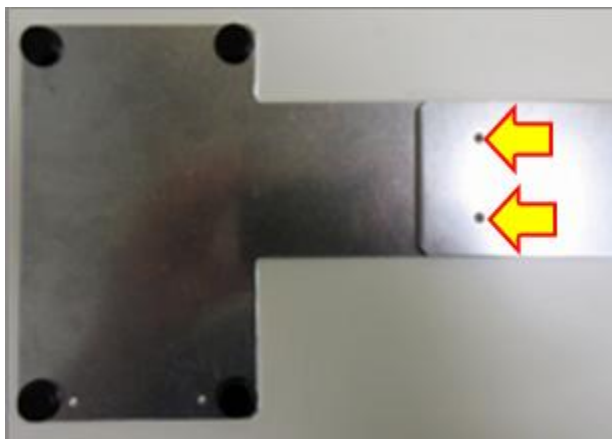
*Some parts may vary from above photo*



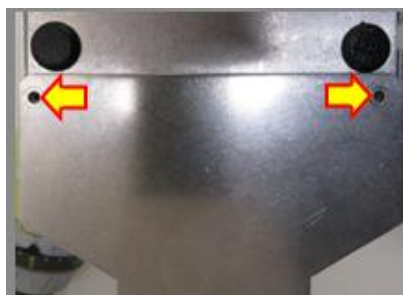
1. Attach the spindle onto the roll holder arm using the two Philip 1/4" Hex head screws.



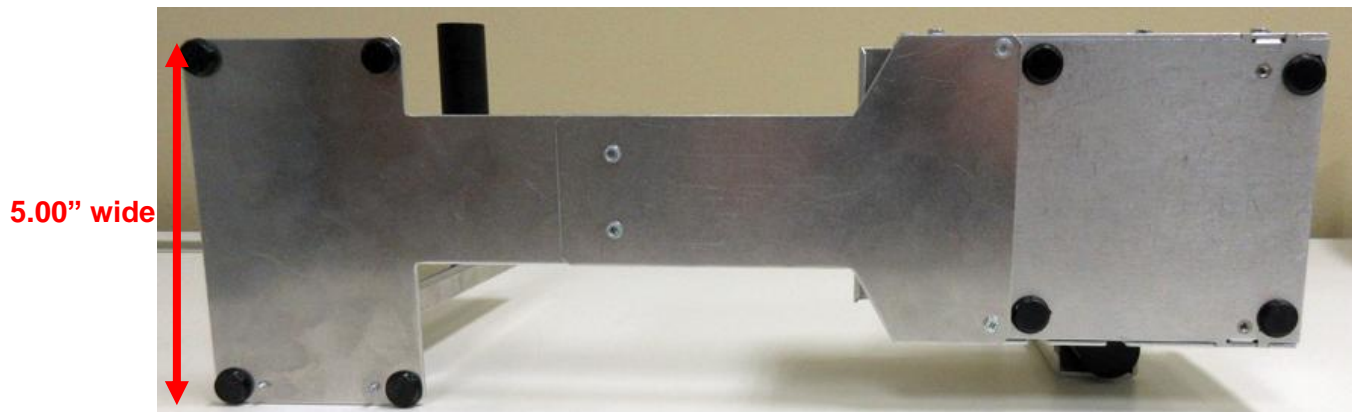
2. Align the two floor plate pieces so that the two screw holes align. Make sure the piece with the rubber feet is on the bottom with rubber feet facing up. Install the two self-tapping 5/16" hex head screw and tighten.



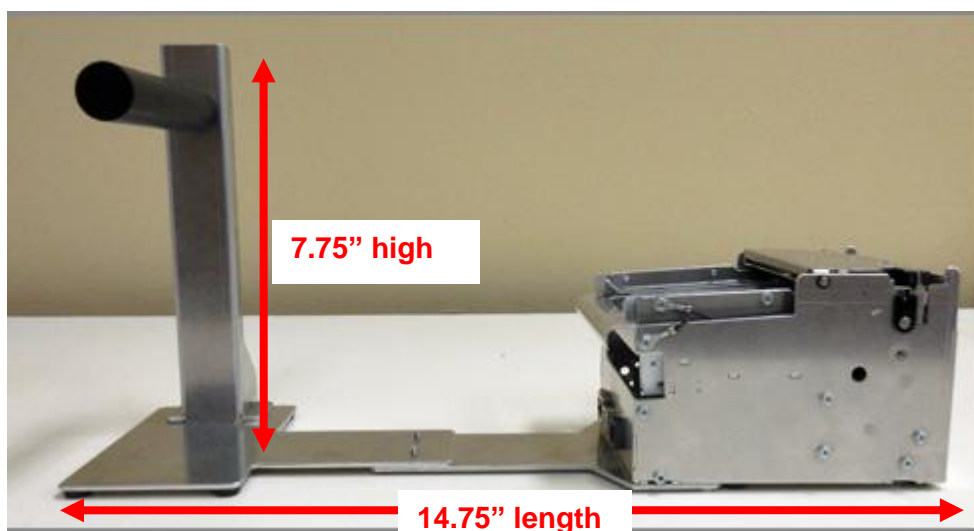
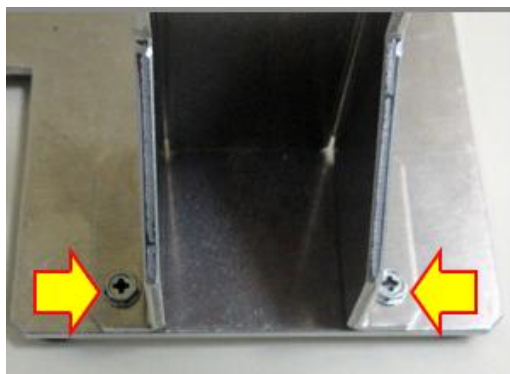
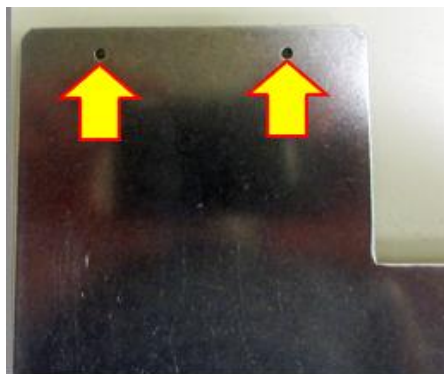
3. Install the floor plate onto the bottom of the Lemur-X UPG printer. Align the two holes on the floor plate up with the two mounting holes on the printer. Install the two self-tapping 5/16" hex head screws and tighten.



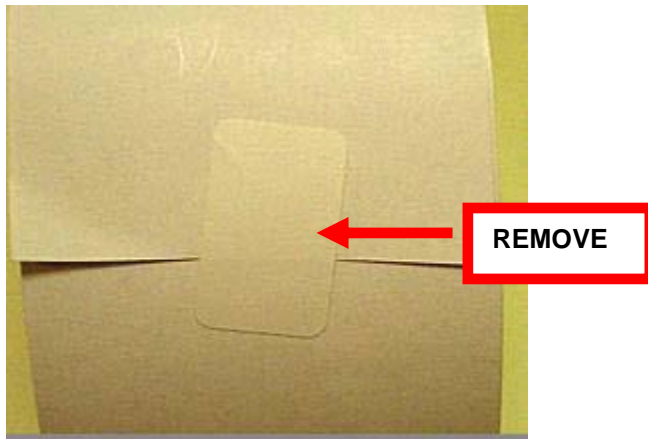
4. Flip both the Lemur -X and attached floor plate so all rubber feet are facing down.



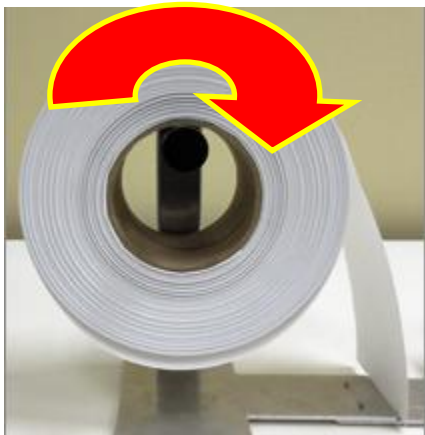
5. Align the two holes on the roll holder up with the two mounting holes on the floor plate. Install the two self-tapping 5/16" hex head screws and tighten.



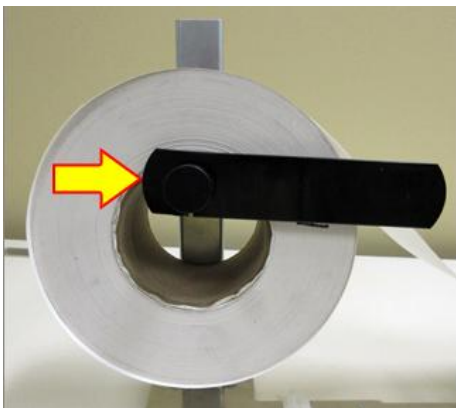
6. Tear off a full turn of the paper or media from the new roll. **Caution:** It is important that the outer end of the media is free of glue or other adhesive substance that may cause a paper jam or damage the print head.



7. Place the roll onto the spindle so the media turns in a clockwise direction.



8. Install the adjustable stopper disc onto the spindle and slide into place. The stopper should not be binding against the roll to prevent it from moving freely.



The Ticket Load Procedure section of the user manual (see link below) reviews how to load media into the printer.

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## 12.2 Roll Holder Adaptor Kit, Kiosk (P/N 424051-U)

This roll holder kit is designed to be used with either a Lemur-X or Lemur-Z model printer. This kit will work with a roll that has a minimum cord inner diameter of 1.0" or greater.

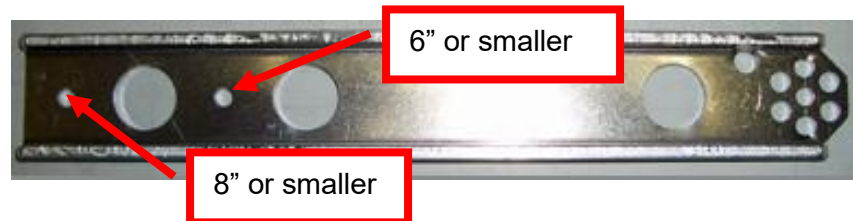
Kit will include mounting plate, roll holder arm, spindle, stopper disc and mounting hardware.



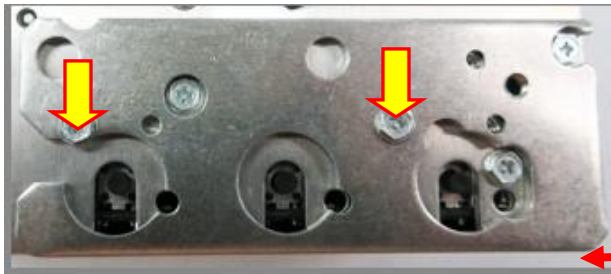
Some parts may look different than the above photo

	2X	3/16" Hex Head #4 Taptite		1X	3/32" Allen head screw
	2X	1/4" Hex Head #8 Taptite		1X	3/32" Allen wrench

1. Attach the spindle onto the roll holder arm using one 1/4" Hex head #8 Taptite screw. There are two mounting locations that may be used depending on roll outer diameter size.



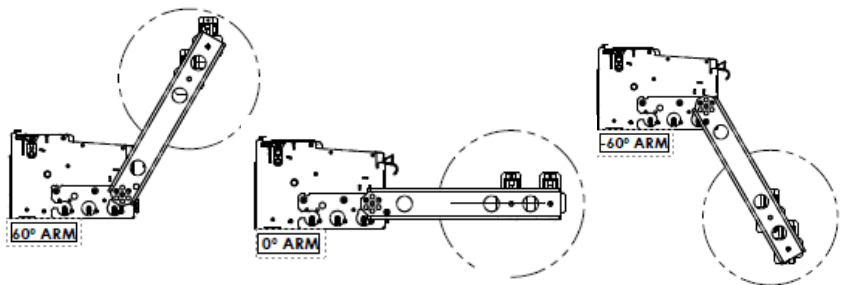
2. Install the roll holder arm mounting plate onto the printer using two 3/16" Hex Head #4 Taptite screws. The plate may be installed on either side of the printer.



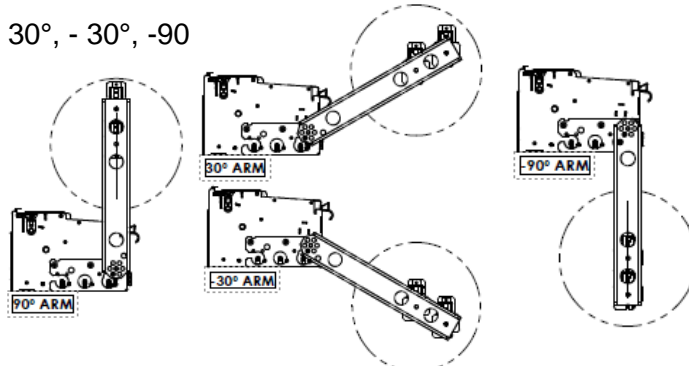
For #8 Taptite screw at step # 4

3. Install the one 3/32" Allen head screw into the mounting plate. Location will depend on the desired angle you want to set the arm at. See last page for diagram of possible arm positions angles.

a. **TOP HOLE** = 60°, 0°, - 60°



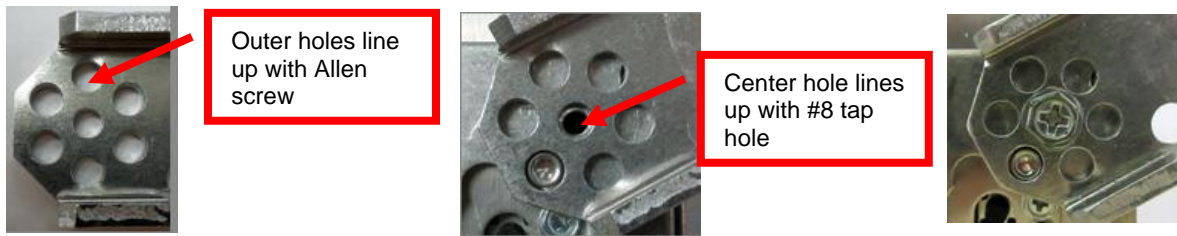
b. **BOTTOM HOLE** = 90°, 30°, - 30°, -90°



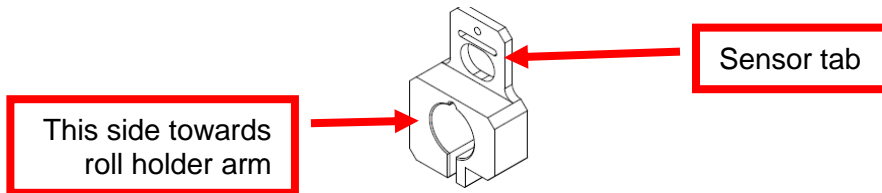


If the roll is going to be positioned at either at 90° or - 90°, recommend a roller or similar be added so the media is not entering the paper path at a sharp angle. See [5.1 Media Supply](#).

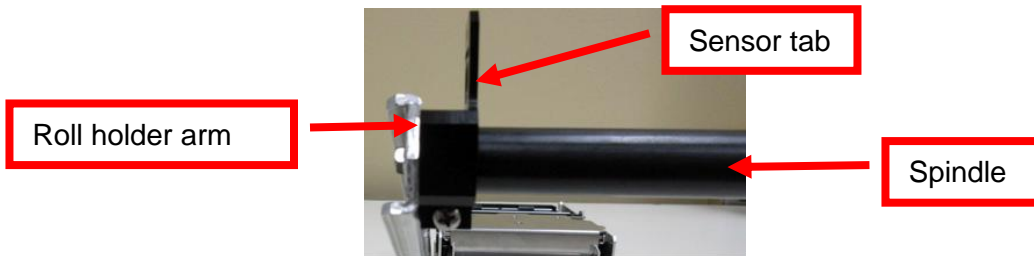
4. Install the roll holder arm onto the mounting plate and secure it in place with the provided 1/4" Hex head #8 Taptite screw. Below photo shows the arm set to the 30° positions. Arm position will vary depending on what degree position is used.



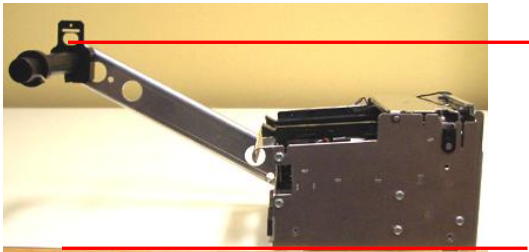
5. Slide the roll holder block onto the spindle with the sensor tab towards the roll.



6. Slide the block side the block all the way to the roll holder arm. See below photo.



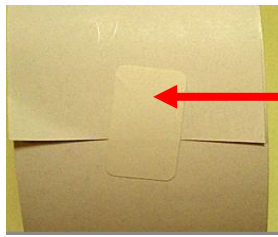
7. Orientate the sensor tab so it is parallel to the floor or bottom of the printer.



8. Tighten the Philip screw on the block to hold it in place.

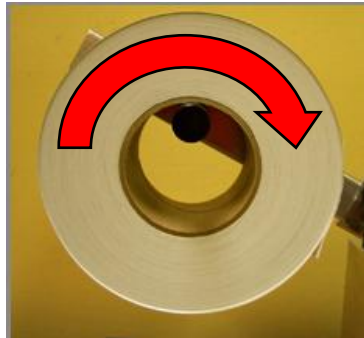


9. Tear off a full turn of the paper from the new paper roll. **Caution:** *This is important as the outer end of the paper is usually secured to the roll with glue or other adhesive substance that may cause paper jam or damage the print head.*

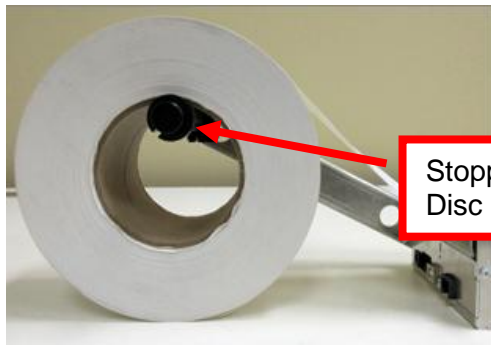


Must be  
completely  
removed

10. Place the Receipt roll onto the spindle. If the thermal side of the media is towards the outside of the roll, the roll will turn towards the printer (as shown in the photo below). If the thermal side of the media is towards the inside of the roll, the roll will turn away from the printer.



11. Install the stopper disc onto the spindle and slide into place. The stopper should be positioned to prevent the roll from moving too much from side to side but be allowed to spin freely.

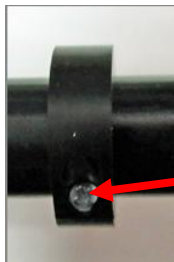


Stopper  
Disc



Stopper  
Disc

12. Once you have the stopper in the desired position, tighten the Philip head screw to hold the stopper in place.



Philip head  
screw








13. Once the stopper disc is in place it should not be necessary to remove it to install or remove a roll, provided the roll core inner diameter is 1.0" or greater. The core should slip over the disc.
14. If the roll holder has been configured for use with 58mm center infeed guide you will want to run the printer to ensure media is feeding properly into the printer. If not then make necessary adjustment to the roll holder block and stopper disc for proper alignment with the printer.

## 12.3 Low Paper Sensor for Roll Holder (P/N 424078)

An optional low paper sensor (P/N 424078) may be installed onto the receipt roll holder. This sensor will alert the printer when the paper roll physically goes below the sensor eye. When this happens, the printer will send a low paper status message (0F hex or **15** decimal) to the host computer.

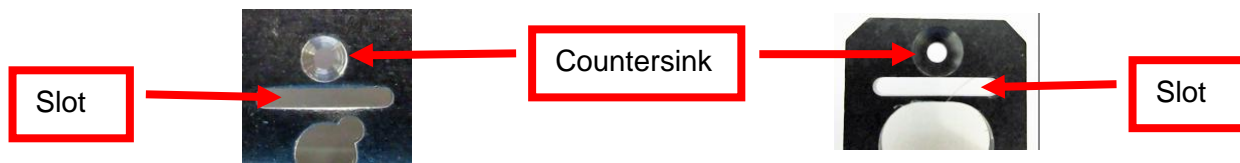
Kit contains the following items.



	1X	Low paper sensor		1X	18" Cable
	1X	2-56x 3/8" Phil flat head screw		1X	Flat washer
	2X	2-56x3/16" nut		2X	Adhesive mounting pad
	2X	Cable tie			

The sensor is installed onto the roll holder arm in the following manner.

1. Choose the sensor location that will work best with the position the roll holder arm will be installed at.
2. Insert the screw into the countersink side of the arm or roll holder block.



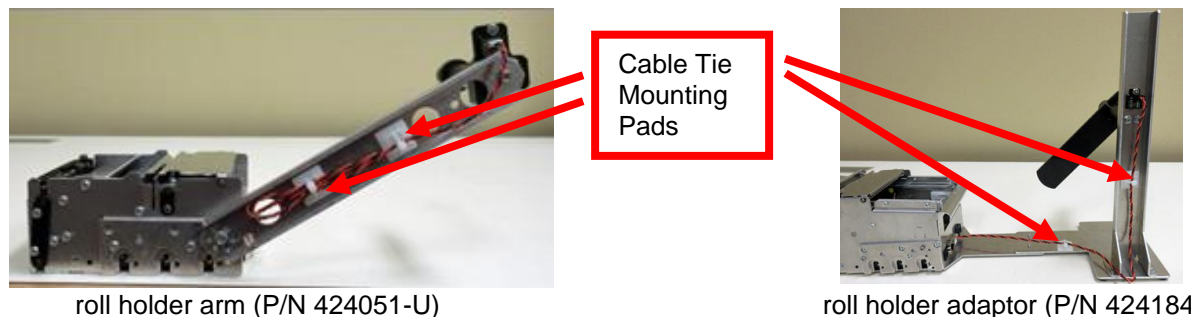
3. Install the sensor, so that the sensor tab is facing towards the slot on the arm or roll holder block.



4. Install the flat washer and 3/16" nut onto the screw. Tighten the nut. Install the second nut and tighten.



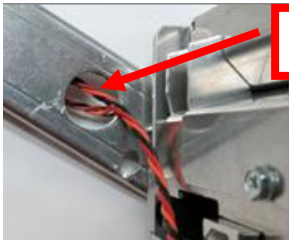
5. Attach the cable tie mount to the roll holder arm, similar to what is shown in the below photo. Connect the white connector to the sensor and route the wire through the hole in the arm. Zip-tie the cable onto the cable tie mount.



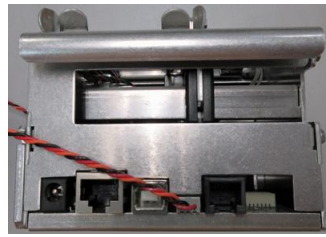
roll holder arm (P/N 424051-U)

roll holder adaptor (P/N 424184)

6. Once installed, you may plug the sensor connector into the low paper connector into the printer.



Hole in Arm



Above is Lemur-X

## The following explains how to test the low paper sensor once installed

1. Make sure the cable is connected to the low paper sensor and the printer.
2. The SQ low paper sensor needs to be blocked, installing a roll of media onto the roll holder or simulate it being blocked by a roll of media.
3. Power up the printer and ensure it is able to print a self-test ticket when the center TEST button is pressed.
4. The printer is connected to a Windows based host computer.
5. Install the BOCA configure and test program to the Window computer the printer is attached to. Below is a link to the installation guide for said program.

<https://www.bocasystems.com/documents/Testing%20a%20BOCA.pdf>

Once the programing is running and you are able to print a FGL test ticket from said program, then that will indicate the programing is communicating with the printer.

6. Repeat step # 10 (in above mentioned installation guide) but this time enter 5 as the Number of Tickets to print. Click on the Send button.
7. After the first receipt / ticket has printed, unblock the ticket low sensor.
8. After the printer is finished printing the five tickets you should see the below responses on the Messages area. You should see "Low Paper" in with the "Ticket ACK". Where the "Low Paper" shows up for you may differ the key is the printer acknowledges the low paper.

```
Ticket ACK  
Ticket ACK  
Ticket ACK  
Low Paper  
Ticket ACK  
Ticket ACK
```

9. You have now completed testing of the SQ low paper opto sensor setup.

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## 12.4 Low Paper Sensor for Fan Folded Stock (P/N 424084)

Each kit comes with the following:

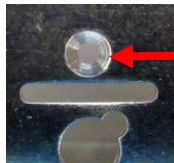


	1X	Low paper sensor		1X	36" Cable
	1X	2-56x 3/8" Phil flat head screw		1X	Flat washer
	2X	2-56x 3/16" nut			

This kit is designed for use in a location that will not be using one of the available BOCA roll holder kits.

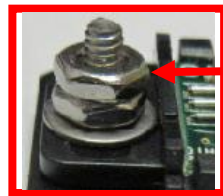
The sensor is installed in the following manner:

1. Insert the screw into the countersink side.



Countersink

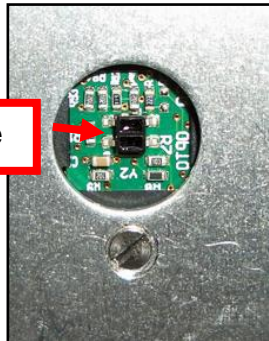
2. Install the sensor, flat washer and 3/16" nut onto the screw. Tighten the nut. Make sure the tab on the sensor aligns with the slot in the roll holder arm and tighten the nut.



Second nut installed

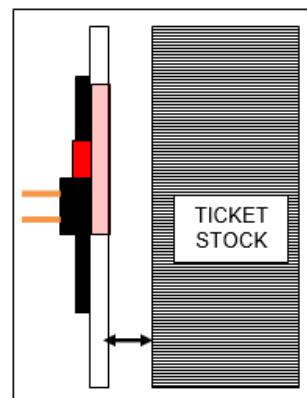
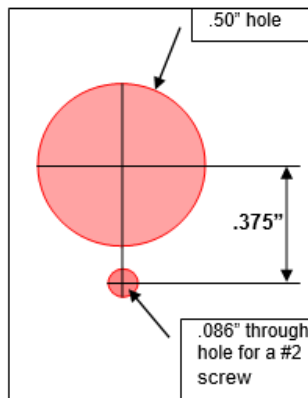
Below is an over view of installing the sensor if not being installed on a BOCA roll holder.

The paper low SQ opto is to be mounted on the side of the ticket locator tray to the customer's specified height. The distance from the SQ opto eye to the side of the ticket stock should be no greater than .125" (3.18mm) but may be less. Below shows one possible mounting configuration. The opening may be round or square but must be large enough to not short any of the components on the board to metal.



Opto Eye

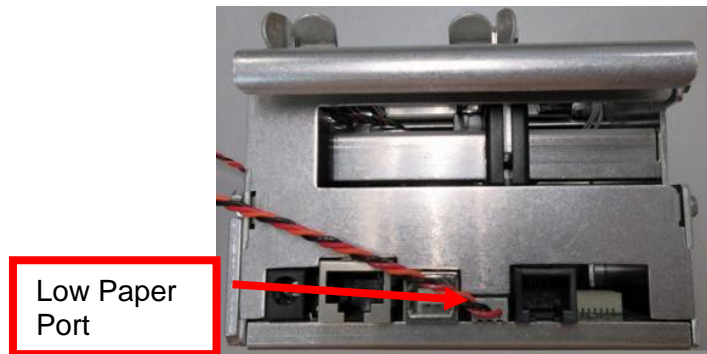
Above shows a .50" hole



Opto Eye



The white connector of the cable is plugged in to the SQ load opto and the other end is connected to the low paper connector port on the printer.



Above is a Lemur-X

In the Lemur- X or Z printer a low paper condition is signaled when the printer returns a low paper status message (In Hex *0F*, in decimal *15*) to the host computer. The low paper condition is detected when the see through opto beam is no longer blocked. Once the low paper status is returned it will not be returned again until the triggering condition has been reset. This is accomplished by loading stock so the opto eyes are covered and cycling printer's power.

The host computer can also solicit the current status of the printer by sending an FGL status request (<S1>) command. The printer will respond with a paper low status if the paper low state has been reached and the printer is online (paper out hasn't been reached) otherwise it will return an X-ON status

The following explains how to test to make sure the printer is seeing the SQ opto.

10. Make sure the cable is connected to the low paper sensor and the printer.
11. The SQ low paper sensor needs to be blocked, installing a roll of media onto the roll holder or simulate it being blocked by a roll of media.
12. Power up the printer and ensure it is able to print a self-test ticket when the center TEST button is pressed.
13. The printer is connected to a Windows based host computer.
14. Install the BOCA configure and test program to the Window computer the printer is attached to. Below is a link to the installation guide for said program.

<https://www.bocasystems.com/documents/Testing%20a%20BOCA.pdf>

Once the programing is running and you are able to print a FGL test ticket from said program, then that will indicate the programing is communicating with the printer.

15. Repeat step # 10 (in above mentioned installation guide) but this time enter 5 as the Number of Tickets to print. Click on the Send button.
16. After the first receipt / ticket has printed, unblock the ticket low sensor.
17. After the printer is finished printing the five tickets you should see the below responses on the Messages area. You should see "Low Paper" in with the "Ticket ACK". Where the "Low Paper" shows up for you may differ the key is the printer acknowledges the low paper.

```
Ticket ACK  
Ticket ACK  
Ticket ACK  
Low Paper  
Ticket ACK  
Ticket ACK
```

18. You have now completed testing of the SQ low paper opto sensor setup.

Click here to return to > [Table of Contents](#)

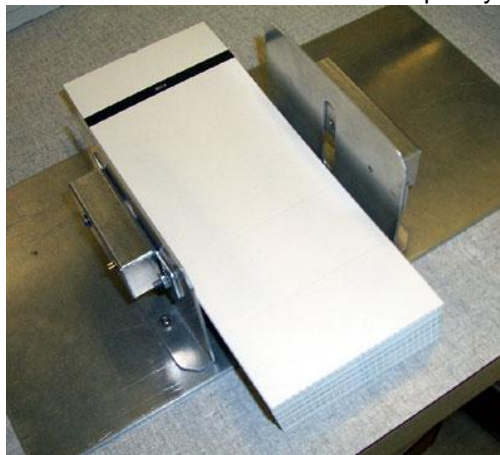
## 12.5 Low Paper Sensor See-Through (P/N 423862-XZ)

Each kit comes with the following:

- See through opto and mounting hardware
- 36" connection cable

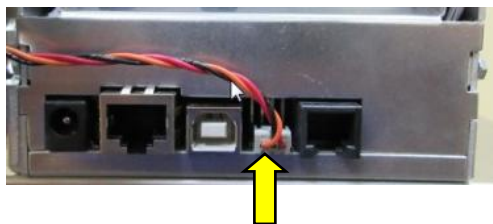


The paper low see through optos brackets are normally installed a tickets width apart from each other (see photos below of typical installation). Care needs to be taken to make sure both opto eyes are properly aligned with each other.



One end of the cables connects to the see through optos. The other end is connected to the low paper connector on the printer.

In the Lemur- X printer a low paper condition is signaled when the printer returns a low paper status message (In Hex *0F*, in decimal *15*) to the host computer. The low paper condition is detected when the see through opto beam is no longer blocked. Once the low paper status is returned it will not be returned again until the triggering condition has been reset. This is accomplished by loading stock so the opto eyes are covered and cycling printer's power.



The host computer can also solicit the current status of the printer by sending an FGL status request (<S1>) command. The printer will respond with a paper low status if the paper low state has been reached and the printer is online (paper out hasn't been reached) otherwise it will return an X-ON status

**The following explains how to test to make sure the see-through sensor is working properly.**

1. Make sure the cable is connected to the low paper sensor and the printer.
2. The SQ low paper sensor needs to be blocked, installing a roll of media onto the roll holder or simulate it being blocked by a roll of media.
3. Power up the printer and ensure it is able to print a self-test ticket when the center TEST button is pressed.
4. The printer is connected to a Windows based host computer.
5. Install the BOCA configure and test program to the Window computer the printer is attached to. Below is a link to the installation guide for said program.

<https://www.bocasystems.com/documents/Testing%20a%20BOCA.pdf>

Once the programing is running and you are able to print a FGL test ticket from said program, then that will indicate the programing is communicating with the printer.

6. Repeat step # 10 (in above mentioned installation guide) but this time enter 5 as the Number of Tickets to print. Click on the Send button.
7. After the first receipt / ticket has printed, unblock the ticket low sensor.
8. After the printer is finished printing the five tickets you should see the below responses on the Messages area. You should see "Low Paper" in with the "Ticket ACK". Where the "Low Paper" shows up for you may differ the key is the printer acknowledges the low paper.

```
Ticket ACK
Ticket ACK
Ticket ACK
Low Paper
Ticket ACK
Ticket ACK
```

9. You have now completed testing of the SQ low paper opto sensor setup.

Click here to return to > [Table of Contents](#)

## 12.6 Eject Bezel

We offer two optional Eject Bezel sizes to enables a Lemur-X 2.0 printer to be able to trap a ticket once it has been printed. The bezel is able to trap multiple tickets too.

### Short Tickets or Receipts between 2" to 4" length (P/N 424076-X-TM-1C)

1. The bezel kit comes with bezel and two 5/16" Hex Head screws.



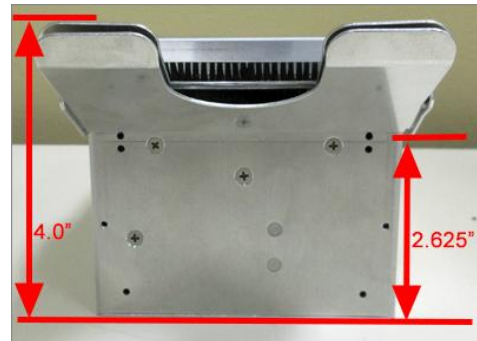
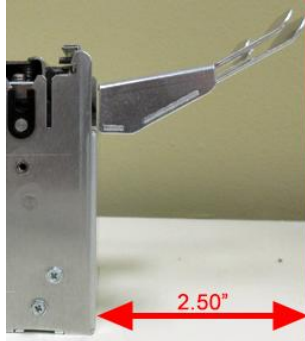
2. The bezel mounts onto the Lemur-X printer via the two holes shown below.



3. Unlock the print head assembly and lift up to allow easy access to the mounting holes.
4. Insert the two 5/6" Hex head screws into the bezel.



5. Align the two screws with the two top holes on the Lemur-X and tighten the two

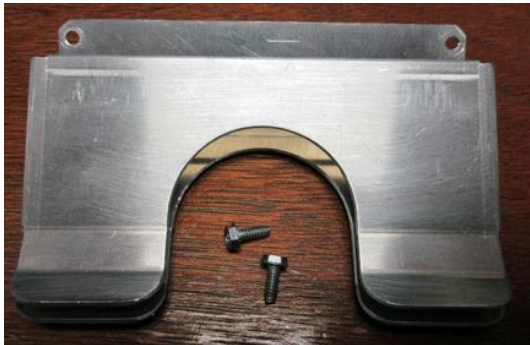


6. The bezel is now installed. Lock the print head assembly back closed.

Length	Maximum number of printouts held Desktop (fan folded)	Maximum number of printouts held Kiosk (roll)
2"	9	10
3"	5	5
4"	5	3

Long Tickets or Receipts between 4” to 8” length (P/N 424076-UPG-X-TM-1C)

1. The bezel kit comes with bezel and two 5/16” Hex Head screws.



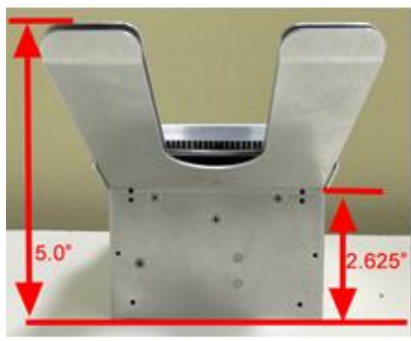
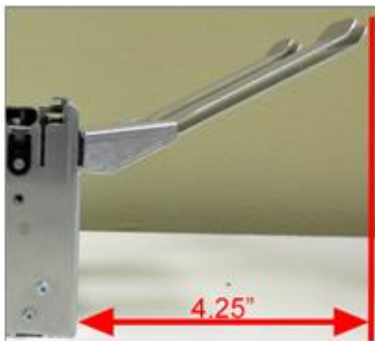
2. The bezel mounts onto the Lemur-X printer via the two holes shown below.



3. Unlock the print head assembly and lift up to allow easy access to the mounting holes.
4. Insert the two 5/6” Hex head screws into the bezel.



5. Align the two screws with the two top holes on the Lemur-X. Tighten the two screws.



6. The bezel is now installed. Lock the print head assembly back closed.

Length	Maximum number of printouts held Desktop (fan folded)	Maximum number of printouts held Kiosk (roll)
4"	10	10
5.5"	8	5
8"	6	3

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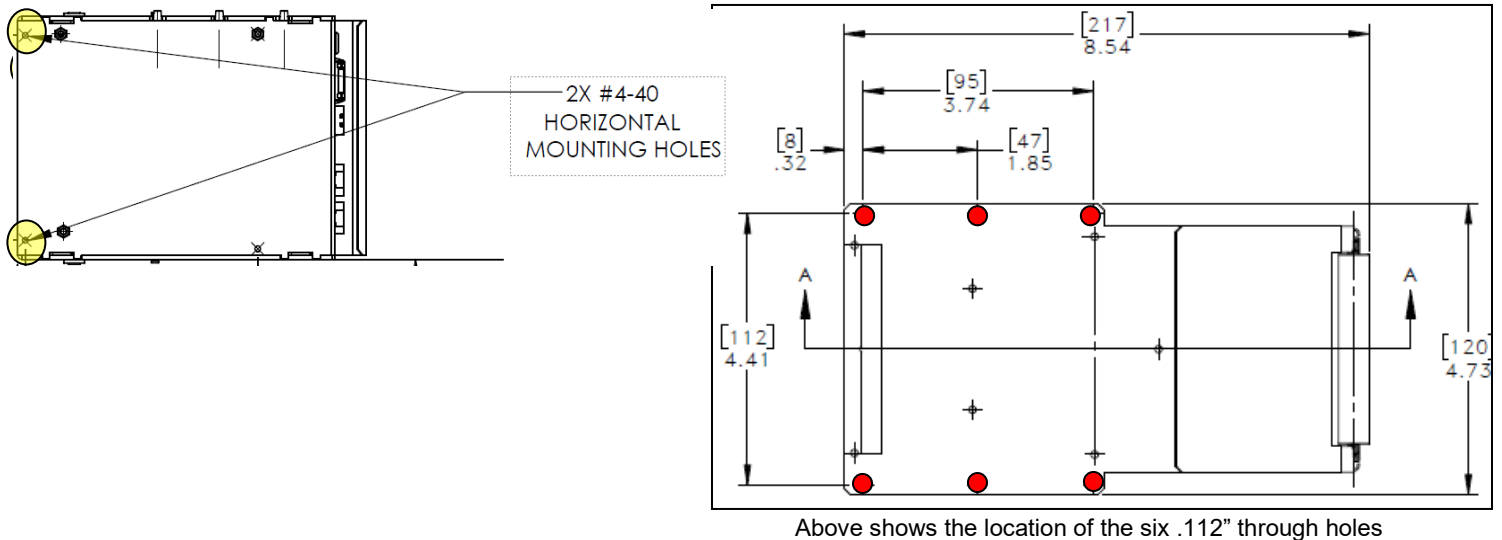


## 12.7 Printer Mounting Plate Installation (P/N 424213)

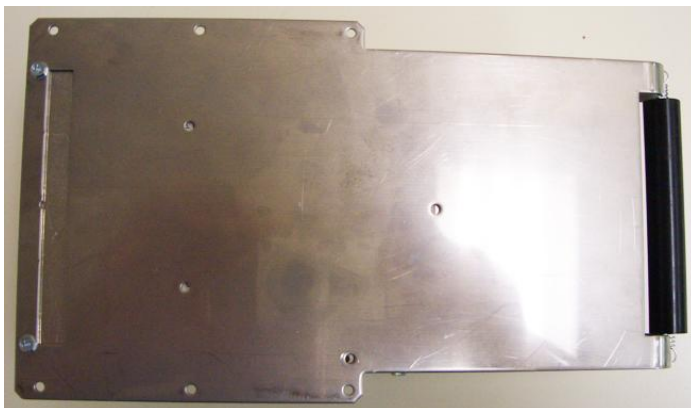
The Printer Mounting Plate (not for use with a Lemur-X(P)) performs several functions:

- Provides a solid printer mounting base.
- Designed to work with the 424051-U roll holder when the roll holder arm is positioned below the printer.
- This plate or an equivalent custom design is recommended to protect the cables and media from interfering with each other and the operator when the media roll is mounted under the printer.
- Includes an inertia dampening spring roller to optimize printer performance.

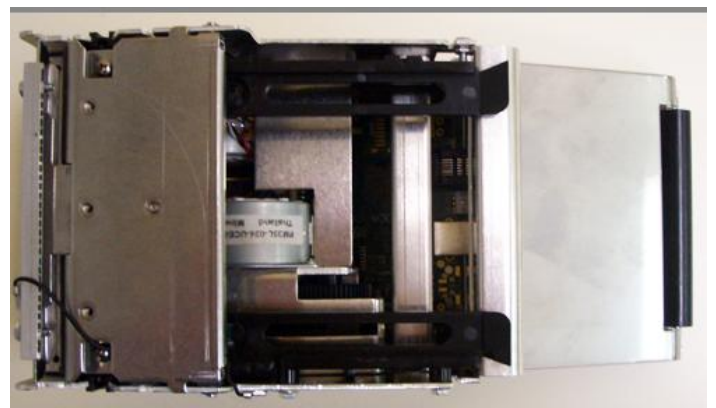
The plate attaches to the two mounting hole locations on the bottom of the Lemur-X printer.



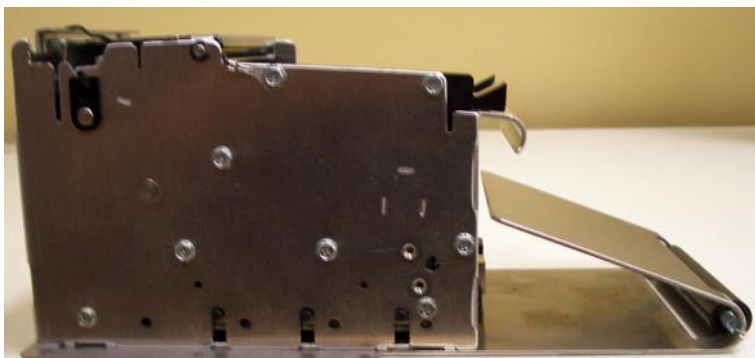
Use the two 3/16" Hex head Taptite screws, that came with the plate, to mount the plate onto the bottom of the printer.



Bottom View



Top View



Side View

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# APPENDIX A –ETHERNET PARAMETERS

Each Boca Ethernet Printer is assigned a unique MAC address based in part on the printer's serial number. All Boca printers are factory configured in DHCP enabled mode. (Exceptions may be made by special request.) If the printer is unable to get a dynamic IP address from the customer's network in the allotted time period (about four minutes). You can select a different fixed IP address either via a Web Browser (see below).

## ETHERNET – Quick Installation Guide

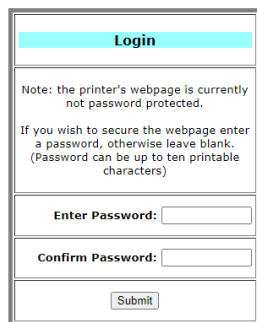
1. Connected to the printer's IP via a web browser. The printer and web browser need to be on the same network.

When a printer is first powered on, it will try to obtain an IP address from the Network IP servers. After the printer has been left on for 4 minutes, press the center TEST button to printout a self-test ticket. An IP address will be printed on this ticket. If the printer did not get an IP address from the IP server, then it will default to using:

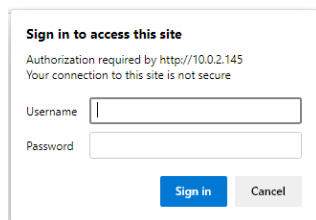
- For "N" version firmware 010.000.000.192
- For "R" version firmware 169.###.###.###

Type the IP address found on the self-test ticket in a web browser. For example, if the printer came up with its default IP 169.254.010.052 they you would type 169.254.10.52 in the browser.

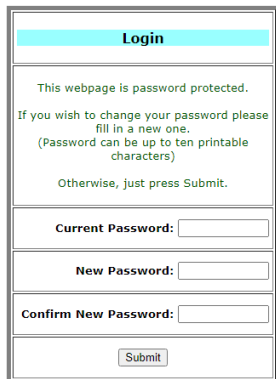
2. If printer had "N" version firmware you will see the below. Click on Submit button to go to the configuration page if you do no was to pass work protect.



3. If printer has "R" version firmware you will see the below. Username = boca & Password = printer. Your IP address will be different than what is shown below.



The menu will come up, click on Submit button to go to the configuration page if you do no was to pass work protect.



4. Below shows the configuration page

Boca Systems' Printer Configuration Page							
Firmware :		HP46NI66 / COM46NI66 / SH00					
Serial number :		488827					
On Time :		000-00:03:27 d/h/m/s					
MAC ID :		00.0D.71.07.75.7B					

FACTORY MENU : items with an \* should not be changed or selected without first consulting Boca Systems.

BAUD RATE=	9600.N.8.1	MINI/MICRO=	MINI	PRINT SPEED=	3	DIAGNOSTIC MODE=	NO	
TICKET TYPE=	SPECIAL TICKET	STATUS ENABLED=	USB/SER	TRANSPARENT MODE=	NO	PAPER MODE=	NO	
*HEAD DPI=	300	SPECIAL HEAD=	NO	PATH TYPE=	PATH1	BUFFER MODE=	MULTIPLE MODE	
CLEAR DOWNLOAD=	NO	DEFAULT SETTINGS=	YES	CUT1 COUNT=	16 (1-200)	CUT2 COUNT=	16 (1-200)	
*2-SIDED PRINTER=	NO	PARK TICKET=	NO	TICKET MODE=	MULTIPLE	PRINT MODE=	THERMAL	
PRINT INTENSITY=	NORMAL	SKI MODE=	NO	FLASH ACK MODE=	NO	SOFTWARE BUSY=	NO	
BI-DIRECTIONAL=	NO	USB=	YES	ACKNOWLEDGE=	NORMAL	ORIENTATION=	NORMAL	
FGL COMMANDS=	YES	*HIGH SPEED MODE=	NO	*SHUFFLE MODE=	NO	*CUTTER TYPE=	BOCA	
*CUTTER SPEED=	NORMAL	RFID=	NO					
ETHERNET=	DHCP/SUBGATE	IP ADDRESS=	010.000.002.031 (Enter 12 digits)		SUBNET MASK=	255.255.0.0	DEFAULT GATEWAY=	010.000.002.002 (Enter 12 digits)
SPEED/DUPLEX=	AUTO-NEGOTIATE	USB DEVICE TYPE=	PRINTER		BLUETOOTH=	NO	AUTO CASH DRAWER=	NO
MAGNETICS=	NO							

Configure SNMP

SAVE CHANGES  
(Press Save button to store)

5. If you are going to set a static IP address then you will need to change the ETHERNET setting to YES. Set IP address, Subnet Mask and Default Gateway to the values you want.
6. If you experience any problems, please refer to the Ethernet section of our [FGL Programming Guide](#).

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## APPENDIX B – WINDOWS USB DRIVER INSTALLATION GUIDE

**Do not connect the printer to your computer's USB port until instructed.**

Please contact your software provider to confirm if the use of our driver is required for their ticketing software. We recommend that the print driver is installed by either your system administrator or IT support staff.

These print drivers are intended to be installed on 64-bit Windows PC platforms from Windows 7 forward. This guide will cover the more common Windows versions - 10 & 11. The ARM platform is not supported.

Below is a link that provides details on how to installed the print driver:

<http://www.bocasystems.com/documents/WindowsDriverInstallGuide.pdf>

If you were not able to install the BOCA print driver using the above steps, please take a screenshot of the “printers and drivers” dialog and attach it to the support form located at [www.bocasystems.com/online-support-form.html](http://www.bocasystems.com/online-support-form.html)

## APPENDIX C – MAC DRIVER INSTALLATION GUIDE

**Do not connect the printer to your computer's USB port until instructed.**

Please contact your software provider to confirm if the use of our driver is required for their ticketing software. We recommend that the print driver is installed by either your system administrator or IT support staff.

Below is a link that provides details on how to installed the print driver:

[www.bocasystems.com/documents/MAC\\_Driver\\_Install\\_Guide\\_2019.pdf](http://www.bocasystems.com/documents/MAC_Driver_Install_Guide_2019.pdf)

If you were not able to install the BOCA print driver using the above steps, please take a screenshot of the “printers and drivers” dialog and attach it to the support form located at [www.bocasystems.com/online-support-form.html](http://www.bocasystems.com/online-support-form.html)

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## APPENDIX D – TESTING A LEMUR

Boca Systems, Inc. has developed various program that allows customers to communicate from a host computer or mobile device to the printer. Below are the various configure and test programs we offer:

**WINDOWS:** (Allow connection via Ethernet/ Wi-Fi, Parallel, Serial, USB-HID interfaces and print driver connection)  
<https://www.bocasystems.com/documents/Testing%20a%20BOCA.pdf>

**MAC:** (Allows Ethernet/Wi-Fi, USB-HID interfaces or print driver connection)  
<https://www.bocasystems.com/documents/Testing%20a%20BOCAmac.pdf>

**iPad:** (Allows Bluetooth and Ethernet/Wi-Fi interfaces connection)  
<https://apps.apple.com/us/app/bocaprinter/id951179236>

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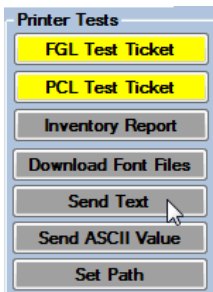


# APPENDIX E – DOWNLOADING SOFTWARE COMMANDS

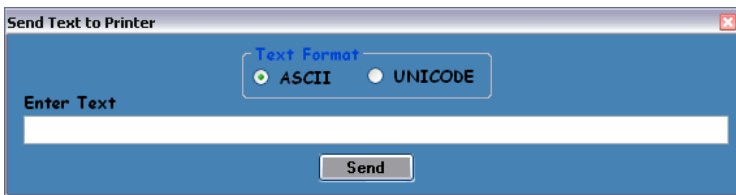
Menu setting changes may be done by utilizing the software commands listed below. This is best done using configure and test program (see [Appendix C](#)).

If needed, the printer may be defaulted back to its original factory settings as follows. With the printer powered off hold down the TEST button and then power up the printer. Keep the TEST button held down for 10 seconds and release (the printer will reset at this time).

Once the customer program is running and is connected to the printer, click on the “Send Text” button. *For the MAC customer program under the Select Printer Operation choose “Send Text Commands”.*



Once the Text Data box comes up you type the text command in the Data input box. Then click on the OK button and the text data will be sent to the printer.



You may click on the HELP button at any time to open up the help window.

**The following command setting commands are available:**

Note: The **kiosk black** mark is at 1.5” for the Lemur-X ([www.bocasystems.com/ticket\\_specs10.html](http://www.bocasystems.com/ticket_specs10.html)).

**If you are using the printer with stock that has a black timing mark then it will need to be taken out of paper mode.**

- **<pmdd>** this will configure the printer for use with ticket stock with a black timing mark.
- **<pmr>** this will configure the printer for use with receipt stock without a black timing mark. Full cut mode.
- **<pmr#>** this will configure the printer for use with receipt stock without a black timing mark. It will put the printer in a partial cut mode so it does not cut all the way through the media. # is the value used for the partial cut setting. Start with a value of 66. You may adjust this value to achieve the desired no cut gap in the media. Decreasing will increase the width of the no cut gap area. **MUST NOT BE USED WITH PRINTER SET FOR BLACK TIMING MARK OR WITH OPTIONAL PRESENTER.**

The printer will reset upon receipt of either above mentioned software commands.

- **<US>** this command reverses the media behind the platen so it can easily be removed without lifting the printhead. This command should be issued after a ticket has been printed and removed or is idle. The printer will then wait for the ticket to be pulled out completely before trying to reload stock.

## Below are Ethernet Mode Commands:

**<eth#>** the printer will reset after receipt of this command.

This command sets the Ethernet mode for the printer and is permanently stored in flash. This can also be set using the 'Factory Menu'. The values can range as shown below:







- 0 - NO - Ethernet Interface disabled
- 1 - YES - Ethernet Interface enabled (uses static IP address).
- 2 - Ethernet DIAGNOSTIC Mode - (prints all packets transmitted or received by the printer).
- 3 - Ethernet Diagnostic VALID PACKET Mode - (prints only valid packets transmitted or received by the printer).
- 4 - DHCP ENABLED (automatically attempts to get an IP address from Local Server).
- 5 - DHCP/SUB/GATE (automatically attempts to get an IP address/Subnet Mask/Gateway from Local Server).
- 6 - DHCP/NR\* (automatically attempts to get an IP address from Local Server and then register the name with the local NetBIOS name server – usually the WINS Server).
- 7 - DHCP/SUB/GATE/NR\* (automatically attempts to get an IP address/Subnet Mask/Gateway from Local Server and then register the name with the local NetBIOS name server – usually the WINS Server).

























## The below commands are for Lemur-X with optional presenter only

Command only needs to be sent once to take effect.

- **<ket#><p>** Kiosk eject timeout command (# = seconds value). This controls the time delay the printer will retract the media if not taken. The default value is 3 seconds. For example, the <ket10> command will configure the printer to present the media for 10 seconds before retracting it back if not taken. *The printer will issue a blank ticket upon receipt of said command.*
- **<ket0><p>** Causes the retract feature to be disabled. *The printer will issue a blank ticket upon receipt of said command.*
- **<kem#><p>** Kiosk eject mode configuration command. Each bit represents a different configuration option. *The printer will issue a blank ticket upon receipt of said command.*

The below is an overview of the various KEM values.

NAK		= no NAK		= NAK on trashed ticket
REVERSE		= 15 step reverse print position		= 30 step reverse print position
WAIT		= no print if media is in presenter		= print if media is in presenter

NAK								
REVERSE								
WAIT								
Value	5	7	21	23	37	39	53	55

The default value is five (5). This configures the printer as follows: no NAK on trashed ticket, no REVERSE, no IGNORE.  
Note: if ticket is not removed within the 'kiosk eject timeout' period it will be retracted into the trash bin (trashed).

As an example, if you wanted a NAK to be sent back when the media is retracted into the printer you would send **<kem7><p>** command to the printer.

### Failsafe mode:

To enter Failsafe mode, hold the 'CHOICE' button in for at least 5 seconds while powering on the printer. If the USB port is connected you should hear the normal USB port detected sound on the computer. Failsafe mode is for cases where we need to reconfigure the printer before it proceeds to initializing. Note: the Ethernet interface does not work in this mode.

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## PRESENTER COMMAND SETTINGS

Below are various ways you may configure a Lemur-X with optional presenter, concerning presenting the media after it is printed.

- a. **Present with no retract** - The following software command will disable the retract feature of the printer: **<ket0><p>**  
The printer will present and hold the media in place to be taken. You are not able to print the next transaction until the receipt/ ticket has back taken out of the presenter. The printer will issue a blank receipt/ ticket upon receipt of command and command only needs to be sent once. **This is how a printer will leave the factory unless otherwise specified.**
- b. **Present and retract** - The printer will present and hold the media in place to be taken and then retract it back into the printer after 3 seconds. This is how the printer is currently configured.

You may adjust the eject timeout by sending the following command to the printer: **<ket#><p>** # = the timeout value is seconds. The current default timeout value is 3. The printer will issue a blank receipt/ ticket upon receipt of command and command only needs to be sent once. For example, if I wanted to increase the timeout to 10 seconds then use **<ket10><p>**.

You are not able to print the next transaction until the receipt/ ticket has been taken out of the presenter or if it has been retracted back if not taken.

- c. **Present with no retract without wait mode** - The following software command string will disable the retract feature and enable you to print a receipt/ ticket even if said media is still in the presenter: **<bce><ket0><kem37><bcd>**

You will be able to print the next receipt/ ticket event with the media still in the presenter. The media sitting in the presenter will be ejected out prior to the next one being printed.

## STATUS COMMAND SETTINGS

The Lemur-X may also be configured for different status command setting.

The printer may only be configured with one of these commands at one given time. Both commands should not be used at the same time. If you are switching from <s90> to <s91> as part of your evaluation you will need to erase the prior status command. This may be done by sending the below software command to the printer. This command will cause the printer to issue out a blank receipt or ticket upon receipt.

**<cs><p>**

**Normal status (default, if not denoted otherwise when ordered)** printer will go offline in error state.

While the printer asynchronously sends status messages whenever a change in status occurs, status commands can only be processed when the printer is ready and fully operational (paper loaded, no faults, etc.). In other words, **no status responses will be sent while the printer is busy and/or in an error state.**

Printer will send the below unsolicited and solicited status messages:

Hex	Dec	Description	Unsolicited	Solicited
06H	6	TICKET ACK – Sent after each receipt or ticket is printed	YES	NO
0FH	15	LOW PAPER – used with optional low paper sensor	YES	NO
10H	16	OUT OF PAPER – printer runs out of media	YES	NO
11H	17	X-ON – sent when printer goes ready	YES	YES <S1>
12H	18	POWER ON – sent when printer is powered on	YES	NO
13H	19	X-OFF – sent when printer goes busy	YES	NO
*16H	*22	TICKET REMOVED – sent when media is taken	YES	NO
18H	24	PAPER JAM – printer is in a media jam error state	YES	NO
19H	25	ILLEGAL DATA – when printer receives illegal data	YES	NO
1AH	26	POWERUP PROBLEM – printer has powerup error	YES	NO
1CH	28	DOWNLOAD ERROR – error downloading font or image	YES	NO
1DH	29	CUTTER JAM – cutter knife has failed to move	YES	NO

\* Is only sent when printer path type is set for *path 1 – exit opto*, **by default the printer is not set for this mode**. Will not work if presenter is set to no wait mode (<kem37>).

**Single Ticket Status Mode <s90><p>** printer will remain online during error state. Printer will issue a black receipt upon receipt of said command.

The printer will respond to all status requests received during an error state. Disables various unsolicited status messages, see table below. However, non-status related data should **not** be sent during an error state, as it may cause unpredictable results. This mode should only be used when data is sent for one receipt or ticket at a time. After sending each receipt or ticket, the user should send an <S92> status request and receive either a “good status” (41H) or *low paper* (0FH) prior to sending additional receipt or ticket data.

Printer will send the below unsolicited and solicited status messages:

Hex	Dec	Description	Unsolicited	Solicited
06H	6	TICKET ACK – Sent after each receipt or ticket is printed	YES	NO
0FH	15	LOW PAPER – used with optional low paper sensor	YES	YES <S92>
10H	16	OUT OF PAPER – printer runs out of media	NO	YES <S92>
11H	17	X-ON – sent when printer buffer is ready after being full	YES	NO
12H	18	POWER ON – sent when printer is powered on	YES	NO
13H	19	X-OFF – sent when printer buffer is full	YES	NO
*16H	*22	TICKET REMOVED – sent when media is taken	YES	NO
*17H	*23	TICKET WAITING – sent when media is presented	YES	YES <S92>
18H	24	PAPER JAM – printer is in a media jam error state	NO	YES <S92>
19H	25	ILLEGAL DATA – when printer receives illegal data	NO	YES <S92>
1AH	26	POWERUP PROBLEM – printer has powerup error	NO	YES <S92>
1CH	28	DOWNLOAD ERROR – error downloading font or image	NO	YES <S92>
1DH	29	CUTTER JAM – cutter knife has failed to move	NO	YES <S92>
41H	65	GOOD STATUS – printer is ready	NO	YES <S92>

\* Is only sent when printer path type is set for *path 1 – exit opto*, **by default the printer is not set for this mode**. Will not work if presenter is set to no wait mode (<kem37>).

- **Solicited Status Mode <s91><p>** printer will remain online during error state. Printer will issue a black receipt upon receipt of said command.

When the printer is in an error state, it will only respond to <S92> status requests. Disables most unsolicited status messages, see below table. NOTE: All other data and status requests will be deleted until the printer returns to an error-free condition.

Printer will send the below unsolicited and solicited status messages:

Hex	Dec	Description	Unsolicited	Solicited
06H	6	TICKET ACK – Sent after each receipt or ticket is printed	YES	NO
0FH	15	LOW PAPER – used with optional low paper sensor	YES	YES <S92>
10H	16	OUT OF PAPER – printer runs out of media	NO	YES <S92>
11H	17	X-ON – sent when printer buffer is ready after being full	YES	NO
12H	18	POWER ON – sent when printer is powered on	YES	NO
13H	19	X-OFF – sent when printer buffer is full	YES	NO
*16H	*22	TICKET REMOVED – sent when media is taken	NO	NO
*17H	*23	TICKET WAITING – sent when media is presented	NO	YES <S92>
18H	24	PAPER JAM – printer is in a media jam error state	NO	YES <S92>
19H	25	ILLEGAL DATA – when printer receives illegal data	NO	YES <S92>
1AH	26	POWERUP PROBLEM – printer has powerup error	NO	YES <S92>
1CH	28	DOWNLOAD ERROR – error downloading font or image	NO	YES <S92>
1DH	29	CUTTER JAM – cutter knife has failed to move	NO	YES <S92>
41H	65	GOOD STATUS – printer is ready	NO	YES <S92>

\* Is only sent when printer path type is set for *path 1 – exit opto*, **by default the printer is not set for this mode**. Will not work if presenter is set to no wait mode (<kem37>).

The below software command may be sent to the printer to configure path 1 to exit opto configuration. This command only needs to be sent once to make the necessary setting changes and the printer will reset of receipt of said command. This setting change will still stay in effect event when the power has been cycled to the printer.

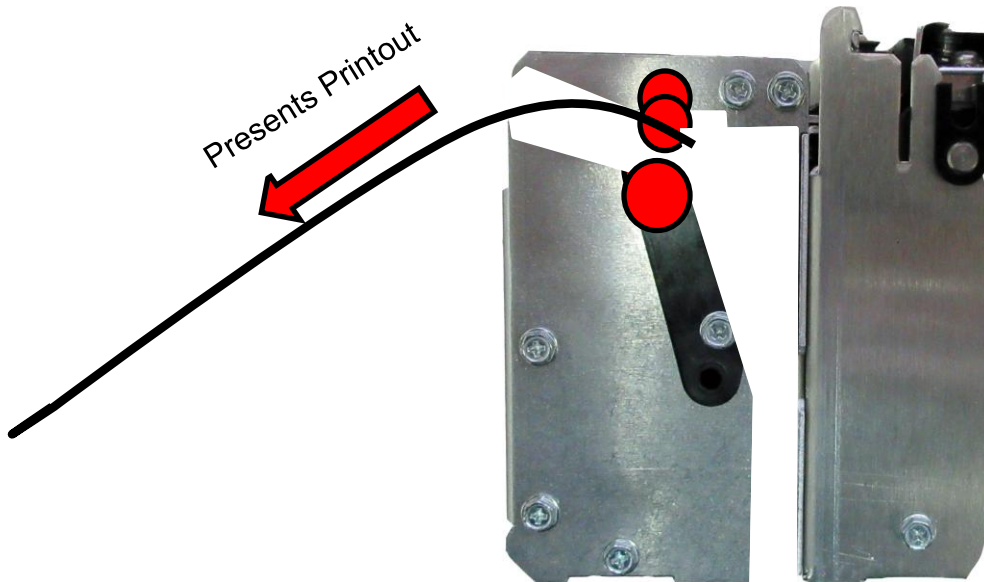
**<p16>**

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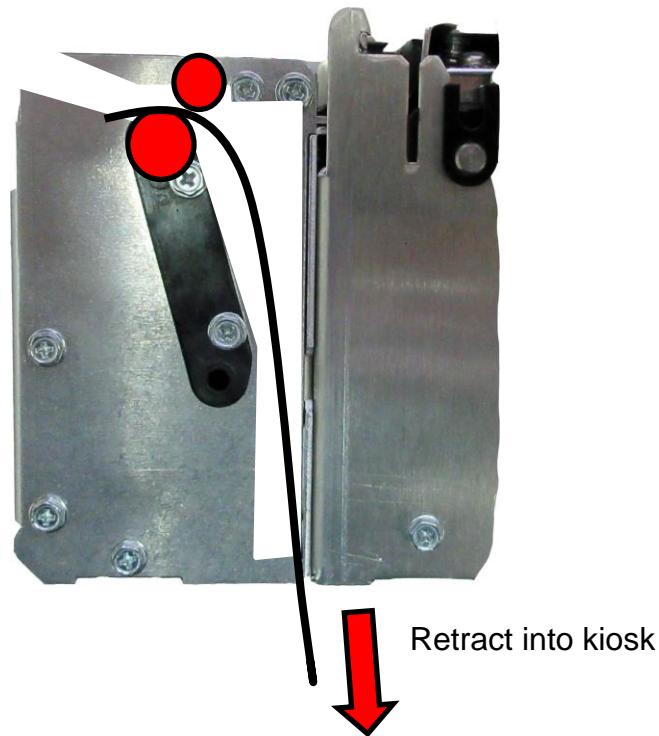
## APPENDIX F Optional Presenter (Lemur-X (P))

The Lemur-X may be ordered with an optional presenter mechanism with a built in present and retract function. The following illustrations provide an overview of the functionality of the various stages of printer operation.

- **PRESENT** – Once the media has been printed and cut. It will be presented and held in place for to the customer to take.



- **RETRACT** – The retract and retain function can retract uncollected printouts and drop them back inside the kiosk. The default time for this retract is 3 second after the media has printed. You will want to make sure there is an opening in the kiosk below the printer retract exit slot.



You can adjust the retract delay and disable it by sending a software command to the printer. See [Appendix-E DOWNLOADING SOFTWARE COMMAND](#) for more details.

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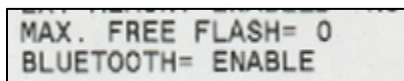
## APPENDIX G – BLUETOOTH CONNECTION

If your printer is equipped with an optional Bluetooth interface port then you will see the following in the Interface 2 or Interface 3 field of the serial number tag.

- **BT LE** - Printer is configured for Bluetooth Classic Mode.
- **BT+** - Printer is configured for Bluetooth Classic Mode.
- **BLE+** - Printer is configured for Low Energy Mode.

### BLUETOOTH CLASSIC

If the printer has optional Bluetooth interface and it is enabled then you should see BLUETOOTH = ENABLED on the self-test printout that is issued when the printer's center TEST button is pressed.

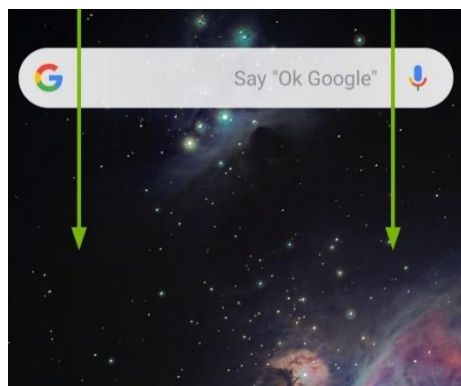


MAX. FREE FLASH= 0  
BLUETOOTH= ENABLE

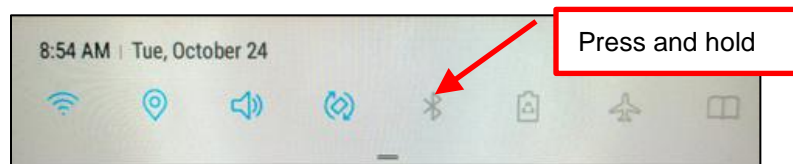
### *Android Connection*

The below provides an overview of an Android connecting to a BOCA printer with optional Bluetooth interface.

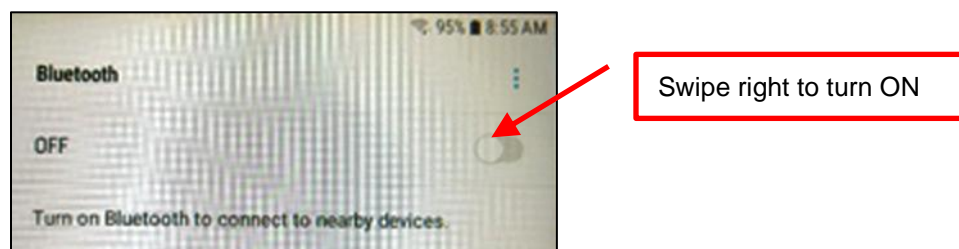
1. Swipe down from the top of the screen.



2. Press and hold the Bluetooth icon to access the Bluetooth screen.

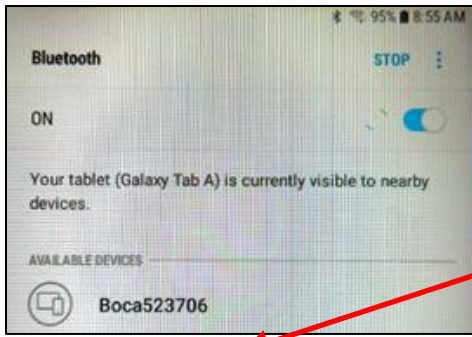


3. If Bluetooth is OFF then turn ON.



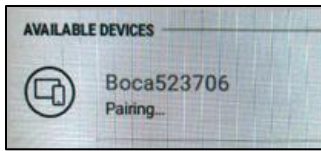
- Once turned ON, a list of Bluetooth devices will be shown. Under AVAILABLE DEVICES you should see the serial number of the printer you are trying to pair to (Boca#####) For example if your printer was serial number 523706 then you would see Boca523706.

Tap on the BOCA printer you want to pair.

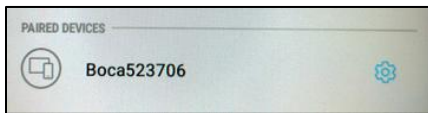


Tap on printer you want to pair.

- You will see the below during the pairing process.




- You will see the below once the printer has been paired to the device.



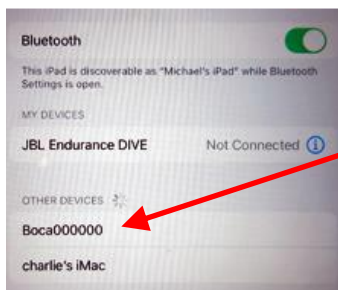
## iPad Connection

The below provides an overview of an iPad connecting to a BOCA printer with optional Bluetooth interface.

- Touch the setting icon. 
- When setting menu comes up click on Bluetooth.
- Turn Bluetooth ON if it was OFF.



- Under DEVICES you should see the serial number of the printer you are trying to pair to (Boca#####) For example if your printer was serial number 000000 then you would see Boca000000



Tap on printer you want to pair.

5. Touch on this serial number to enable the iPad to pair to it.
6. The iPad should show that it is connected when successfully paired.
7. When the printer is powered off the iPad will disconnect from the printer. When the printer is powered on you will need to manually reconnect to the printer.

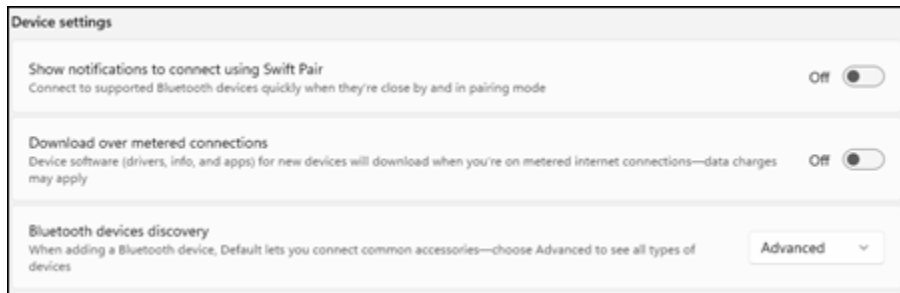
You may use our iPad test program that is on the Apple store to test the printer. The search will need to be done via the iPad and search name would be *BocaPrinter* (<https://itunes.apple.com/us/developer/boca-systems/id951179235>).

## Windows 11 Connection

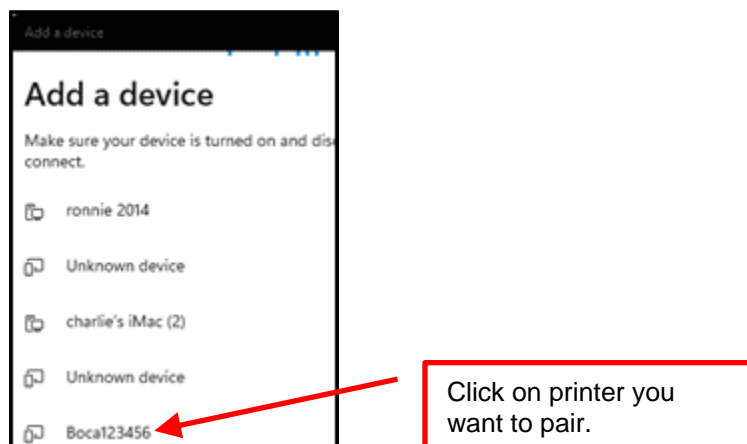
The below provides an overview of a Windows 11 connecting to a BOCA printer with optional Bluetooth interface.

1. In your Windows Bluetooth device settings, set Bluetooth devices discovery setting from Default to Advanced. The below link reviews how to set Bluetooth to advanced setting.

<https://help.cricut.com/hc/en-us/articles/16511514972183-Windows-11-Bluetooth-Devices-Discovery-Issues#:~:text=Open%20open%20Bluetooth%20settings%20and,setting%20from%20Default%20to%20Advanced>



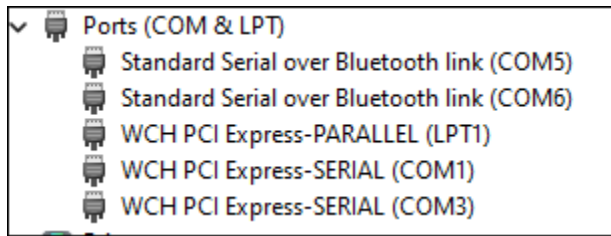
2. When you do your search, you should now see Boca#####. In the below example my test printer is serial number 123456, you should see Boca522557. Click on it to pair your PC to the printer and follow the instructions provided.



3. Once connected go to Device Manager settings, the below link shows various ways to open Device Manager.

<https://help.cricut.com/hc/en-us/articles/16511514972183-Windows-11-Bluetooth-Devices-Discovery-Issues#:~:text=Open%20open%20Bluetooth%20settings%20and,setting%20from%20Default%20to%20Advanced>

4. Once open, look under Ports (COM & LPT) and you should see Standard Serial over Bluetooth link (COM#). In the below example W11 provided two COM ports, which the lowest number COM port should be used. This this case I would use COM5. Your COM port values may be different.



- Your software application would then use this COM port connection to communicate to the printer through.

**The Bluetooth will need to be disabled if you choose to communicate to the printer via the ETHERNET or USB port.**

The below command may be sent. This command only needs to be sent to the printer once to take permanent effect and the printer will reset upon receipt of said command. The [Appendix E DOWNLOADING SOFTWARE COMMANDS](#) section provides download procedures.

**<bld>** = DISABLE

**<ble>** = ENABLED

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## APPENDIX H – CONFIGURE WI-FI CONNECTION

To use the wireless capabilities of a printer equipped with the optional wireless interface (Wi-Fi), it will first be necessary to setup the printer with information and security settings that match the settings of the compatible wireless server/router you are connecting to. Printer purchased after April-2014 is able to support IEEE 802.11g compatible wireless server/router. Printers purchased after July 2020 can support 802.11 b/g/n wireless networks. *The RJ12 serial port will not work with a printer that has optional Wi-Fi interface.*

Our Wi-Fi printer is designed to work with a wireless router.



***We recommend that the Wi-Fi be configured by either your system administrator or IT support staff who is knowledgeable about your network and Wi-Fi configurations.***

You need to confirm / know the following:

- Wi-Fi router is a b/g/n wireless device that supports 2.4 GHz speed (we do not support 5 GHz speed)?
- If the printer needs to be configured for DHCP or Static IP address?
- SSID name of the router you are connecting to?
- What security mode is required (Disabled, WAP, WAP2 or WEP)?
- If security mode is required then need to know said Pass Phrase/Shared Key (WAP or WAP2) or WEP Encryption/ Key value?

You must use our Configure and Test program for Windows or Customer program for MAC (see [Appendix F](#)) and be connected to the printer via a wired connection.

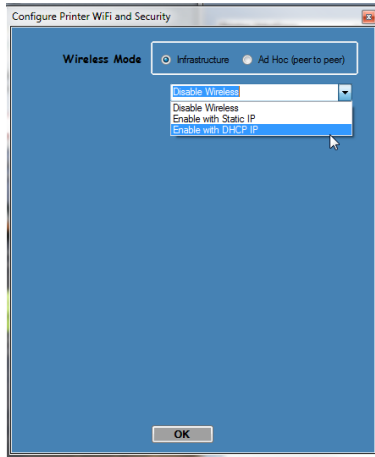
- If connection via Ethernet, use the IP address that is on the self-test ticket.
- If connecting via USB then the appropriate print driver needs to be used:
  - **MAC** – [https://bocasystems.com/documents/MAC\\_Driver\\_Install\\_Guide\\_2021.pdf](https://bocasystems.com/documents/MAC_Driver_Install_Guide_2021.pdf)
  - **WINDOWS** - <http://www.bocasystems.com/documents/WindowsDriverInstallGuide.pdf>

The following will guide you with configuring your printer if it has optional Wi-Fi interface port.

1. For initial install the printer must be as close as possible to the Wi-Fi router itself. This will ensure maximum single strength. Once you have confirmed the Wi-Fi is operational, the printer may be moved to its desired location.
2. You need to confirm you are able to print a ticket using our Configure and Test program for Windows or Customer program for MAC (see [Appendix E](#) for Windows and [Appendix F](#) for MAC). The printing of a ticket via this program will confirm it is communicating with the printer. Leave the program open and move onto the next step.
3. In the Configure and Test program for Windows click on the “Setup Wi-Fi button. In the Customer program for MAC select “Setup Wi-Fi” under the “Select Printer Operation”.



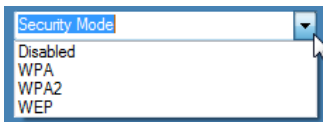
4. When the Configure Printer Wi-Fi and Security menu comes up you have a few choices.
  - a. **Wireless Mode** – Infrastructure (this is default setting). **DO NOT SELECT Ad Hoc (peer to peer)**
  - b. **Disable Wireless** – You would choose this if you wanted to disable the Wi-Fi  
**Enable with Static IP** – This would be for networks that require a static IP address.  
**Enable with DHCP IP** - Automatically attempts to get an IP address from Local Server (this is the most common one and the one we will be using for the rest of the steps).



5. You will need to enter the **SSID value**. The Service Set Identifier is a 1 to 32 byte string. This normally would be the name of the Wi-Fi router you are connection to. **Please note the ID is case sensitive.**

**SSID:**

6. Security Mode: you will need to choose the security mode that is appropriate for your Wi-Fi router.  
**Disable** – Allows the user to communicate through the wireless network without any security encryption involved.  
**WPA** – Go to [Step 7](#)  
**WPA2** – Go to [Step 7](#)  
**WEP** – Go to [Step 8](#)



7. **WPA and WPA2 Personal Security Mode** – Allows the user to communicate through the network using WPA or WPA2 Personal wireless encryption. When this security encryption mode is chosen it will be required to enter the “WPA Shared Key” for the local wireless network. Some networks also enforce the use of an optional key value. The optional prompt field is provided for those networks. **Please note the key is case sensitive.** Finally click on OK to have these values transmitted to the printer (through the cable). The printer will reset and upon re-initialization it will establish wireless communication with the local network. The handshaking involved in establishing wireless communication can take up to 30 seconds. Go to [step #9](#).

The screenshot shows a window titled "Configure Printer WiFi and Security". Under "Wireless Mode", "Infrastructure" is selected. The "Enable with DHCP IP" dropdown is set to "Enable with DHCP IP". The "SSID:" field contains "WiFiDemo". The security mode dropdown is set to "WPA". The "Pass Phrase/Shared Key:" field contains "securemenow". There is an "Optional Key 1:" field which is empty. An "OK" button is at the bottom.

8. **WEP Security Mode** – Allows the user to communicate through the network using WEP wireless encryption. With WEP one can select 64 bit or 128-bit encryption. When the security encryption mode is chosen it will be required to enter the “Key” for the local wireless network. **Please note the key is case sensitive.** Some networks also enforce the use of a default transmit key. If needed select one, else leave it set to “1”. Next the four security key values will have to be entered to match those of the local network. Finally click on **OK** to have these values transmitted to the printer (through the cable). The printer will reset and upon re-initialization it will establish wireless communication with the local network. The handshaking involved in establishing wireless communication can take up to 30 seconds. Go to [step #9](#).

The screenshot shows the same "Configure Printer WiFi and Security" window. Under "Wireless Mode", "Infrastructure" is selected. The "Enable with DHCP IP" dropdown is set to "Enable with DHCP IP". The "SSID:" field contains "WiFiDemo". The security mode dropdown is set to "WEP", and the encryption type dropdown is set to "128 Bits". Under "Default Transmit Key", radio buttons 1, 2, 3, and 4 are shown, with "1" selected. Below this, there are four text input fields labeled "Key 1:", "Key 2:", "Key 3:", and "Key 4:". "Key 1" contains the hexadecimal string "1A2B3C4D5E6F12345678901234". The other three key fields are empty. An "OK" button is at the bottom.

9. The printer will reset. Depending on your operating system, this rest may happen less than 60 seconds or as long as 5 minutes. Upon re-initialization it will establish wireless communication with the local network. Depending on your network, a connection can be established in less than 60 seconds or as long as 5 minutes. At this point the printer is connected to your Wi-Fi router.

10. Press the TEST button to print out a self-test ticket. This ticket will show the IP address that was acquired by the printer. You may use the configuration and test program to test this interface connection. You would run the program like you are connecting to an Ethernet printer and enter in the IP address that is shown on the self-test ticket.

If it fails or displays IDLE then there is a problem. See [item #14](#) on the Troubleshooting Guide.

Please go to the link below if you need assistance in configuring your Wi-Fi connection.

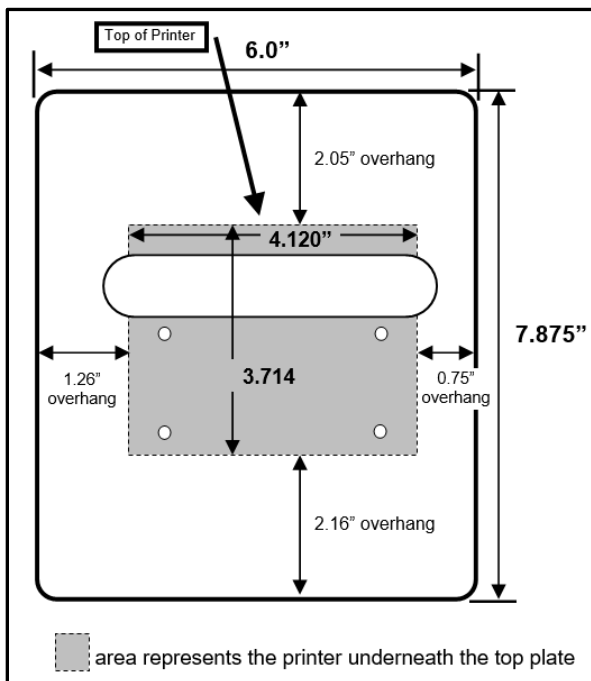
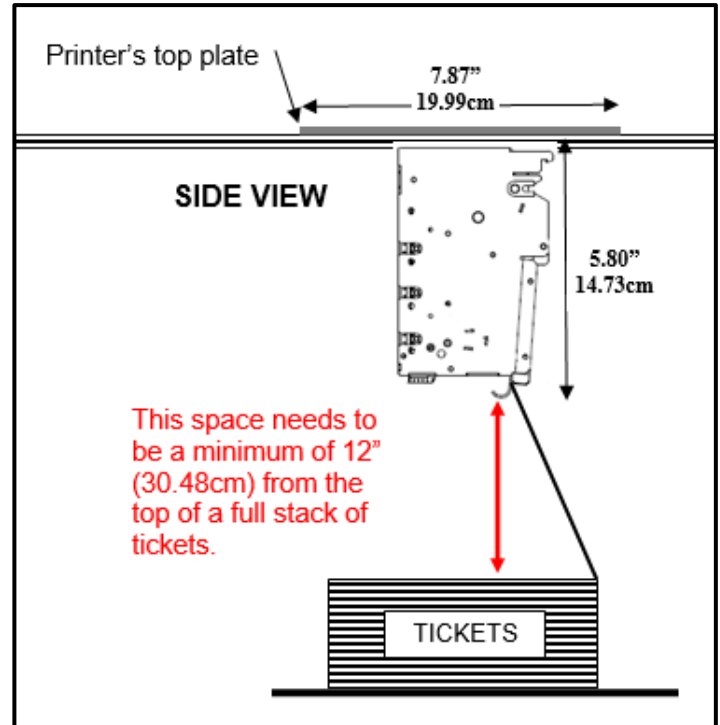
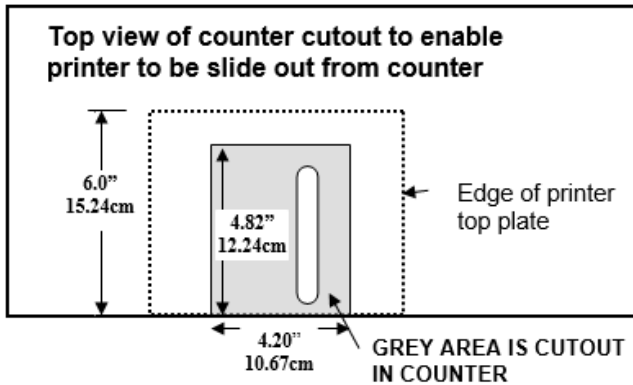
[www.bocasystems.com/online-support-form.html](http://www.bocasystems.com/online-support-form.html)

If your printer has an options Ethernet port then this port will be disabled while the printer is in Wi-Fi mode. The printer is not able to run both Ethernet and Wi-Fi at the same time. If you need to go back to using the Ethernet port then the Wi-Fi needs to be disabled. This may be done by repeating the above procedure but at step # 4 choosing **Disable Wireless**.

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# APPENDIX I – VERTICAL PRINTER INSTALLATION

Prepare the counter top by cutting a rectangular hole in accordance with the dimensions specified for your printer model. **NOTE: The table or counter top must be able to support at least four times the weight of the printer.**



Top view of standard 421421Z2-X-2.0 top plate



Picture of Lemur-X with [optional bezel](#)

If an auto cut Lemur-X is going to be used to print multiple tickets per transaction then an optional bezel should be used to prevent the media from falling back into the cutter area.

If you are looking to make the cutout just big enough to fit the printer then we recommend making the cutout 0.50" larger than the height and width of the printer.

- Attach the top plate to the printer using only the supplied mounting hardware.
- Insert the printer with the top plate attached into the countertop cutout.
- Attach the power cord and the interface cable to the printer.
- Turn the power switch to the ON position.
- The printer is now ready for ticket stock to be loaded.

Click here to return to > [Table of Contents](#)

## APPENDIX J – SERVICE PLANS

For enhanced [warranty](#) coverage or for an out of warranty printer, we offer two types of service plans.

### GOLD SERVICE

- Printer repair at BOCA facility (3 business day turnaround)
- Replace defective parts (ship within one business day) – customer must return defective parts
- Return shipping (from factory to customer) via UPS Ground service (other delivery options to be billed to the customer)

### PLATINUM SERVICE

- Printer repair at BOCA facility (3 business day turnaround)
- Replace defective parts (ship within one business day) – customer must return defective parts
- Return shipping (from factory to customer) via UPS Ground service (other delivery options to be billed to the customer)
- Replacement printer provided within one business day, if requested. (This service will become available one week after the platinum plan begins.)

The following items are not covered by the service plans:

- **Preventative Maintenance** – the customer is responsible to provide a reasonable level of preventative maintenance as described in [section 9](#) of this manual.
- **Negligence** – parts damaged by misuse or negligence, including damage due to defective ticket stock, is not covered
- **Pre-existing conditions** - all printers must be in good working order prior to entering the plan. The customer will be invoiced for any parts and repair work needed on printers which were defective prior to the start of the maintenance plan. BOCA reserves the right to make this determination unilaterally.
- **Incoming Shipments** – the customer is responsible for shipping charges to BOCA.

Please visit the link below for the latest pricing on our service plans.

[www.bocasystems.com/serviceplans.html](http://www.bocasystems.com/serviceplans.html)

## APPENDIX K – TECHNICAL SUPPORT

Please go to the link below if you require technical support with your BOCA printer. There is no fee for initial email support.

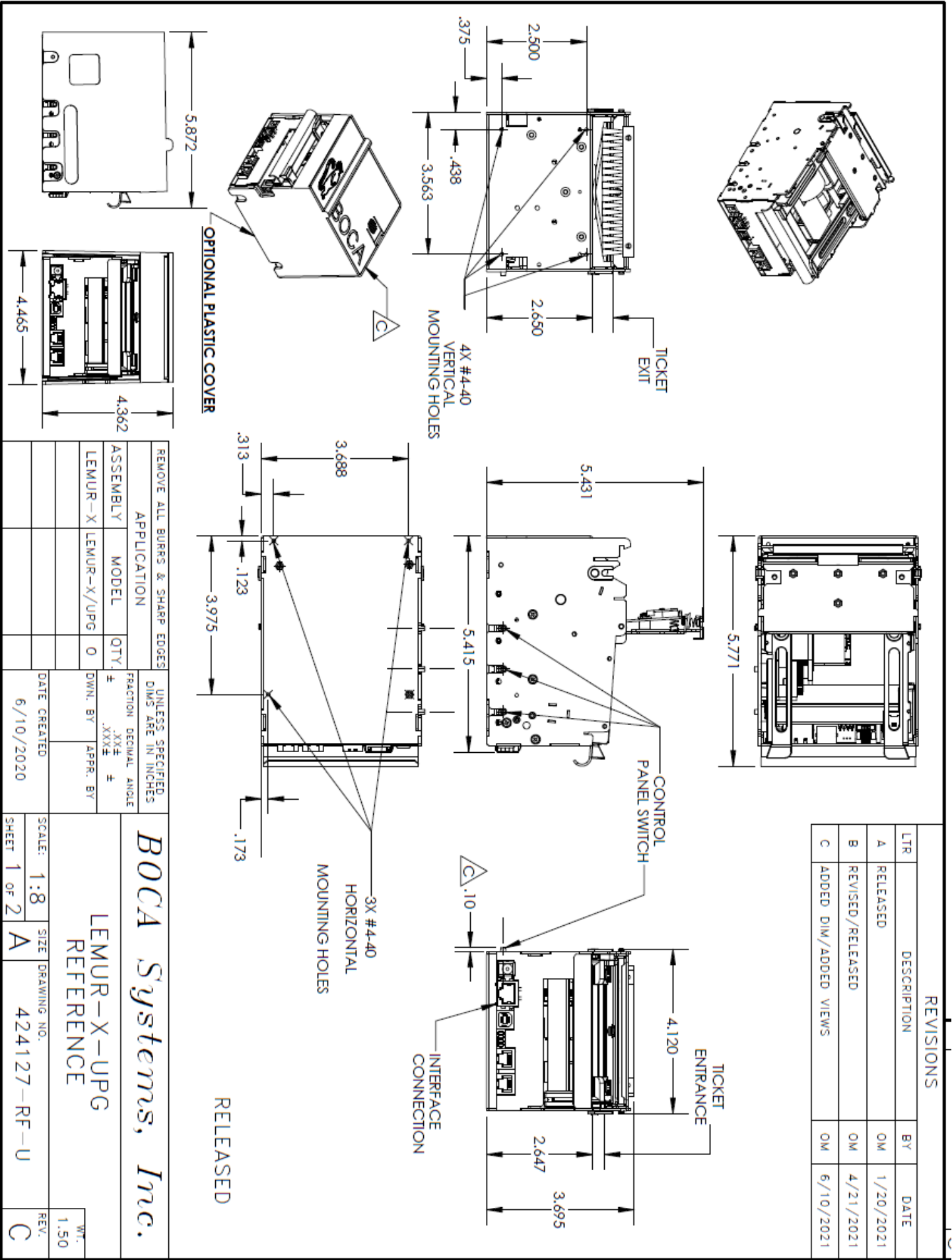
[www.bocasystems.com/online-support-form.html](http://www.bocasystems.com/online-support-form.html)

**PHONE / EMAIL SUPPORT** - BOCA provides free technical support via email for all printers under warranty or service contracts. (Phone support may be provided for covered printers at BOCA's sole discretion as needed.) Email support for non-warranty/non-contract printers is billable at \$100.00 per incident. However, BOCA may (at its sole discretion) choose to waive this fee for customers in good standing. Phone support for non-warranty/non-contract printers will be billed at a rate of \$100.00/hour for Level 1 support and \$200.00/hour for Level 2 support. Billing time will be rounded up to the nearest hour. A valid credit card number is required for phone support payments.

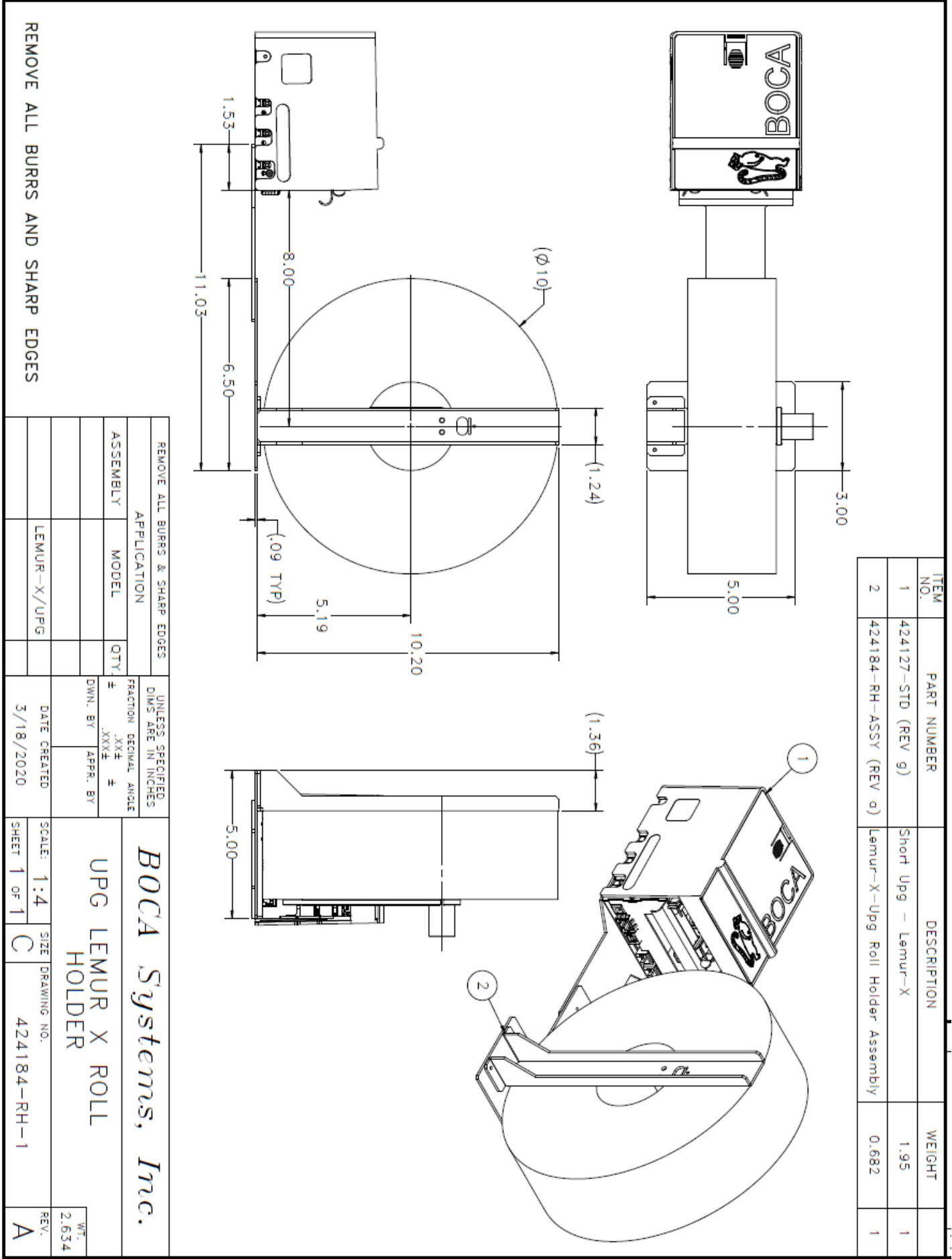
Click here to return to > [Table of Contents](#)

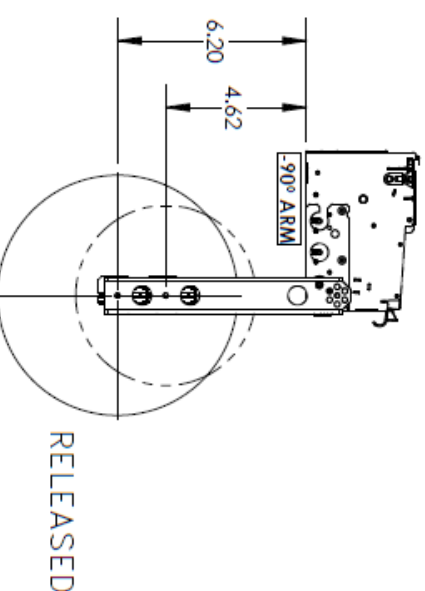
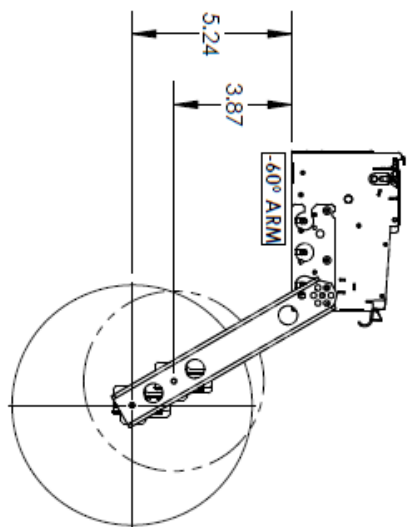
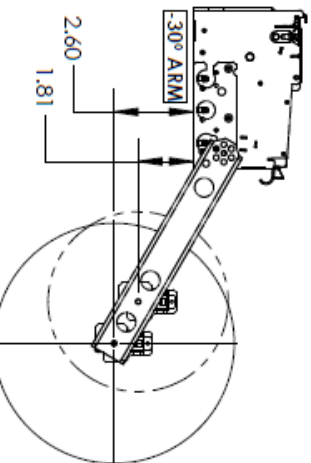
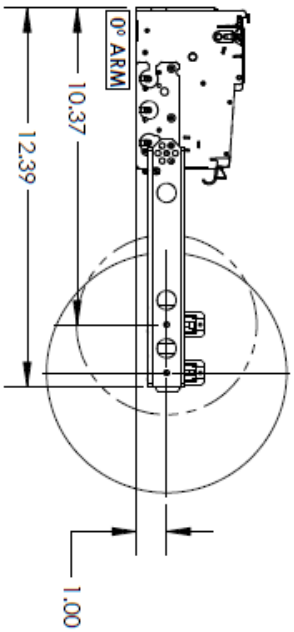
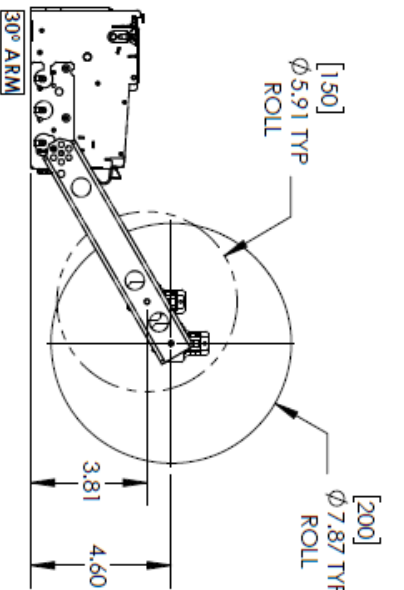
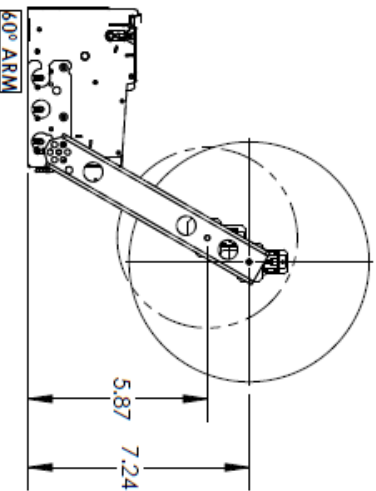
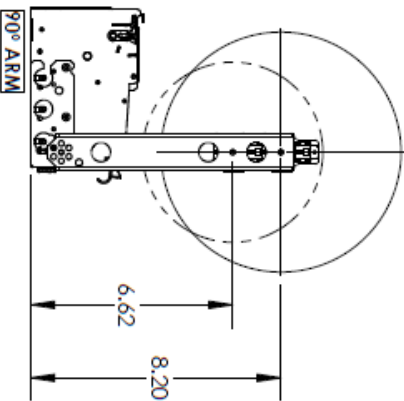


APPENDIX L – LEMUR-X UPG REFERENCE DRAWING



APPENDIX M REFERENCE DRAWING WITH 424184 ROLL HOLDER ATTACHED





WITH 424051-U ROLL HOLDER

REMOVE ALL BURRS & SHARP EDGES			UNLESS SPECIFIED DIMS ARE IN INCHES			<i>BOCA Systems, Inc.</i>			LEMUR-X-UPG REFERENCE			WT. 1.50		
APPLICATION			FRACTION DECIMAL ANGLE											
ASSEMBLY	MODEL	QTY.	±	.XX±	±									
LEMUR-X	LEMUR-X/UPG	0	DWN. BY	APPR. BY										
						DATE CREATED			SCALE: 1:8			SIZE: A	DRAWING NO. 424127-RF-U	REV. C
						6/10/2020								
									SHEET 2 of 2					

APPENDIX O LEMUR-X UPG PRESENTER REFERENCE DRAWING

