



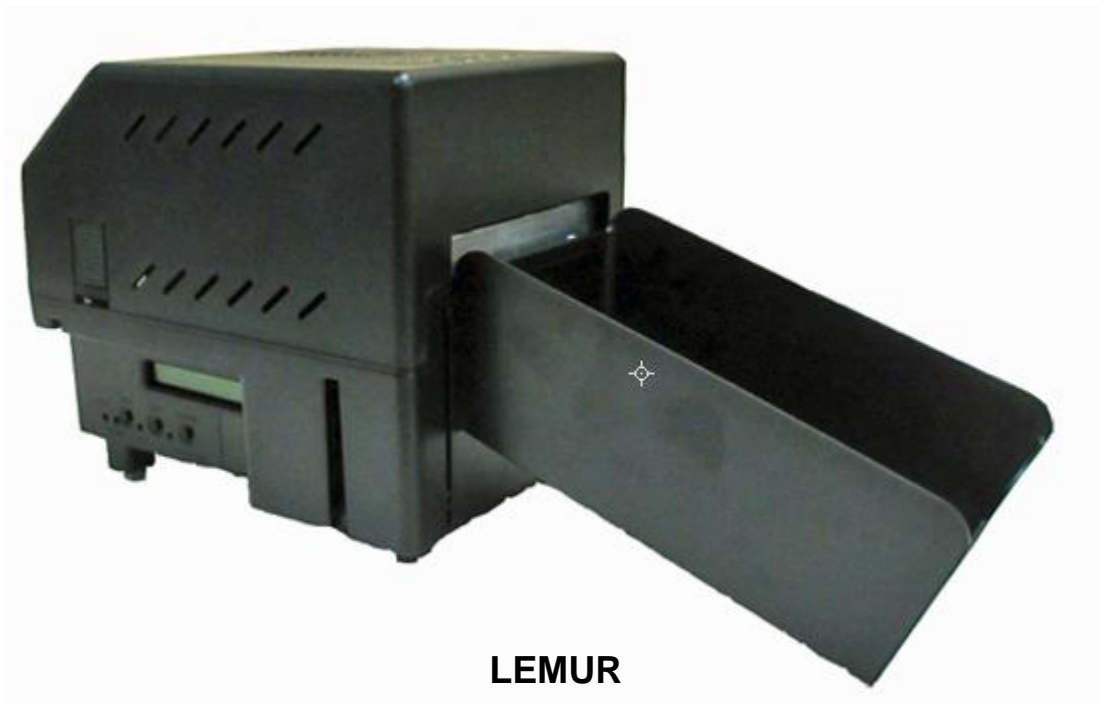
# **Boca Systems**

## **LEMUR TICKET PRINTERS**

### *Operator's Manual*



**LEMUR-S**



**LEMUR**

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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

BOCA warrants the equipment manufactured and sold by it to be free from defects in material and workmanship under normal use and service for a specified period of time. Parts damaged by negligence or misuse (bad ticket stock, improper operating conditions, etc.) are excluded from this warranty. Warranties for printers are 1 year from date of shipment. (NOTE: The print head is a consumable part and is warranted for 90 days.) Spare parts carry a 90-day warranty. Tickets are warranted, under proper storage conditions, for a period of 3 years. 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.

Please go to the link below if you have any reported issues with your new BOCA printer.  
[www.bocasystems.com/onlinesupportform.html](http://www.bocasystems.com/onlinesupportform.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 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† 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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## 2.0 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) Ticket Printer
- b) Hopper (if applicable)
- c) AC power cord
- d) Interface cable (optional)
- e) Mounting Plate (optional)



Above photo is of a Lemur-S printer.



Lemur-S with top insert removed.



Above photo of Lemur printer.

**The shipping box and packaging material are specifically designed for your printer.**

**It is recommended you save the original box and packing material (including plastic bag if printer came with one) for future use, if needed.**

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# 3.0 Introduction

The [Lemur series printers](#) are direct thermal ticket printers that may be purchased with optional integrated cutting mechanism and LCD display. 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.

**Lemur and Lemur-K** The cover may be removed in the following manner.

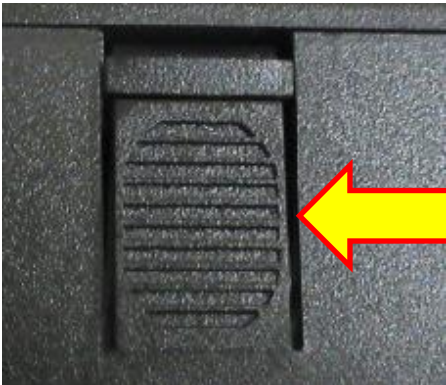


Depress the locking tab on the side of the printer.



With two hands lift straight up on the cover to remove.

**Lemur-S** The cover may be removed in the following manner.



There is a locking tab that is located on top of the Lemur-S cover



Press down on the locking tab to unlock and slid cover back a little.



With two hands slide the cover completely off.

**The cover may be installed in the following manner:**

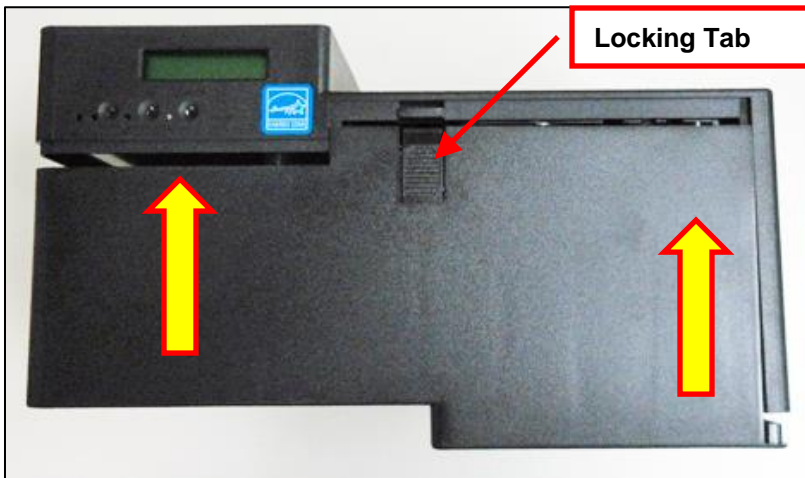
1. Partially install the cover onto the printer.



2. Ensure the cover is properly aligned with the cabinet.



3. Once aligned slide the cover until place until the locking tab locks.



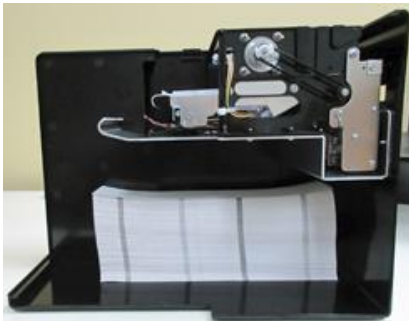
# 4.0 Installation

The [Lemur series printer](#) was designed to be mounted either on a desktop or shelf (horizontal model) or vertically in a counter top (see [Appendix B](#) for installation of vertical printers). Lemur-S model printer is not able to be mounted vertically.

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

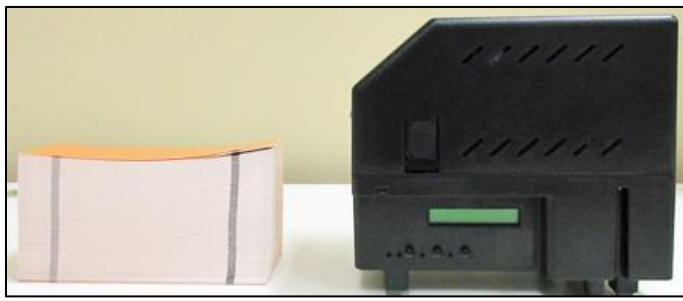
- Lay the printer flat on a counter top. On a Lemur-S model printer you will need to remove the side cover.
- Attach the AC cord and interface cable into the proper connectors. The printer is designed to be connected to only one interface port at a given time. The printer should not be operated with two interface ports being used at the same time.
- Install ticket hopper (if applicable) to catch the tickets. Lemur series printer without a cutter won't have a ticket hopper.
- Recommend that the stack of paper stock 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.
- For Lemur or Lemur-K printer place the media directly behind the printer and in line with paper path. For Lemur-S place the media inside the printer. You will need to make sure the media has the proper orientation.

- **Lemur-S**



**Media against side wall**

- **Lemur or Lemur-K**

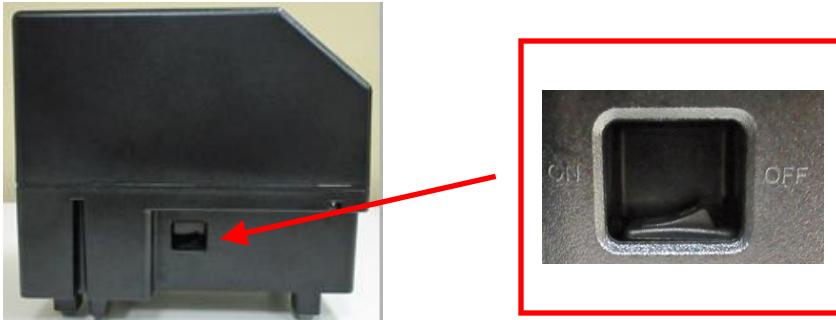


- Turn power on.
  - **Lemur-S**





- Lemur or Lemur-K



- The LCD (if so equipped) will display PAPER OUT and the red CHECK PAPER led will be illuminated. You will hear the cutter motor cycle if the printer contains a cutter.



- Begin loading tickets into the paper guide entrance slot with a smooth motion until the printer takes the media and automatically positions it. See section [6.0 Media Load Procedure](#).

**NOTE:** You want to make sure that the black timing mark is in the correct location before loading the tickets into the paper path. See [www.bocasystems.com/tickets\\_specs.html](http://www.bocasystems.com/tickets_specs.html) for black mark layout specs.

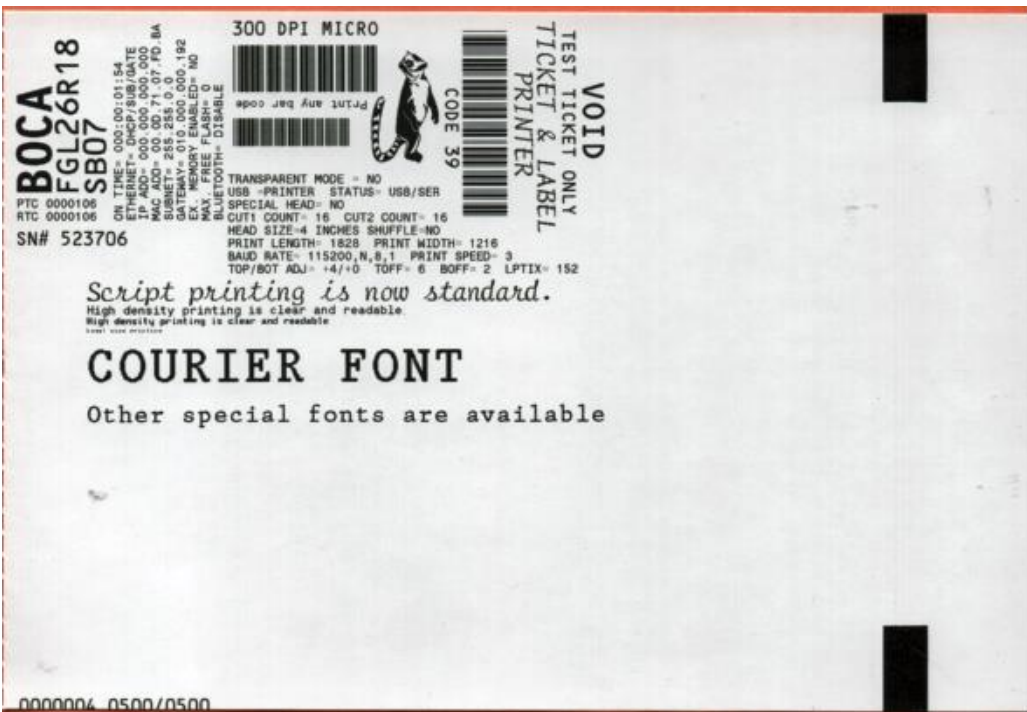
- After the ticket is automatically positioned (the green READY led will be illuminated), press the TEST button located on the control panel to print a test ticket. The next page shows sample self-test ticket printouts.



- 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 F](#))

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. Please do not prevent the ticket hopper (horizontal models) from operating by touching tickets during the printing cycle.

[Appendix N – LEMUR-K MOUNTING](#) provided the location of the two mounting holes on the bottom of the printer that may be used to installed said model printer into a kiosk.



Above sample was printed on a 4" x 6" ticket using a 300dpi FGL protocol printer.



Above sample was printed on a 2" x 5.5" ticket using a 200dpi FGL protocol printer.



Above sample was printed on a 2" x 5.5" ticket using a 300dpi PCL protocol printer.

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

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## 5.0 Media Supply

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

- **Align printer with media** – The media fan-fold stack or must 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 Media Width Adjustment](#) section provides a visual reference of this.
- **Unobstructed media feed** – The media should not touch cable, other kiosk components, or surface other than the printer's paper guide or where the media is dispensed from.
- **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 perforations or sides.
  - Roll media must be able to turn with little or no drag, and allow the printer to smoothly pull media without jerking and stopping. Minimize roll to roll holder contact and avoid sharp contact surfaces.

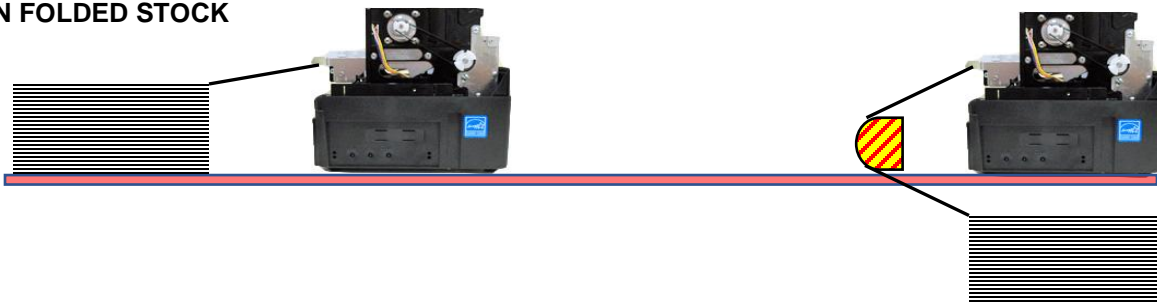
The printer can produce a distorted print (e.g., compressed print, short receipts, etc.), motor stalls, and jamming if media dispensing to the printer if the media transition is not smooth and easy for the printer.

- **Fan-folded stock 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.
- **Leading Edge** – The leading edge (first part of the media that is loaded into the printer) must have a clean edge and be as flat as possible. Media with damaged edges and are curled upward may not feed properly through the paper path.

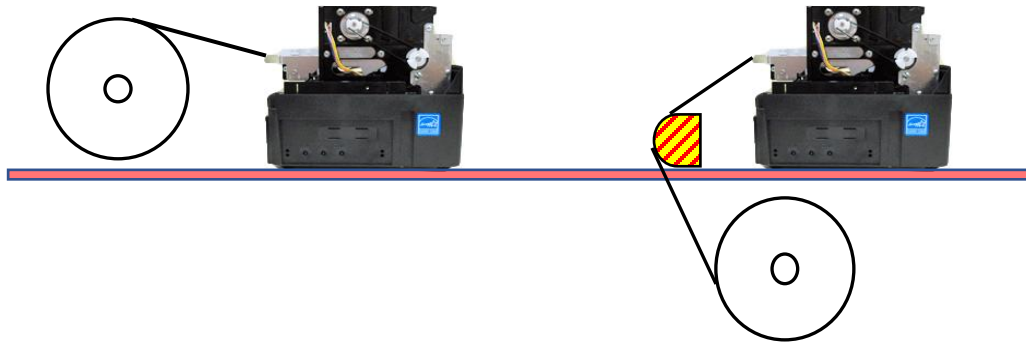
### Media Input Aperture


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. Want to have the media back far enough away to clear the cables that plug into the back of the printer.

#### FAN FOLDED STOCK



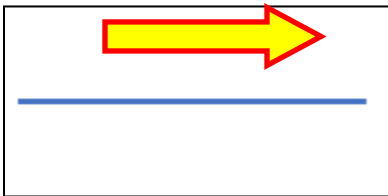
## ROLL STOCK MEDIA



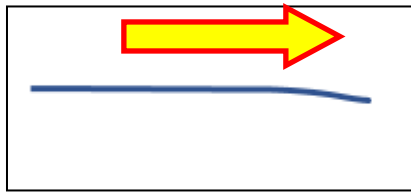
If the entrance of the media into the printer will fall below the red highlighted area shown above, then the highlighted yellow area  should have a continuous physical barrier separating the media from coming in contact with the cabling, printer body, kiosk chassis seams, etc.

## Label or Wristband Media

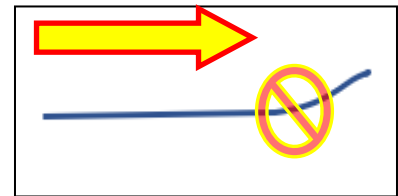
When feeding media into the printer the leading edge must be lying flat and not curled upwards. An upward curled media may not feed properly into the printer and may lead to possible ticket jams on a printer with auto cutter.



GOOD – lying flat



ACCEPTABLE – has a slight curl downward.



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

## 6.0 Media Load Procedure

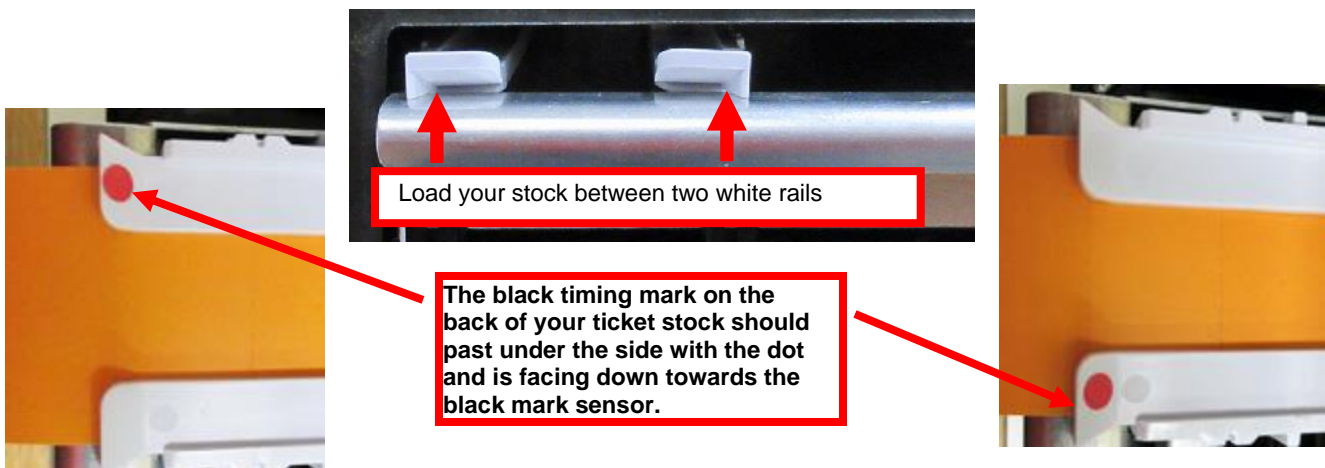
1. Turn the printer on and wait five seconds. The red CHECK PAPER led will be illuminated (if your printer has an optional LCD then it will display PAPER OUT).



**CHECK PAPER RED LED**

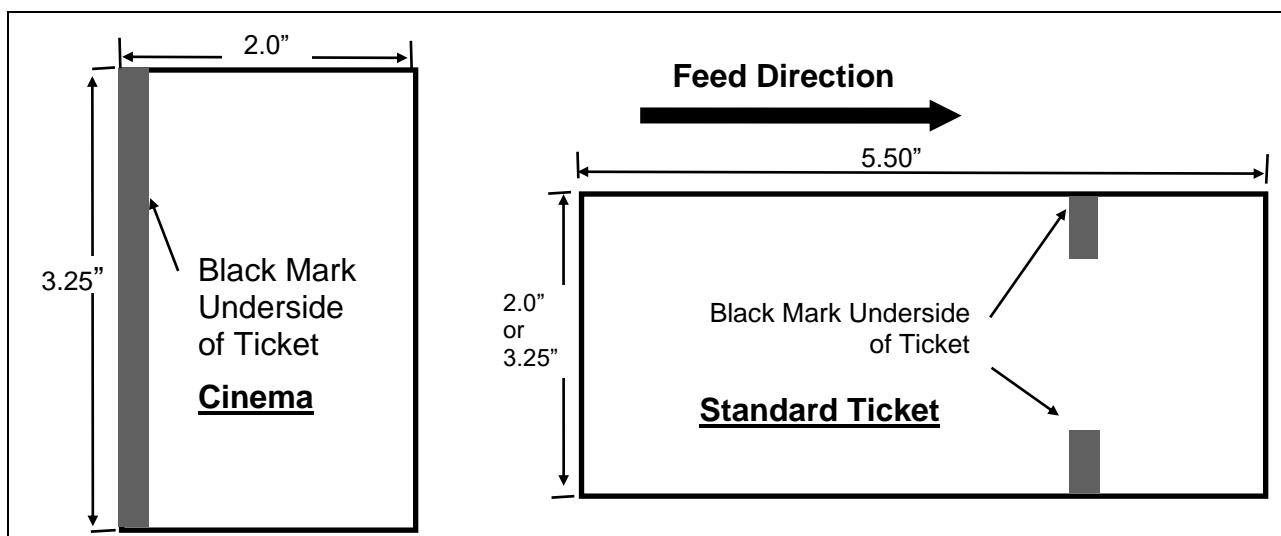
2. Begin loading the tickets through the entrance slot with a smooth motion until the ticket stock comes to a stop (at this point the stock is between the thermal head and platen). Keep pressure against the stock and the printer will automatically feed the ticket stock.

The printer will auto measure the media by feeding it forward and then retracting back into the printer. If the printer is set for Ribbon mode, then it will feed one complete label or ticket out of the printer.



**Adjustable (ADJ, ADJW & ADJ2)**

**Reverse Adjustable (RADJW & RADJ4)**



When loading 5.50" long ticket stock the black timing mark should be closest to the leading edge of the ticket (the first part that goes into the printer). When loading 2.0" long cinema ticket stock the black timing mark should be furthest away from the leading edge of the ticket (the first part that goes into the printer).

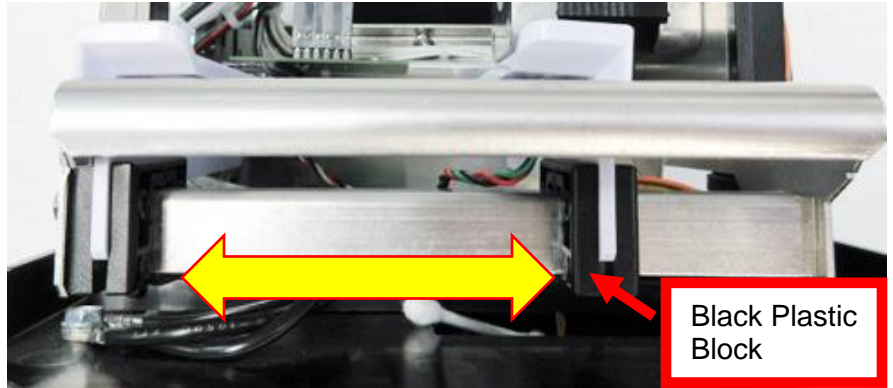
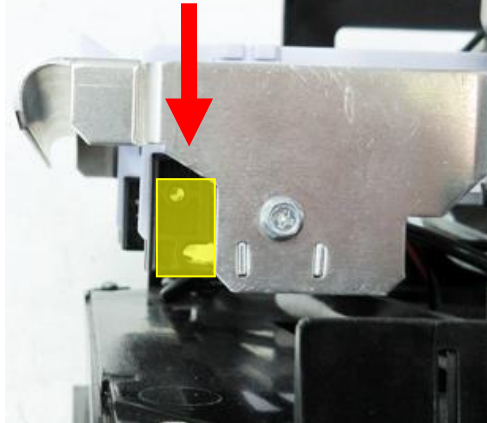
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# 6.1 Media Width Adjustment

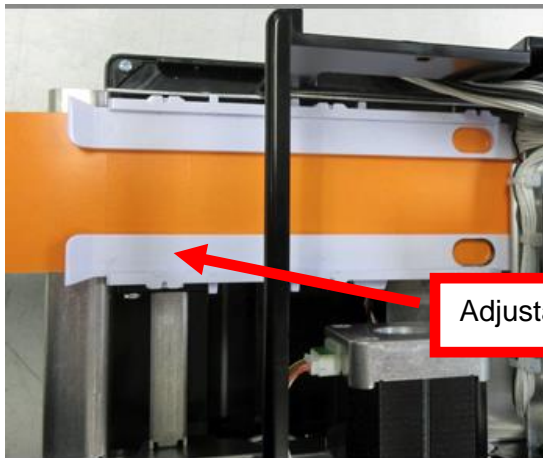
The below reviews how to adjust paper path of a Universal Paper Guide (UPG) printer for use with a different ticket width. Adjust the slider bar down to the proper ticket width, making sure the bar is not too tight against the ticket. The ticket should move freely in the paper guide path

## PLASTIC RAIL UPG

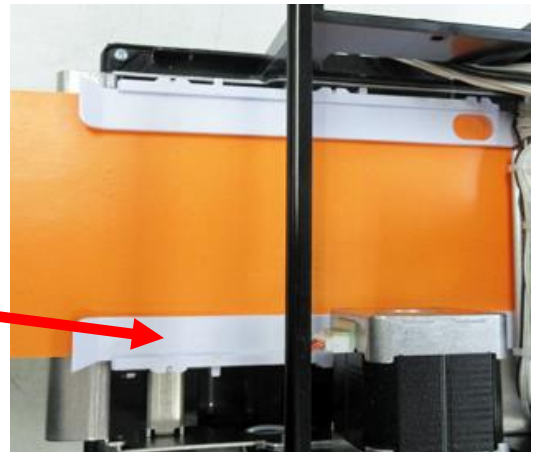
The adjustable rail may be closed by gently pushing on the black plastic block shown in the area below (highlighted in yellow).



- Open up the adjustable rail so it is a little wider than the width of the stock you intend to use.
- Insert your ticket stock into the paper guide.
- Adjust the rail down to the proper ticket width, making sure the rail is not too tight against the ticket. The ticket should move freely in the paper path.



Above shows the UPG adjusted for 2" wide media



Above shows the UPG adjusted for 3.25" wide media

**CAUTION:** If the slider bar is adjusted too tightly against the ticket stock, then it will cause the stock to buckle (see photos below). This will lead to feed or ticket jam issues. Ensure the adjustable rail is properly adjusted.



# 7.0 Configuration

The [Lemur series printer](#) is factory configured for a variety of customer requirements.

For a comparison of the different electronics packages, refer to the BOCA Systems [website](#) under the [BASIC](#) section.

For a listing of configuration choices, refer to the BOCA Systems [website](#) under the [SPECIFICATIONS](#) section.

Printers are configured with a reverse adjustable paper guide (RADJW) set to the customer's specified width or optional adjustable paper guide (ADJ4, ADJW, ADJ2 & RADJ4).

Reverse adjustable (RADJW & RADJ4) path printer is set to the customer's specified width. If this setting requires changing then the following will need to be done to ensure proper operation.

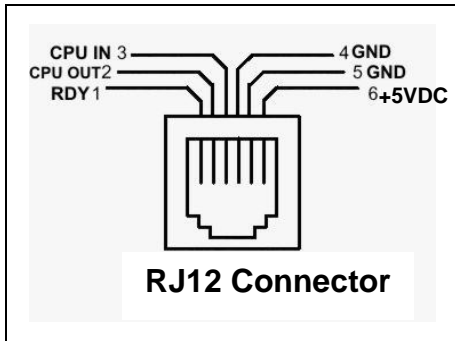
1. The paper path slider bar needs to be adjusted for the width stock being used is printer will be using a different width media than what it was originally configured for (see [6.1 Media Width Adjustment](#)).

Adjustable (ADJ4, ADJW & ADJ2) paper path printer may leave the factory with the slider bar set to its widest setting (ADJ4 = 4", ADJW = 3.25" & ADJ2 = 2"). Please check to make sure the paper path slider bar is properly adjusted for the width stock being used. (See [6.1 Media Width Adjustment](#)).

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# 8.0 Standard Interface Pinouts

## RJ12 Serial Connection



### TYPICAL DB9 to RJ12 PIN CONNECTIONS

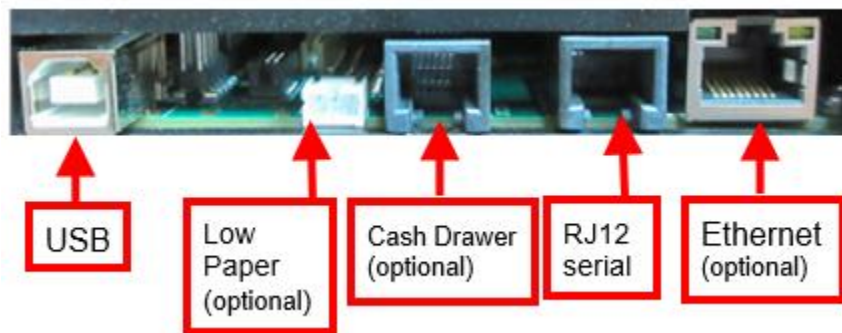
| 9 pin host | BOCA RJ12 |          |
|------------|-----------|----------|
| 2          | 2         | Transmit |
| 3          | 3         | Receive  |
| 5          | 4         | GND      |
| 6          | 1         | RDY      |
| 8          | 6         | CTS      |

**USB** USB 2.0 compliant devices.

**ETHERNET** (Optional) is a standard RJ45 Ethernet cable connection.

**WI-FI** (Optional) Support 802.11b/g/n Wi-Fi router. On dual-band router our printer needs be configured for the 2.4GHz band.

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



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# 9.0 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 inks 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. Below is a link to ticket and label materials approved by BOCA.

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

Please note that the 300 dpi grade materials may be used on 200 dpi printers. In fact, doing so will allow the user to decrease the head energy thereby increasing the electrical life of the head. DO NOT use 300 dpi heads with 200 dpi paper.

200dpi grade materials should not be used with a 300dpi print as the printout will be light.

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# 10.0 Maintenance and Adjustments

Your ticket printer is solidly constructed and has been designed for high volume use. It 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, including part alignments, adjustment and replacement.

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

- Paper guide and print head assembly
- Cutter assembly
- Logic board assembly

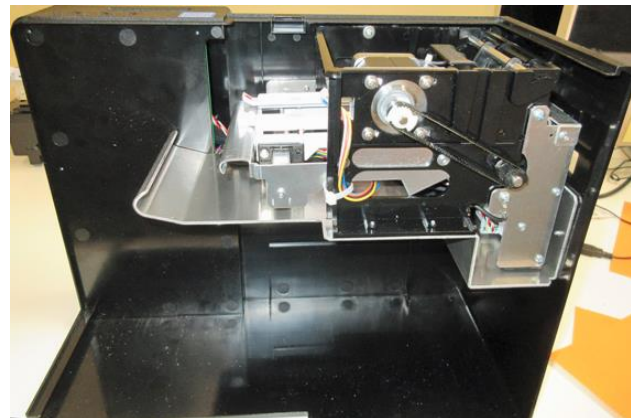
**As a safety precaution, all service to the printer should be done by [qualified persons](#) with power off and the AC cord unplugged from the printer. Following any procedure requiring the removal of covers and/or doors, please verify that they have been properly attached and fastened prior to operating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

## 10.1 Paper Guide and Print Head Assembly

The principal function of this assembly is to guide the ticket stock to the thermal print head where thermal printing takes place. Additionally, this assembly houses the drive platen and ticket positioning sensors. If necessary, the total assembly may be removed from the unit. All replacements and adjustments of the components on this assembly may be done without removing the total assembly. The most common adjustments and replacements regarding this assembly follow:



Above is a Lemur



Above is a Lemur-S

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

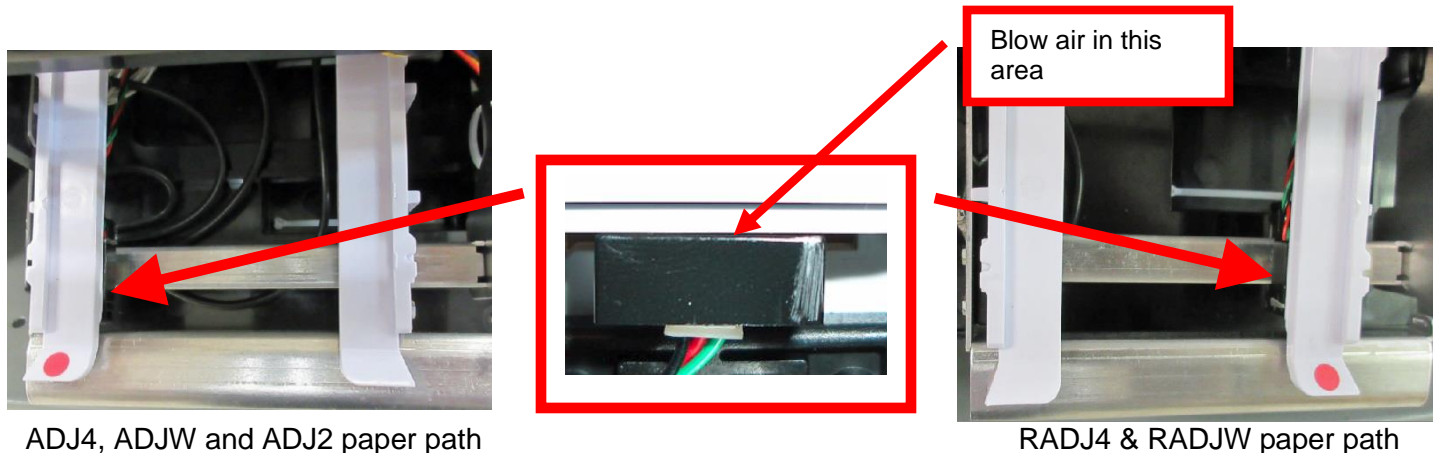
See following link: <https://www.bocasystems.com/documents/LemurMaintenance.pdf>

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## 10.1.1 Black Mark Opto Sensor

There is an optical sensor (cut/ tear opto) mounted on white plastic rail that senses the black timing mark on the ticket stock. This sensor controls the cut or tear position of the media. The sensor may be on either side of the paper path depending on printer's configuration. The sensor position is factory set and adjustment should not be necessary.

**Once a year the opto eye should be blown off with air.** This interval will vary depending upon the environment and the quality of the ticket stock.



Note: Before making any opto adjustments make sure your ticket stock was manufactured to proper [ticket specifications](#).



To adjust the cut or tear position, physically adjust the opto mounting bracket 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 Lemur without auto cut the ticket perforation should line up with the edge of the cabinet or top plate.

You may need to remove the ticket stock in order to physically adjust the black timing mark sensor (opto).

Minor adjustments (no greater than 3/16") to the cut or tear position may also be done via the control panel (if applicable) by changing the INC/DEC CUT1/2 settings. (See [Appendix A](#)). For a 200dpi printer the INC value should not exceed 38. For a 300dpi printer the INC value should not exceed 55. Going beyond these values will cause reliability issues.

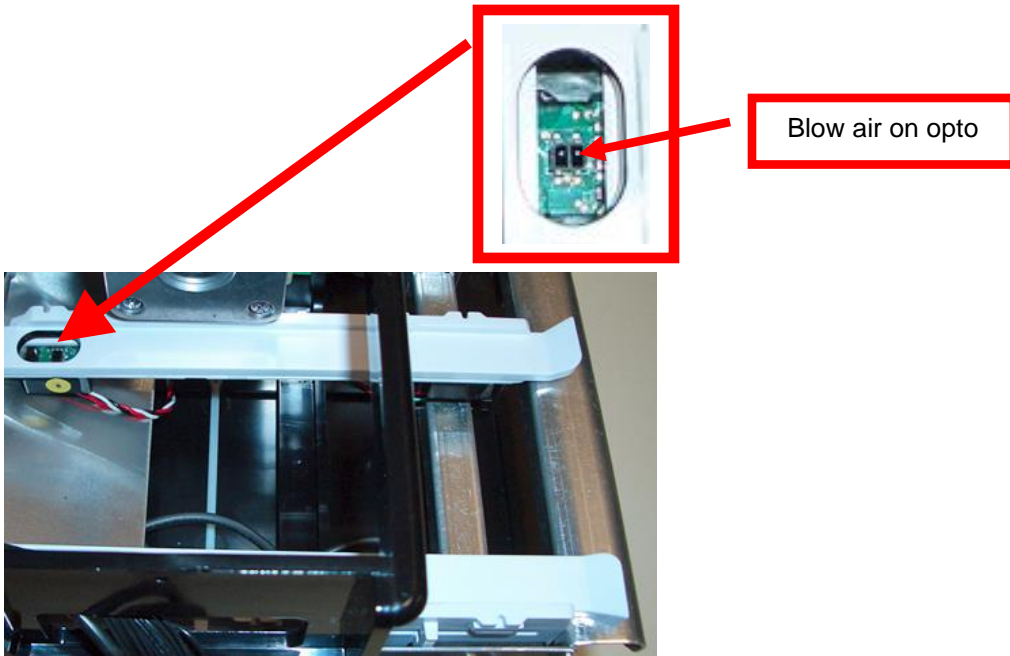
If you are not able to get the desired cut position, make sure your ticket stock was manufactured to proper specifications.

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## 10.1.2 Load Opto Sensor

The load opto sensor is responsible for letting the printer know when it has media loaded into it in the printer. The sensor will be located towards near the platen rubber roller and may be on either side of the paper path depending on printer's configuration.

**Once a year the opto eye should be blown off with air.** This interval will vary depending upon the environment and the quality of the ticket stock.



The load sensor as a yellow dot on the side of it.

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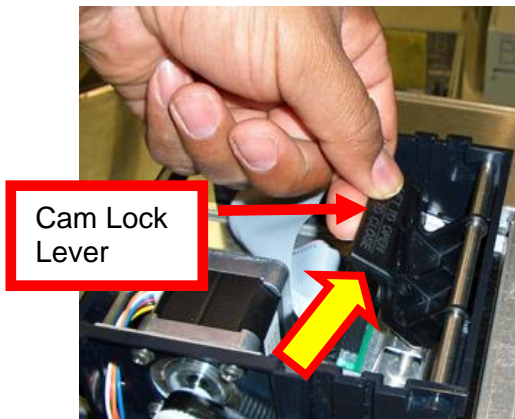
## 10.1.3 Thermal Print Head

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 its heat properly.

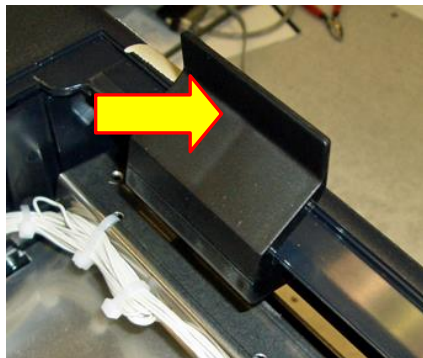
The follow needs to be done with the printer powered off and unplugged from the AC source.

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

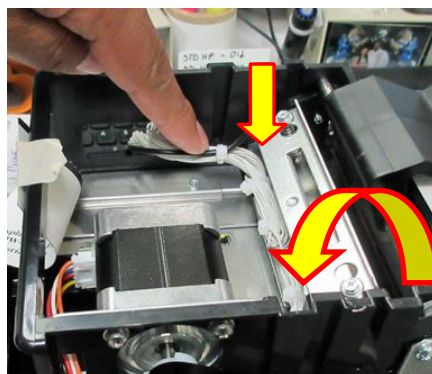
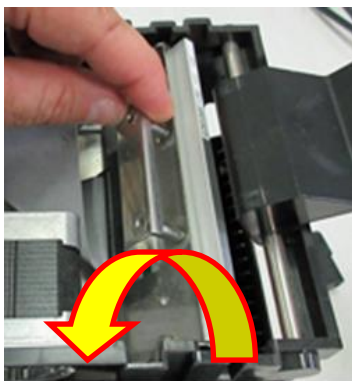
1. Make sure power is off and the AC cord is disconnected from the printer.
2. **DO NOT UNPLUG CABLE FROM PRINT HEAD.**
3. Lift up the cam lock assembly (located above the head mounting plate) to remove pressure from the thermal head.



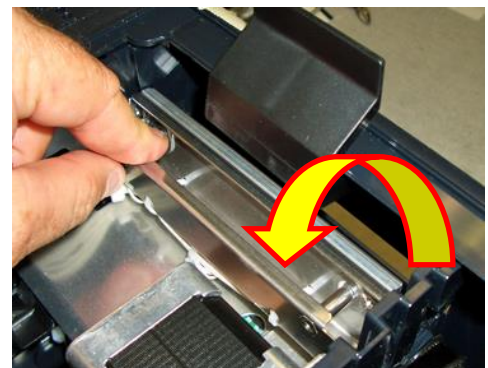
4. Position the cam lock lever as far forward as possible.



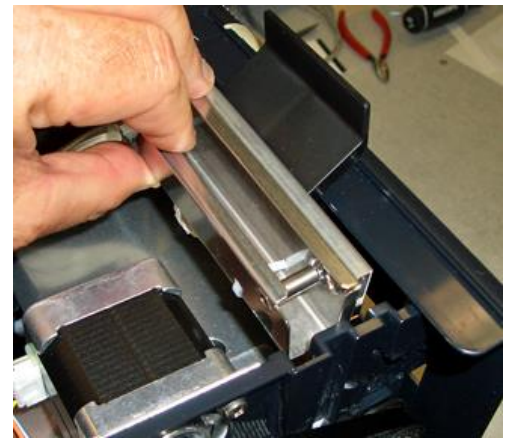
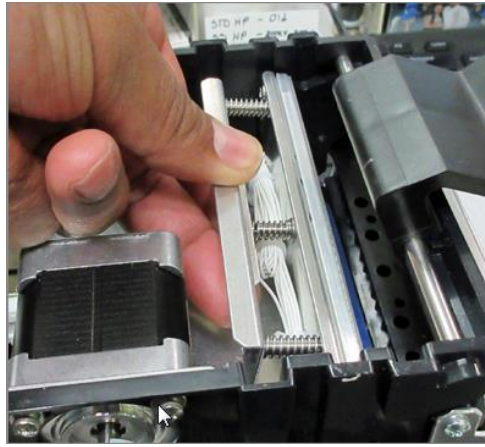
5. Flip the head back toward the rear of the printer. Denote what slot the print head was taken out of. Below photos show the different types of head mounting plates used through the production history of the Lemur series printers.



Pushing down on the head cable will aid in flipping the head plate.



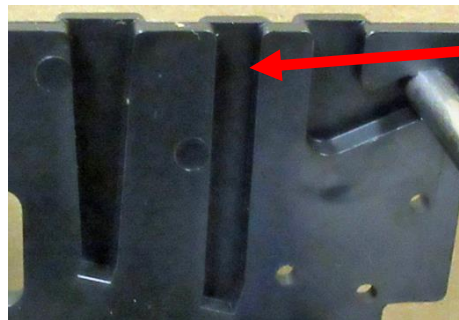
6. Lift the print head mounting pl



7. Clean the thermal print head surface (the side that makes contact with the paper) with isopropyl alcohol & paper towel.



8. Install the head mounting plate by reversing the above procedures. Make sure the print head mounting plate tabs are in the correct print cage slots.



9. Restore pressure to the head by pushing down on the cam lock assembly.
10. The printer is now ready for operation. If the print quality is still poor then the thermal head needs to be replaced. See section [10.1.4 THERMAL PRINT HEAD REPLACEMENT](#)

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## 10.1.4 Thermal Print Head Replacement

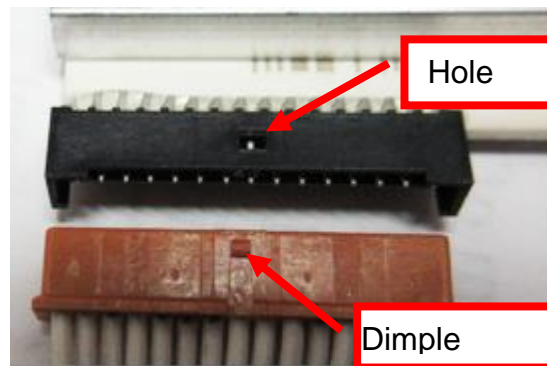
Below reviews how to replace the thermal print head in your printer. Different type of print heads is used due to manufacture date, dots per inch (DPI) and size. A DPI of a printer may be determined by taking a look at the Width and DPI area of the printer's serial number tag. See [Print Head Guide](#).

The follow needs to be done with the printer powered off and unplugged from the AC source.

1. Remove the print head mounting plate from the printer as shown in previous section dependent on the type of printer and head mounting plate the printer has.
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 screw.



3. Gently unplug the cable from the old print head and plug it into the new print head. If your 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.**



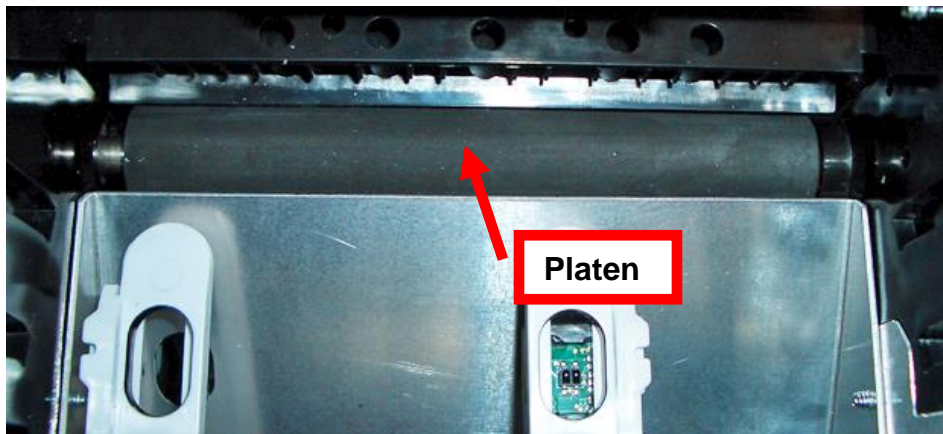
4. Install the print head back onto the print head mounting plate.
5. Install the head mounting plate/ thermal head back into the printer.

## 10.1.5 Platen

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.)

The follow needs to be done with the printer powered off and unplugged from the AC source.

1. Make sure power is off and the AC cord is disconnected from the printer
2. Unlock the cam lock lever and remove head mounting block/ plate. (Refer to section [10.1.3 Thermal Print Head](#)).
3. Apply a small amount of Isopropyl alcohol onto a paper towel to clean the rubber roller. Only clean the area where the platen makes contact with the media.
4. Clean only the part of the rubber roller where the ticket stock makes contact with.
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. Install the head mounting block/ plate and lock the cam lock lever back in place. Printer in now ready for normal operation.



Platen size and color may vary from what is shown in the photos.

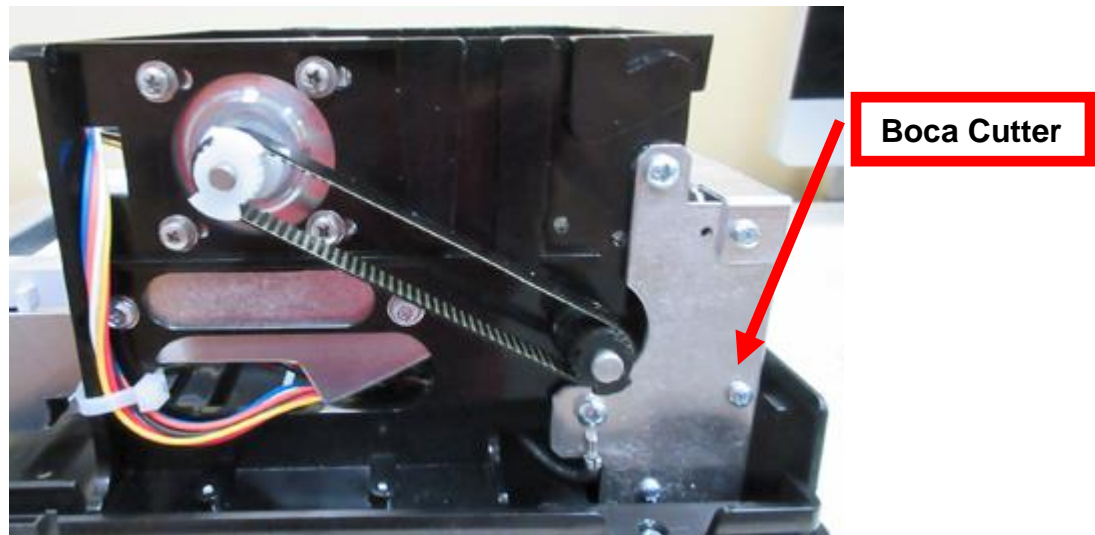
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## 10.2 Cutter Assembly

The BOCA cutter system is a fully integrated cutter knife mechanism powered by a stepper motor. The cutter requires no adjustments and is rated for approximately 750,000 cuts. Please be aware of the following:

- Wait five seconds before feeding ticket stock into the printer after power up. During this time the cutter knife will move up and down. If ticket stock is fed into the printer before five seconds, a ticket jam could occur.
- The cutter area where the tickets exit the printer should be blown out with air periodically to prevent debris from building up inside the cutter area. The required cleaning interval varies greatly depending on the quality of the ticket stock and the amount of paper dust entering the cutter area.
- If the printer will be used with ticket stock that has a thickness greater than .008" then the cutter speed needs to be changed to SLOW. Please contact [BOCA](#) for documentation to make this change. If the cutter speed is not changed to SLOW, then the printer will not work reliably with said stock.



## 10.3 General Cleaning

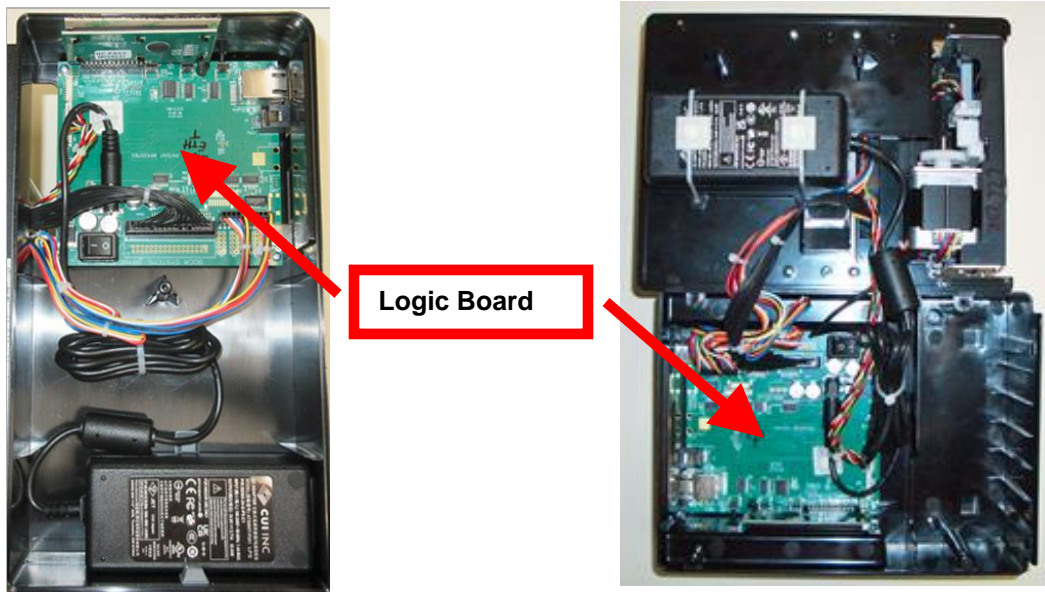
The interior of the printer should be cleaned whenever there is a visible accumulation of dust. Use a small vacuum for cleaning. Be careful not to jar any of the printer's parts loose.

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# 11.0 Logic Board

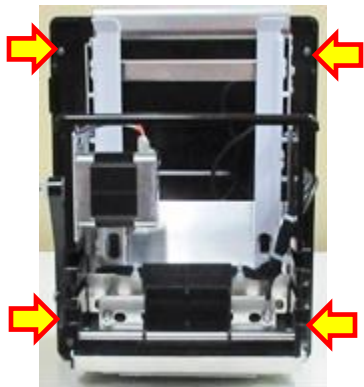
The printed circuit boards used in this product have been manufactured using surface mount technology. These printed circuit boards cannot be effectively repaired in the field and should be returned to the manufacturer if repair is required.

**Warning: ALL SERVICE SHOULD BE DONE WITH POWER OFF AND THE AC CORD UNPLUGGED FROM THE PRINTER.**



## 11.1.1 Logic Board (Removal)

1. Gain access to the logic board. This is normally done by removing the electronics cover or rear access panel.
  - a. Lemur & Lemur-K - Remove 4 Philip head screws.
  - b. Lemur-S (plastic cabinet) – Remove 1 Philip head screw.



Lemur



Lemur-S

2. Denote where all the cables are plugged into the logic board.
3. Unplug connectors connected to the main logic board.
4. Remove the four philip head screws that secure the logic board onto the cabinet.
5. Lift board and remove.

## 11.1.2 Logic Board (Installation)

1. Installed the logic board into the printer.
2. Install the four Philip head screws that hold the logic board onto the cabinet and tighten.
3. Attach connectors going to the main logic board.
4. Install the electronics cover or rear access panel.

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# 12.0 Spare Parts List

| Item # | Part Number          | Description   |
|--------|----------------------|---|
| 1      | 422590-C             | Stepper Motor with 20 teeth press fit pulley  |
| 2      | P50-1017             | Drive Belt, 98T (for 200dpi)  |
| 2*     | P50-1003             | Drive Belt, 102T (for 300dpi)   |
| 3 (1)  | 423760-L4B-1-200-u   | Platen for 200 dpi UPG paper guide complete (.624 shoulder)   |
| 3 (1)  | 423760-L4B-1-300-u   | Platen for 300 dpi UPG paper guide complete (.624 shoulder)   |
| 3 (1)  | 423760-L4B-200-UADJ2 | Platen for 200 dpi UPG ADJ2 paper guide complete (.624 shoulder)  |
| 3 (1)  | 423760-L4B-300-UADJ2 | Platen for 100 dpi UPG ADJ2 paper guide complete (.624 shoulder)  |
| 3 (1)  | 423760-L3B-1-200-p   | Platen (UPG-R paper path) complete for 200dpi for plastic print cage only   |
| 3 (1)  | 423760-L3B-1-300-p   | Platen (UPG-R paper path) complete for 300dpi for plastic print cage only   |
| 4      | 424008-U             | Cutter Assembly (BC5) all model Lemurs with UPG paper guide (Don't include metal side plates) JST connector optos |
| 5      | AC161A5              | LCD Display   |
| 6      | 423793               | Energy Star Decal   |
| 7      | 423625               | Rubber Feet (all printers except Lemur-K)   |
| 8      | 423192               | Ground Strap  |
| 9      | 423496-ONEL4         | Head Mounting Plate, plastic print cage ONLY (200L4 & 300L4 print heads only)                                     |
| 9A     | 423496-ONE           | Head Mounting Plate, plastic print cage ONLY (200C3 print head only)  |
| 10     | 423236P              | Take Out Head Cam Lock  |
| 11     | 423950-RET           | Bushing, Platen retainer clip for UPG platen  |
| 12     | SQ OPTO-L-U          | SQ Load Opto, printers with UPG paper path  |
| 13     | 424060               | Cable, Thermal Head (for 200L4 print head only)   |
| 13A    | 424059               | Cable, Thermal Head (for 300L4 print head only)   |
| 13B    | 424010               | Cable, Thermal Head (for 200C3 print head only)   |
| 14 (2) | 200L4                | Print Head (200dpi ADJ4 & RADJ4) 2L on s/n tag  |
| 14A(2) | 300L4                | Print Head (300dpi ADJ4, RADJ4, AJDW, ADJ2, RADJW) 3L on s/n tag  |
| 14B(2) | 200C3                | Print Head for 2C printers only   |
| 15     | SQ OPTO-U            | Opto Detector Assembly (opto) UPG paper path printers   |
| 16     | 423938-JST-BJ        | DC Harness, cutter for <b>JST sensor connectors for logic board w/ JDC JST connector</b>                          |
| 17     | BR46-E               | Main Logic Board (Ethernet option) software ID of BR##  |
| 17*    | BR46                 | Main Logic Board (Standard) software ID of BR##   |
| 17*    | BR46-2C              | Main Logic Board (PRINTER W/ 2C PRINT HEAD ONLY) software ID of BR##  |
| 17*    | BR46-E-2C            | Main Logic Board – Ethernet (LEMUR-R OR PRINTER W/ 2C P.H.) software ID of BR##                                   |
| 17*    | BR46-BT              | Main Logic Board – (Bluetooth/Wi-Fi option) software ID of BR##   |
| 17*    | BR46-E-BT            | Main Logic Board – (Ethernet & BT/Wi-Fi option) software ID of BR##   |
| 17*    | BR46-RFID            | Main Logic board – (RFID option) software ID of BR##  |
| 17*    | BR46-RFID-E          | Main Logic board – (RFID option & Ethernet) software ID of BR##   |
| 17*    | BR46-E-600           | Main Logic Board – Ethernet (600dpi print head) software ID of BR##   |
| 18     | 423952-B-20PT        | Cabinet, Lemur-S  |
| 19     | 424009-L             | Power Supply 24VDC (65W)  |
| 20     | 420880-CB-EXT        | Printer Mounting Plate (including 65W power supply)   |
| 21     | 420880-EXT           | Cabinet, Lemur  |
| 22     | 423480C              | Upper Exit Deflector ONLY BC5 horizontal & vertical printer   |
| 23     | 422718WV             | Anti-Static Brush (only) for both horizontal and vertical printers  |
| 24     | 423480C-C            | Upper Exit Deflector BC5 horizontal (complete w/ static brush)  |
| 25     | 423829-1             | Mylar only, (BC5) vertical lemur  |
| 26     | 423480C-VL           | Upper Exit Deflector BC5 vertical (complete w/ brush & Mylar)   |
| 27     | 423485-VL            | Lower Exit Deflector (vertical mount Lemur & Lemur-R)   |
| 28     | 424102LP-C           | Rail UPG, left side complete (std opto)   |
| 29     | 424102RP-C           | Rail UPG, right side complete (std opto)  |
| 30     | 424102LP-TOP-C       | Rail UPG, left side complete (top opto)   |
| 31     | 424102RP-TOP-C       | Rail UPG, right side complete (top opto)  |
| 32     | 423825-4x6           | Hopper, (4" x 6") Plastic   |
| 33     | 420881-EXT           | Cover, Lemur  |
| 34     | 423952-C-2A          | Board Cover   |
| 35     | 423952-C-20PT        | Cover, Lemur-S  |
| *      | 423824BF-3           | Driver Pulley, 30T (for 300dpi) press fit (for distributors only)   |
| *      | 423824BF-2           | Driver Pulley, 20T (for 200dpi) press fit (for distributors only)   |
| *      | 423824BF-1           | Driver Pulley, 20T press fit Stepper motor (for distributors only)  |
| *      | P19-1000             | Cable, AC cord 110VAC (US)  |
| *      | 423855               | Cable, AC cord 220VAC (European)  |
| *      | 423856               | Cable, AC cord 220VAC (UK)  |
| *      | 423963               | Cable, AC cord 220VAC (Australia)   |
| *      | 423765               | Cable External, serial DB9 TO RJ12  |
| *      | 423846               | Cable External, USB   |
| *      | 423923               | Fill-in plate, Display (for plastic electronics box)  |
| *      | 421421Z-P            | Top Plate, vertical Lemur (8.70" x 9.64") Plastic cabinet Lemur   |
| *      | 421421Z-PNC          | Top Plate, vertical Lemur (13.00" x 9.48") Plastic cabinet Lemur  |
| *      | 421421Z-P-PA         | Top Plate, vertical Lemur (10.25" x 10.25") Plastic cabinet Lemur   |

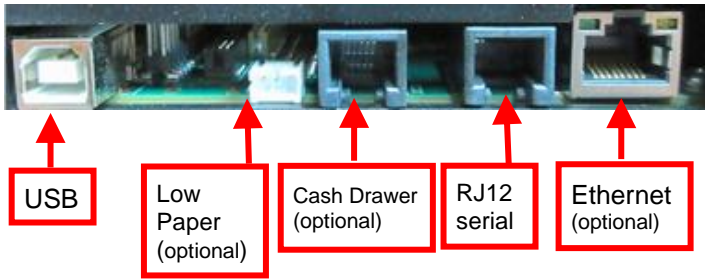
\* Customer dependent and not shown in photos

Denotation numbers:

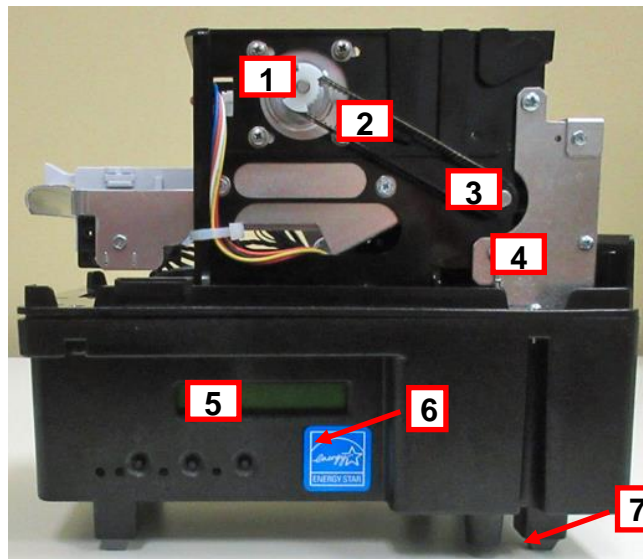
(1) See [Platen Guide](#)

(2) See [Print Head Guide](#)

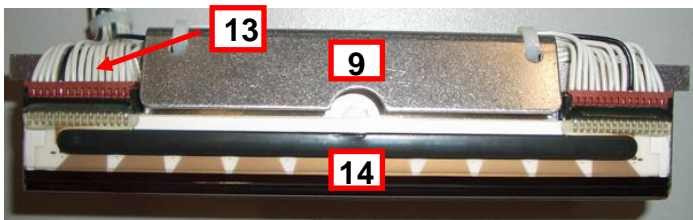
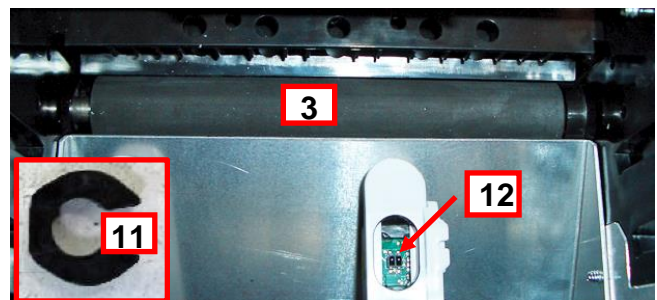
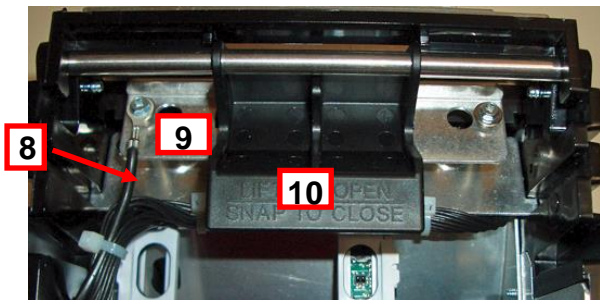
Below is a BR46 board



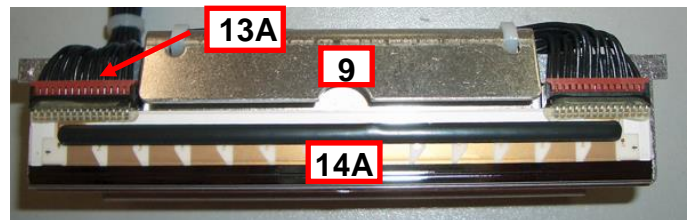
The same paper guide assembly is used in the Lemur, Lemur-K and Lemur-S model printers.



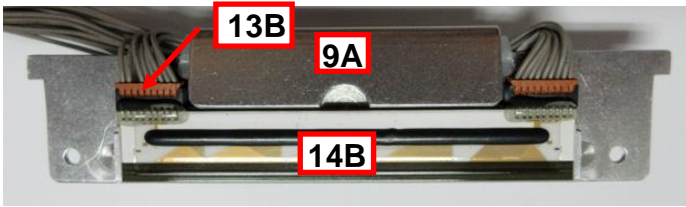
Above is Lemur with optional cutter and LCD display



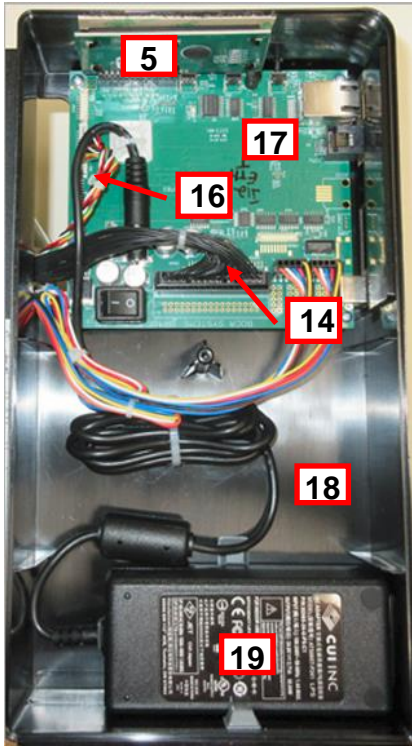
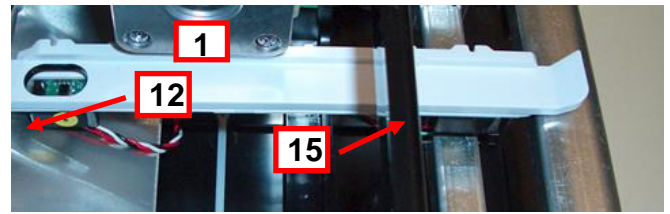
200 DPI Print Head (200L4)



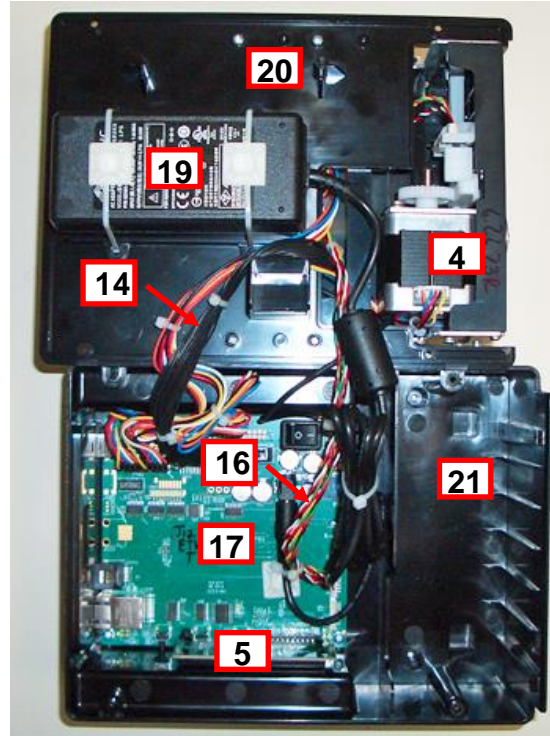
300 DPI Print Head (300L4)



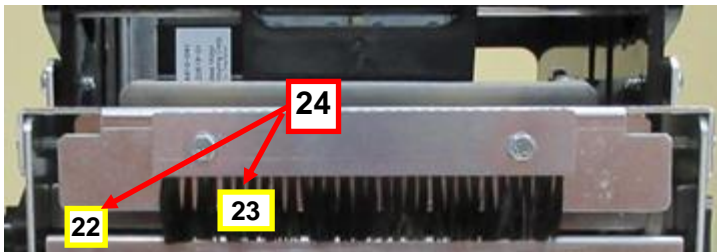
2C Print Head (200C3)



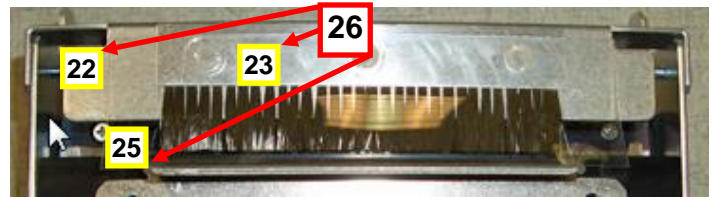
Lemur-S



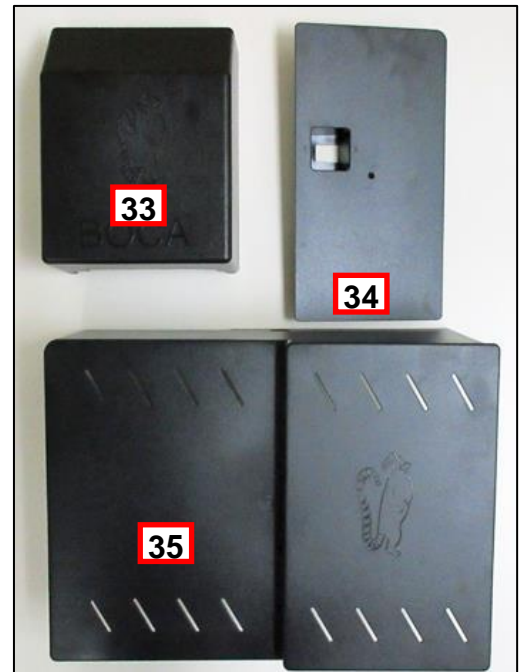
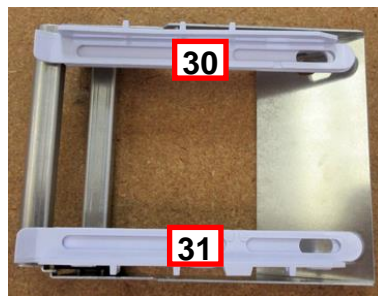
Lemur or Lemur-K



Horizontal Cutter



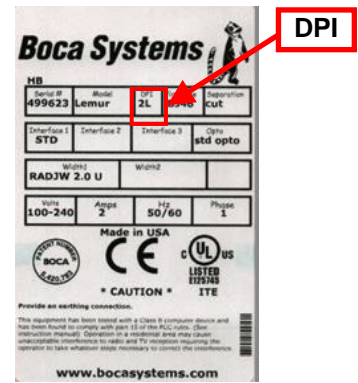
Vertical Cutter



## Print Head Guide

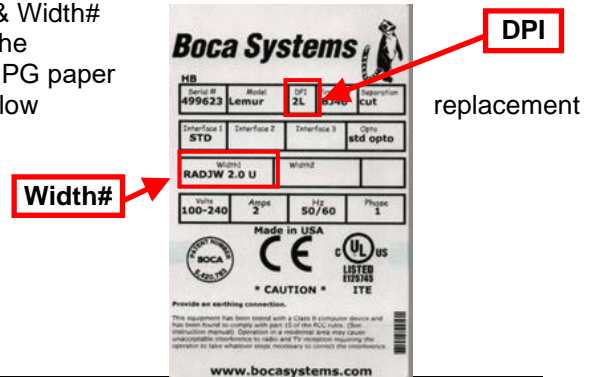
A DPI of a printer may be determined by taking a look at the DPI area of the printer's serial number tag. The below chart should aid in determining the correct print head to order.

| Width           | DPI | Print head p/n |
|-----------------|-----|----------------|
| Does not matter | 3L  | 300L4          |
| Does not matter | 2L  | 200L4          |
| UPG-R           | 2C  | 200C3          |



## Platen Guide

Platen type of a printer may be determined by taking a look at the DPI & Width# area of the printer's serial number tag. In the above example you see the letter "U" at the end of the Width# ID. This indicates the printer has a UPG paper guide. The platen currently in the printer may look different than the below platen photos.



| PLASTIC PRINT CAGE UNIVERSAL PAPER GUIDE (UPG)                    |       |                      |  |
|---|-------|----------------------|--|
| ADJ4, ADJW, RADJ4, RADJW<br>(There will be a letter U at the end) | 2L    | 423760-L4B-200-U     |  |
| ADJ4, ADJW, RADJ4, RADJW<br>(There will be a letter U at the end) | 3L    | 423760-L4B-300-U     |  |
| ADJ2<br>(There will be a letter U at the end)                     | 2L    | 423760-L4B-200-UADJ2 |  |
| ADJ2<br>(There will be a letter U at the end)                     | 3L    | 423760-L4B-300-UADJ2 |  |
| RADJW<br>(There will be letters UR at the end)                    | 2C/2L | 423760-L3B-1-200P    |  |
| RADJW<br>(There will be letters UR at the end)                    | 3L    | 423760-L3B-1-300P    |  |

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# 13.0 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/onlinesupportform.html](http://www.bocasystems.com/onlinesupportform.html)

1. NO OPERATION, LED'S DON'T LIGHT UP UPON POWER UP
  - a. Power the printer off and wait 30 seconds then power it back on.
  - b. Check the power cord for proper installation at both ends.
  - c. Check that there is power at the AC outlet.
  - d. 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 [6.0 Media Load Procedure](#).
  - b. Perform routine maintenance (<https://www.bocasystems.com/documents/LemurMaintenance.pdf> ).
  - c. Contact your system provider or [BOCA](#) for further assistance.
  
3. POWER IS ON BUT TICKET WILL NOT LOAD
  - a. See # 2
  - b. Make sure the print head/cam lock assembly is fully locked in the closed position.  
Consult "[10.1.3 Thermal Print Head](#)" section.
  - c. Check that the media is being loaded correctly. Consult "[Installation](#)" section.
  - d. Perform routine maintenance (<https://www.bocasystems.com/documents/LemurMaintenance.pdf> ).
  - e. Contact your system provider or [BOCA](#) for further assistance.
  
4. ERRATIC CUT POSITION
  - a. Perform routine maintenance (<https://www.bocasystems.com/documents/LemurMaintenance.pdf> ).
  - b. Check for defective media. Try a differ stack of tickets.
  - c. Default printer settings. With 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).
  - d. Contact your system provider or [BOCA](#) for further assistance.
  
5. ERRACTIC PRINT POSITION
  - a. See # 4
  
6. CUTTER KNIFE DOES NOT MOVE (if equipped)
  - a. Check for blockage in the cutter area.
  - b. Default printer settings. With the printer powered off hold down the TEST button and then power up the printer. Keep the TEST button held down for ten seconds and release (the printer will reset).
  - c. Contact your system provider or [BOCA](#) for further assistance.
  
7. POOR PRINT OUT (light print out)
  - a. Check for defective media. Try a differ stack of tickets.
  - b. Make sure the print head/cam lock assembly if fully locked in the closed position.
  - c. Clean print head. Consult "[Thermal Print Head](#)" section.
  - d. Adjust print intensity setting via the control panel (if equipped). (see [Appendix A](#))
  - e. Replace thermal head ( [9.1.4 Print Head Replacement](#) ).
  - f. 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.
  - b. Contact your system provider or [BOCA](#) for further assistance.

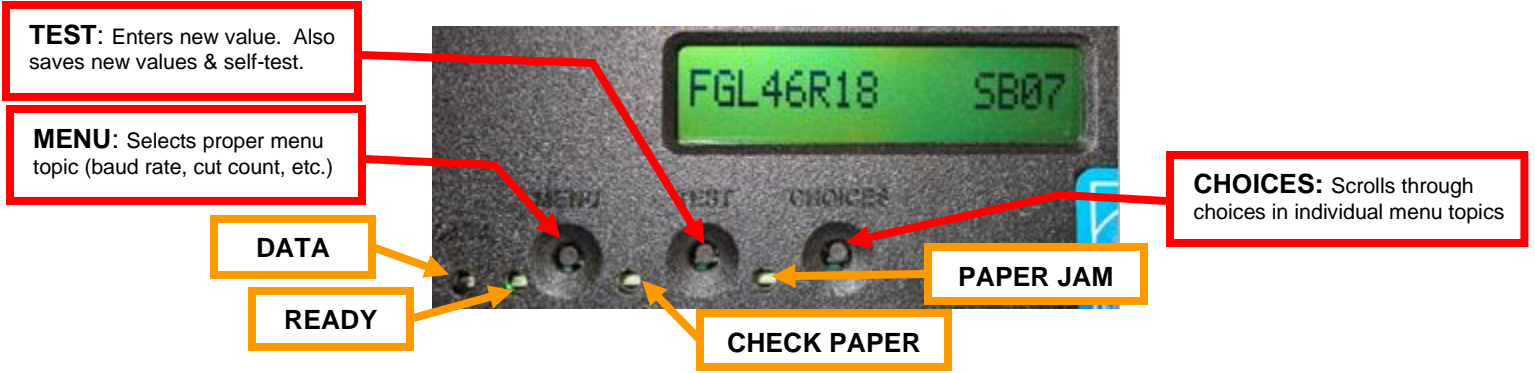
9. NO PRINT OUT
  - a. Check for defective media. Try a differ stack of tickets.
  - b. Check head cable for electrical connection at both ends
  - c. Check to make sure head cable is plugged in properly into the thermal head.
  - d. Perform routine maintenance (<https://www.bocasystems.com/documents/LemurMaintenance.pdf> ).
  - e. Replace the thermal head ([9.1.4 Print Head Replacement](#)).
  - f. Contact your system provider or [BOCA](#) for further assistance.
  
10. PRINTER SKIPS TICKETS WHILE PRINTING
  - a. Check for defective media. Try a differ stack of tickets.
  - b. Perform routine maintenance (<https://www.bocasystems.com/documents/LemurMaintenance.pdf> ).
  - c. Default printer settings. With the printer powered off hold down the TEST button and then power up the printer. Keep the TEST button held down for ten seconds and release (the printer will reset).
  - d. Contact your system provider or [BOCA](#) for further assistance.
  
11. PRINTER SKIPS TICKETS 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. Perform routine maintenance (<https://www.bocasystems.com/documents/LemurMaintenance.pdf> ).
  - c. Contact your system provider or [BOCA](#) for further assistance.
  
13. ETHERNET WILL NOT CONNECT
  - a. When the Ethernet cable in connected to the printer. The Ethernet connector: Green LED should be illuminated and the yellow LED 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 to 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.
  - c. Default printer settings. With the printer powered off hold down the TEST button and then power up the printer. Keep the TEST button held down for ten seconds and release (the printer will reset).
  
13. 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.
  - c. On initial setup, have the printer as close as possible to the Wi-Fi router.
  - d. 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.
  - e. 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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# APPENDIX A - CONTROL PANEL

The FGL46 printers allow the user to adjust various printer options through the optional control panel. To access the control panel menu, press both **MENU** and **TEST** switches simultaneously for about 3 seconds. The LCD will display the **“OPERATOR MENU!”** message to indicate that it has entered the control panel menu mode. Once in this mode, please use the following steps in the manner indicated to choose the proper menu topic and to select the proper setting.



The printer has four led lights on the control panel. All led will illuminate briefly after power up.

- **DATA** – This led will only illuminate green when the printer is receiving data
- **READY** – This led will illuminate green when the printer is ready. This led will be off if the printer is not ready.
- **CHECK PAPER** – This led will only illuminate red when the printer is out of paper.
- **PAPER JAM** – This led will only illuminate red when there is a paper jam.

### To access and use the OPERATOR MENU, follow these steps:

1. Ticket stock should be loaded into the printer. The LCD window displays **FGL46R# - SB#** (# - number value depends on revision level; G represents the software series level; B# is the font)
2. Press both **MENU** and **TEST** switches simultaneously for about 3 seconds. The LCD window displays **OPERATOR MENU**.
3. To scroll through the menu topic, use **MENU** stopping on the topic you wish to change.
4. Press **CHOICES** to scroll through choices in the selected topic. **NOTE:** The printer displays a blinking cursor for the values presently stored in the printer.
5. Once you have found the new value you want, press **TEST**. The LCD window displays **EXIT AND SAVE?** If you wish to save the new value then press **TEST** again.
6. If you do not wish to save the new value then press **MENU**. The LCD window displays **JUST EXIT?** Press **TEST** to exit the **OPERATOR MENU** without saving new values or press **MENU** to enter back into the **OPERATOR MENU**.

The chart below lists the present menu topics. These topics are subject to change.

| OPERATOR MENU    |  |
|------------------|--|
| BAUD RATE?       |  |
| MINI/MICRO?      |  |
| PRINT SPEED?     |  |
| DIAGNOSTIC MODE? |  |
| TICKET TYPE?     |  |
| STATUS ENABLED?  |  |
| TRANSPARENT MODE |  |
| PAPER MODE?      |  |
| SPECIAL HEAD     |  |
| CLEAR DOWNLOAD   |  |
| INC CUT1 COUNT?  |  |
| DEC CUT1 COUNT?  |  |
| INC CUT2 COUNT?  |  |
| DEC CUT1 COUNT?  |  |
| PRINT MODE?      |  |
| PRINT INTENSITY? |  |
| TEST TICKET?     |  |

|                  |
|------------------|
| ETHERNET?        |
| IP ADDRESS?      |
| SUBNET MASK?     |
| DEFAULT GATEWAY? |
| DNS SERVER?      |
| SPEED/DUPLEX?    |
| DEFAULT WEBPAGE? |
| REFRESH RATE?    |
| TICKET REMAIN 1  |
| TICKETS LOW1?    |
| TICKET REMAIN 2  |
| TICKETS LOW2?    |
| BLUETOOTH?       |
| BT DISCOVER MODE |
| BT RECONNECT?    |
| BT OPER MODE?    |
| WIRELESS?        |
| EXIT AND SAVE?   |
| JUST EXIT        |

The following is a brief overview of some representative Menu options:

**BAUD RATE?** Controls the serial interface baud rate, parity bit, data bits and stop bits.

Here are the following choices:

|            |            |             |              |
|------------|------------|-------------|--------------|
| 1200,N,8,1 | 4800,N,8,1 | 19200,N,8,1 | 38400,E,7,1  |
| 1200,E,7,1 | 4800,E,7,1 | 19200,E,7,1 | 57600,N,8,1  |
| 1200,O,7,1 | 4800,O,7,1 | 19200,O,7,1 | 57600,E,7,1  |
| 2400,N,8,1 | 9600,N,8,1 | 28800,N,8,1 | 115200,N,8,1 |
| 2400,E,7,1 | 9600,E,7,1 | 28800,E,7,1 | 115200,E,7,1 |
| 2400,O,7,1 | 9600,O,7,1 | 38400,N,8,1 |              |

**MINI/MICRO?** Defines the type of printer.

**MINI** Is for a printer with an auto cutter.

**MICRO** Is for a printer without an auto cutter.

**PRINT SPEED?** Controls the speed the ticket travels at. Also effects the print quality. Printer should not be run at a print speed of 0 as it may cause ticket jams. The numbers range from **0 - FASTEST** to **7 - SLOWEST**. **3 is factory default**.

**DIAGNOSTIC MODE?** Your choices are **YES** or **NO**. **NO is factory default**. (Please consult your Programming Guide)

**TICKET TYPE?** Factory setting. Do not modify.

**STATUS ENABLED?** Sets status response protocols.

|                    |  |
|--------------------|--|
| <b>NONE</b>        | Disables the XON/XOFF and status response protocols  |
| <b>SERIAL</b>      | Enables the XON/XOFF and status response protocol for the serial port.                       |
| <b>PARALLEL</b>    | Enables bi-directional parallel status responses if printer is configured as bi-directional. |
| <b>SER/PAR</b>     | Enables both bi-directional parallel and serial status responses.                            |
| <b>USB</b>         | Enables USB status responses   |
| <b>USB/SER</b>     | Enables USB and serial status responses  |
| <b>USB/PAR</b>     | Enables USB and bi-directional parallel  |
| <b>USB/SER/PAR</b> | Enables USB, bi-directional parallel and serial status responses                             |

**TRANSPARENT MODE?** **YES** (Enabled) or **NO** (Disabled). (Please consult your Programming Guide)

**PAPER MODE?** Is generally used only for test purposes. It may also be used on roll stock with no black marks on the ticket. Your choices are **YES** (Enabled) ,**NO** (Disabled) or **RECEIPT** (for Lemur-R printer only). **NO is factory default**.

**SPECIAL HEAD?** Is used when a special paper path size is installed (2.125", 2.5", 2.7"....)

Here are the following choices: **This feature is set at the factory.**

|                          |   |
|--------------------------|---|
| <b>NO</b>                | DUAL & SINGLE PATH PRINTER WITH RADW paper guide set to 3.25" & RADJ4 paper guide set to 4"<br><b>ALL UPG PAPER PATH PRINTERS</b> |
| <b>ON P1</b>             | DUAL & SINGLE PATH PRINTER ONLY ( <b>Not used for a Lemur series printer</b> )  |
| <b>ON P2</b>             | DUAL PATH PRINTER ONLY on path #2 ( <b>Not used for a Lemur series printer</b> )  |
| <b>ON BOTH</b>           | DUAL PATH PRINTER ONLY on both paths ( <b>Not used for a Lemur series printer</b> )   |
| <b>REV ADJ2 P1</b>       | DUAL & SINGLE PATH PRINTER WITH RADW or RDJW4 paper guide set to 2"   |
| <b>REV ADJ2 P2</b>       | DUAL PATH PRINTER WITH RADW or RDJW4 paper guide set to 2" on path #2   |
| <b>REV ADJ2 BOTH</b>     | DUAL PATH PRINTER WITH RADW or RDJW4 paper guide set to 2" on both paths  |
| <b>REV ADJ2.5 P1</b>     | DUAL & SINGLE PATH PRINTER WITH RADW or RDJW4 paper guide set to 2.50"  |
| <b>REV ADJ2.5 P2</b>     | DUAL PATH PRINTER WITH RADW or RDJW4 paper guide set to 2.50" on path #2  |
| <b>REV ADJ2.5 BOTH</b>   | DUAL PATH PRINTER WITH REV RADW or RDJW4 paper guide set to 2.50" on both paths   |
| <b>REV ADJ2.7 P1</b>     | DUAL & SINGLE PATH PRINTER WITH RADW or RDJW4 paper guide set to 2.70"  |
| <b>REV ADJ2.7 P2</b>     | DUAL PATH PRINTER WITH RADW or RDJW4 paper guide set to 2.70" on path #2  |
| <b>REV ADJ2.7 BOTH</b>   | DUAL PATH PRINTER WITH RADW or RDJW4 paper guide set to 2.70" on both paths   |
| <b>REV ADJ3 P1</b>       | DUAL & SINGLE PATH PRINTER WITH RADW or RDJW4 paper guide set to 3"   |
| <b>REV ADJ3 P2</b>       | DUAL PATH PRINTER WITH RADW or RDJW4 paper guide set to 3" on path #2   |
| <b>REV ADJ3 BOTH</b>     | DUAL PATH PRINTER WITH RADW or RDJW4 paper guide set to 3" on both paths  |
| <b>REV ADJ2.125 P1</b>   | DUAL & SINGLE PATH PRINTER WITH RADW or RDJW4 paper guide set to 2.125"   |
| <b>REV ADJ2.125 P2</b>   | DUAL PATH PRINTER WITH RADW or RDJW4 paper guide set to 2.125" on path #2   |
| <b>REV ADJ2.125 BOTH</b> | DUAL PATH PRINTER WITH RADW or RDJW4 paper guide set to 2.125" on both paths  |
| <b>REV ADJ3.25 P1</b>    | DUAL & SINGLE PATH PRINTER WITH <b>RADJ4 ONLY</b> paper guide set to 3.25"  |
| <b>REV ADJ3.25 P2</b>    | DUAL & SINGLE PATH PRINTER WITH <b>RADJ4 ONLY</b> paper guide set to 3.25" on path #2   |
| <b>REV ADJ3.25 BOTH</b>  | DUAL & SINGLE PATH PRINTER WITH <b>RADJ4 ONLY</b> paper guide set to 3.25" on both paths  |

**CLEAR DOWNLOAD?** Clears those items downloaded by the operator to Flash memory.

Your choices are **YES** or **NO**.

**INC CUT1/2 COUNT?** moves the cut/tear position to the left (towards the ticket entrance area). Cut counts are increments of .003" for 300dpi and .005" for 200dpi. Depressing CHOICES changes the count value. **16 is factory default.** (1 is for path one; 2 is for path 2 [dual only]). For a 200dpi printer the INC value should not exceed 38. For a 300dpi printer the INC value should not exceed 55. Going beyond these values will cause reliability issues.

**DEC CUT1/2 COUNT?** moves the cut/tear position to the right (towards the ticket exit area). Cut counts are decrements of .003" for 300dpi and .005" for 200dpi. Depressing CHOICES changes the count value. **16 is factory default.** For a 200dpi printer the INC value should not exceed 38. For a 300dpi printer the INC value should not exceed 55. Going beyond these values will cause reliability issues.

**PRINT MODE?** Defines the automatic ticket length calculation feature. **(FACTORY PRESET AND SHOULD NOT BE CHANGED)**

**THERMAL** The printer will feed out and then retract a ticket during this measurement.

**RIBBON** The printer will feed out one blank ticket. This mode is used for label stock and wristbands to prevent peeling.

**RIBBON1/THERMAL2** On a Lemur-2 printer path 1 would be set to ribbon and path 2 would be set for thermal mode.

**RIBBON1/THERMAL2** On a Lemur-2 printer path 1 would be set to thermal and path 2 would be set for ribbon mode.

**PRINT INTENSITY?** Controls the darkness of ticket printout.

Here are the following choices:

|                       |
|-----------------------|
| LIGHT                 |
| MED LIGHT             |
| <b>NORMAL default</b> |
| MED DARK              |
| SHORT HEAD LIFE       |

**TEST TICKET?** Defines the type of self-test ticket printed.

|                        |   |
|------------------------|---|
| <b>STANDARD</b>        | Normal self-test ticket pattern <b>(factory default)</b>        |
| <b>CONFIGURATION 1</b> | To print configuration settings if printing on a 1" wide ticket |
| <b>CONFIGURATION 2</b> | To print configuration settings if printing on a 2" wide ticket |
| <b>CONFIGURATION 3</b> | To print configuration settings if printing on a 3" wide ticket |
| <b>CONFIGURATION 4</b> | To print configuration settings if printing on a 4" wide ticket |

**ETHERNET?** Only used for printer with Ethernet interface connector.

|                         |   |
|-------------------------|---|
| <b>NO</b>               | Ethernet not enabled.   |
| <b>YES</b>              | Uses the IP address that has been set in the printer by the customer.   |
| <b>Diagonstics</b>      | This feature should not be used.  |
| <b>Valid Packets</b>    | This feature should not be used.  |
| <b>DHCP Enabled</b>     | Automatically attempts to get an IP address from Local Server   |
| <b>DHCP/SUB/GATE</b>    | Automatically attempts to get an IP address/Subnet Mask/Gateway from Local Server   |
| <b>DHCP/NR</b>          | 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                     |
| <b>DHCP/SUB/GATE/NR</b> | 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 |

**IP ADDRESS?** Enables the operator to change the printer's Ethernet IP Address. (See [Appendix E](#) )

**SUBNET MASK?** Enables the operator to change the printer's Ethernet Subnet Mask value. (See [Appendix E](#) )

**DEFAULT GATEWAY?** Enables the operator to change the printer's Ethernet default Gateway value. (See [Appendix E](#) )  
Programming Guide.

**DNS SERVER?** Enables the operator to change the printer's Ethernet default DNS server value. (See [Appendix E](#) )  
Programming Guide.

**SPEED/DUPLEX?** Enables the operator to change the printer's Ethernet speed and duplex setting. Please consult "Ethernet Interface Addendum" of the [FGL Programming Guide](#). Your choices are **AUTO-NEGOTIATE**, **100Mbps/FULL**, **100Mbps/HALF**, **10Mbps/FULL** and **10Mbps/HALF**.

**DEFAULT WEBPAGE?, REFRESH RATE?, TICKETS REMAIN 1, TICKETS LOW1?, TICKETS REMAIN 2, TICKETS LOW2? :**  
Please consult "REMOTE MANAGEMENT ADDENDUM" of the [FGL Programming Guide](#).

**BLUETOOTH?** Your choices are **ENABLE or DISABLE**. Recommend that BLUETOOTH be disabled is printer if so equipped and you are using a different interface other than Bluetooth.

**BT DICOVERY MODE?** Enables the operator to change the discovery mode setting to a different Bluetooth host may be paired with the printer.

|            |  |
|------------|--|
| <b>NO</b>  | Printer is pair with the Bluetooth host it was originally configured to. |
| <b>YES</b> | Printer will try to discover a new Bluetooth host to pair with.          |

**BT RECONNECT?** Enables the operator to change the reconnect mode setting. *For iPad connection only.*

|                |   |
|----------------|---|
| <b>DISABLE</b> | Printer will NOT automatically attempt to restore a connection if it is dropped. <b>default</b> |
| <b>ENABLE</b>  | Printer will automatically attempt to restore a connection if it is dropped.                    |

**BT OPER MODE?** Enables the operator to change the connection mode setting.

|                |                              |
|----------------|------------------------------|
| <b>CLASSIC</b> | Classic mode. <b>default</b> |
| <b>BLE</b>     | Bluetooth Low Energy Mode    |

**WIRELESS?** Enables the operator to change the connection mode setting. Recommend that Wi-Fi be disabled is printer if so equipped and you are using a different interface other than Wi-Fi.

|                  |  |
|------------------|--|
| <b>DISABLE</b>   | Disable Wi-Fi connection.  |
| <b>STATIC IP</b> | Printer will try to connect to the Static IP address the Wi-Fi was originally configured for |
| <b>DHCP</b>      | Printer will try to connect to the DHCP IP address the Wi-Fi was originally configured for   |

**EXIT AND SAVE!** Will save any changes made to the above menu options.

If you wish to save the new value then press **TEST**, if not press **MENU**.

**JUST EXIT?** Will exit the menu options without saving any changes.

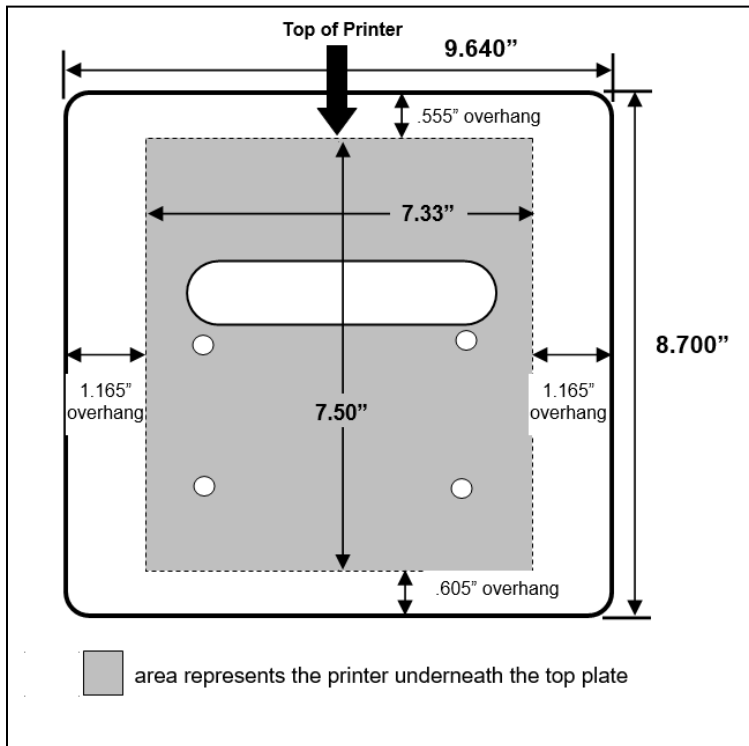
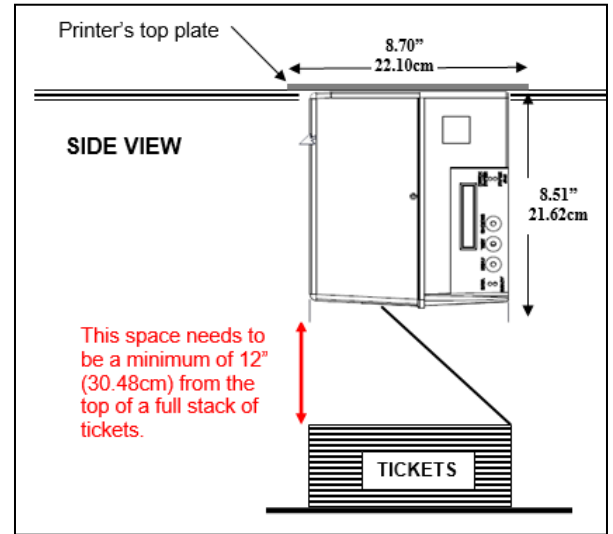
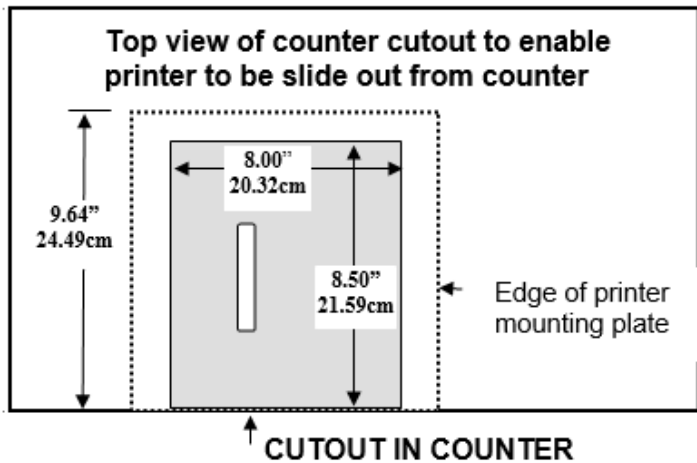
If you want to exit without saving the new value then press **TEST**, if not press **MENU**.

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## APPENDIX B - 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 421421Z-P top plate

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.

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# APPENDIX E –ETHERNET PARAMETERS

## General

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), it will default to the 169.xxx.xxx.xxx address. You can select a different fixed IP address either via a Web Browser (see below).

## ETHERNET – Quick Installation Guide

1. Connect the printer to your network (the IP address will be automatically assigned by your DHCP server).
2. Load media into the printer.
3. If you look the Ethernet connector you should see the below:



4. Wait four minutes to allow assignment of IP address.
5. Print a self-test by pressing the printer's center TEST button, IP address is shown on this printout. If after four minutes, if the printer does not receive an IP address from you network IP server, then the printer will default to using IP address 169.xxx.xxx.xxx.
6. Open your web browser and type the printer's IP address. For example, if the IP address was 010.000.000.192 they you would type //10.0.0.192.
7. The below login menu will pop up depending on what firmware you printer has:
  - a. 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.

A screenshot of a web browser's security warning page. The text reads: 'Sign in to access this site', 'Authorization required by http://10.0.2.145', and 'Your connection to this site is not secure'. Below this are two input fields: 'Username' and 'Password'. At the bottom are two buttons: 'Sign in' (highlighted in blue) and 'Cancel'.

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

A screenshot of a web browser's login page. The title is 'Login'. The text reads: 'This webpage is password protected.', 'If you wish to change your password please fill in a new one.', '(Password can be up to ten printable characters)', and 'Otherwise, just press Submit.'. Below this are three input fields: 'Current Password:', 'New Password:', and 'Confirm New Password:'. At the bottom is a 'Submit' button.

Below shows the configuration page

**Boca Systems' Printer Configuration Page**

|                 |                             |  |  |
|-----------------|-----------------------------|--|--|
| Firmware :      | HP46N166 / COM46N166 / SH00 |  |  |
| Serial number : | 488827                      |  |  |
| On Time :       | 000:00:03:27 d/h/m/s        |  |  |
| MAC ID :        | 00.0b.71.07.75.78           |  |  |

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/SUB/GATE  | 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             |                   |                                   |                   |             |                   |                                   |

(Press Save button to store)

- 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.
- If you experience any problems, please refer to the Ethernet section of our [FGL Programming Guide](#).

The below reviews how to set the printer for a static IP address if your system requires it.

## Changing Ethernet settings if your printer has an LCD display

Please follow the below steps to create a static IP address on your Ethernet printer.

### Change Ethernet setting

1. Depress both the **MENU** and **CHOICES** buttons while turning on the printer. Keep both buttons depressed until **FACTORY MENU** appears in the LCD window or the display starts scrolling through different topics.
2. Using the **MENU** button scroll down to the **ETHERNET?**
3. Using the **CHOICES** button select **YES** and press the **TEST** button.
4. The display will show **EXIT AND SAVE**, press the **TEST** button again (the printer will reset at this time).

### Changing IP Address

1. Depress both the **MENU** and **CHOICES** buttons while turning on the printer. Keep both buttons depressed until **FACTORY MENU** appears in the LCD window or the display starts scrolling through different topics.
2. Using the **MENU** button scroll down to the **IP ADDRESS?** and press the **CHOICE** button.
3. The blinking cursor indicates the current IP numeric value selected. Every time you press the **CHOICE** button the numeric value will change.
4. Using the **TEST** button will move you over to the next numeric value.

5. Continue steps 3 & 4 to program the desired IP address value.
6. At the end the display will show **EXIT AND SAVE**. Press the **MENU** button.
7. The display will show **JUST EXIT**. Press the **MENU** button. **SUBNET MASK?** will be shown on the display.

## Changing Subnet Mask address

1. Each time you press the **CHOICE** button a different address will be displayed (see list below).

|                       |                                       |
|-----------------------|---------------------------------------|
| 0.0.0.0 (reserved)    | 255.255.128.0 (class C)               |
| 128.0.0.0 (class A)   | 255.255.192.0 “                       |
| 192.0.0.0 “           | 255.255.224.0 “                       |
| 224.0.0.0 “           | 255.255.240.0 “                       |
| 240.0.0.0 “           | 255.255.248.0 “                       |
| 248.0.0.0 “           | 255.255.252.0 “                       |
| 252.0.0.0 “           | 255.255.254.0 “                       |
| 254.0.0.0 “           | 255.255.255.0 “                       |
| 255.0.0.0 “           | 255.255.255.128                       |
| 255.128.0.0 (class B) | 255.255.255.192                       |
| 255.192.0.0 “         | 255.255.255.224                       |
| 255.224.0.0 “         | 255.255.255.240                       |
| 255.240.0.0 “         | 255.255.255.248                       |
| 255.248.0.0 “         | 255.255.255.252                       |
| 255.252.0.0 “         | 255.255.255.254 (unusable)            |
| 255.254.0.0 “         | 255.255.255.255 (host-single address) |
| 255.255.0.0 “         |                                       |

2. Once you have the address you want, press the **TEST** button. The display will show **EXIT AND SAVE**. Press the **MENU** button.
3. The display will show **JUST EXIT**. Press the **MENU** button. **DEFAULT GATEWAY?** will be shown on the display.

## Changing Default Gateway address

1. The blinking cursor indicates the current Default Gateway numeric value. Every time you press the **CHOICE** button the numeric value will change.
2. Using the **TEST** button will move you over to the next numeric value.
3. Continue steps 1 & 2 to program the desired Default Gateway address value.
4. At the end the display will show **EXIT AND SAVE**. Press the **TEST** button.
5. The printer will reset and the static IP address settings will be saved.

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## APPENDIX F – 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>

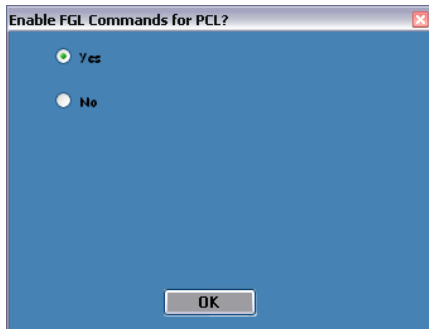
Click here to return to > [Table of Contents](#)

## APPENDIX G – DOWNLOADING SOFTWARE COMMANDS

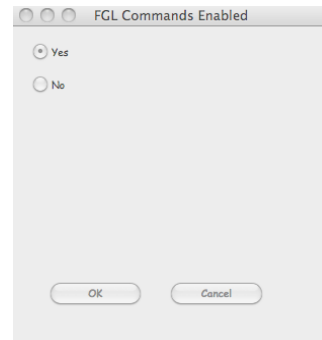
For those Lemurs model printers without LCD display the menu setting changes may be done by utilizing the software commands listed below. This is best done using the BOCA test program for Windows OR MAC (see [Appendix F](#) ).

If needed, the printer may be defaulted back to its originally 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 you have your interface or driver selected then clicks on the “Enable FGL for PCL” button. *For the MAC customer program under the Select Printer Operation choose “Enable FGL Commands (HP)”*. Click on the Yes Click the Yes button and then the OK button.

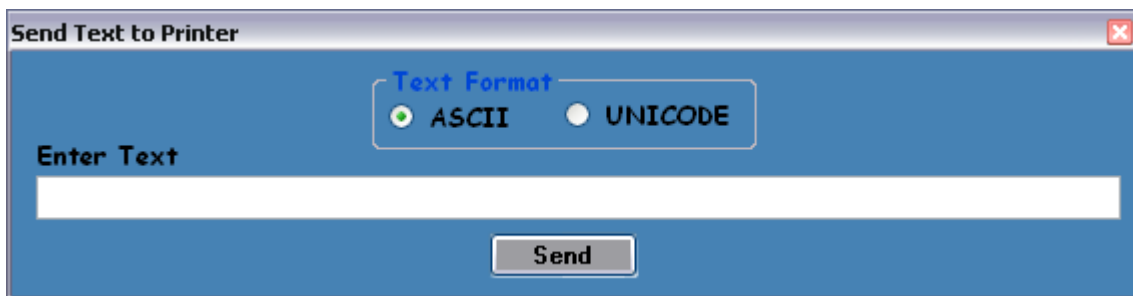


Window



MAC

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 CONFIGURATION TEST TICKET SUPPLEMENT section of the [FGL programming guide](#) shows all of the commands necessary to access the operator control panel functions.

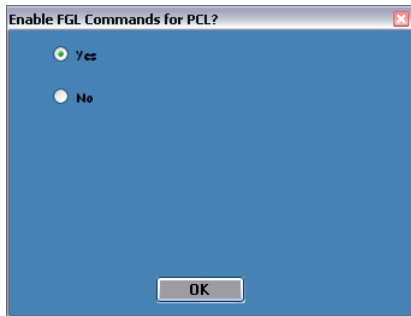
Click here to return to > [Table of Contents](#)

## APPENDIX H – CHANGING SPECIAL HEAD SETTING

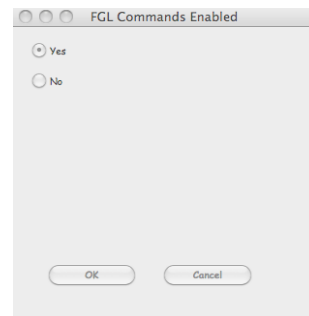
For those Lemurs model printers without LCD display the special head setting changes may be done by utilizing the software commands listed below. This is best done using our configure and test program (see [Appendix F](#)).

If needed, the printer may be defaulted back to its originally 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 you have your interface or driver selected then clicks on the “Enable FGL for PCL” button. Click on the Yes button and then the OK button. *For the MAC customer program under the Select Printer Operation choose “Enable FGL Commands (HP)”*. Click on the Yes



Window



MAC

Click on the “Change Ticket Width” button. *For the MAC customer program under the Select Printer Operation choose “Special Head”*.

Once the Special Head menu box comes up you will need to choose the Head Type.

**Full Size** – If you want to set a RADJW path to 3.25” or a RADJ4 path to 4”. *For MAC customer program you would choose “NO”*. If selected then click the OK button

**Special** – Must not be used.

**Rev-Adj** – Is select to enable you to choose a different ticket width setting

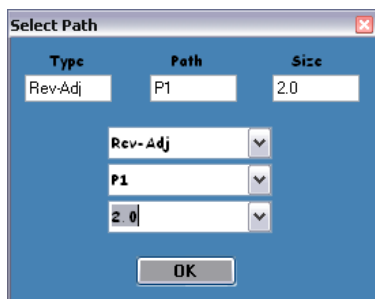
Next you will need to choose the Path. This option will only become available if you had selected Rev-Adj.

**P1** – This would be selected if you have a single path Lemur model printer or choosing Path 1 on a Lemur-2 model printer.

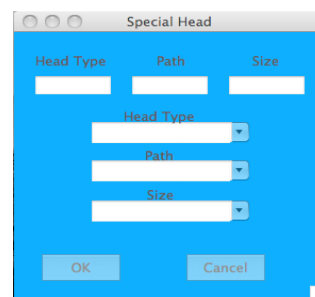
**P2**- This would be selected if you are choosing Path 2 (closest to power switch) on a Lemur-2 model printer.

**BOTH** – This would be select if you are choosing both paths on a Lemur-2 model printer.

Next you will need to choose the Size. You will want to choose the size the best matches the width stock being used. The 3.25 setting is to only be used for a RADJ4 path that needs to be set to 3.25”. For example, if you had a RADJW path Lemur series printer you wanted to change the ticket width from 3.25” to 2” then the Special Head menu box will look like the below sample.



Windows



MAC

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

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# APPENDIX I – 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+** - Printer is configured for Bluetooth Classic Mode.
- **BLE+** - Printer is configured for Low Energy Mode.

## BLUETOOTH CLASSIC

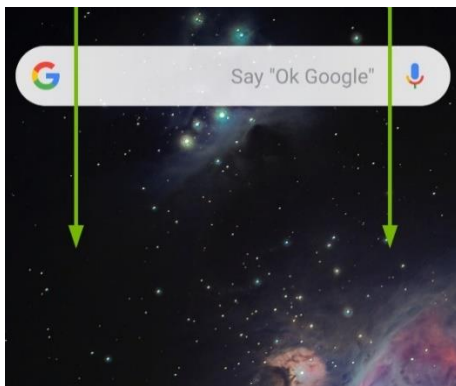
If the printer has optional Bluetooth interface and it is enabled then you should see BLUETOOTH = ENABLED on the self-test printout that is issued when the printer's center TEST button is pressed.



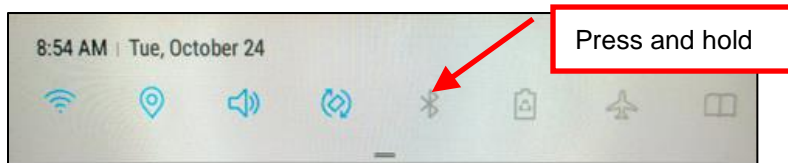
## **Android Connection**

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

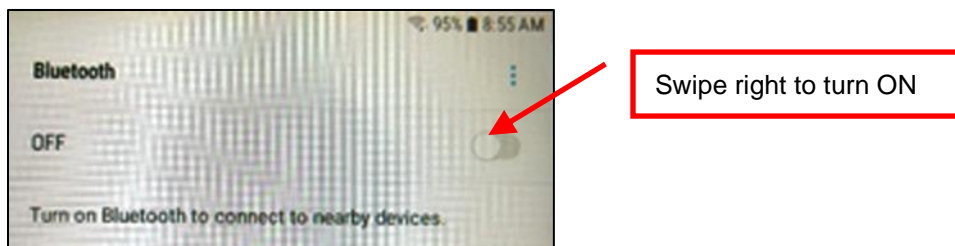
1. Swipe down from the top of the screen.



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

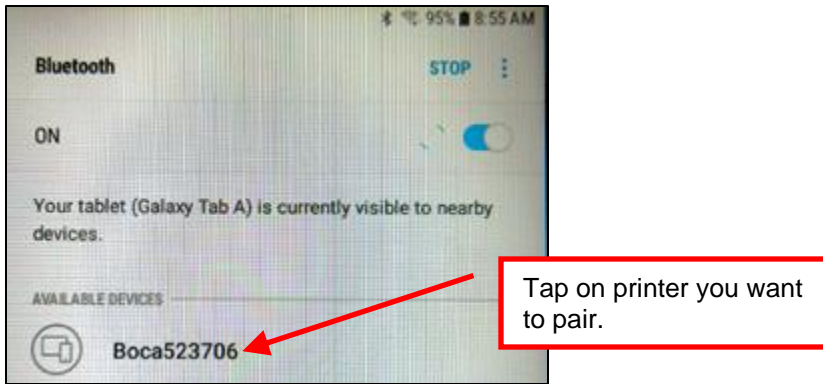


3. If Bluetooth is OFF then turn ON.

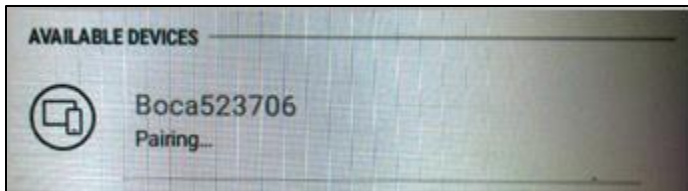


- Once turned ON, a list of Bluetooth devices will be shown. Under AVAILABLE DEVICES you should see the serial number of the printer you are trying to pair to (Boca#####) For example if your printer was serial number 523706 then you would see Boca523706.

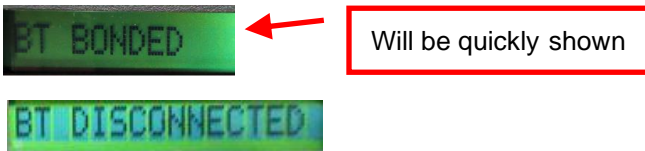
Tap on the BOCA printer you want to pair.



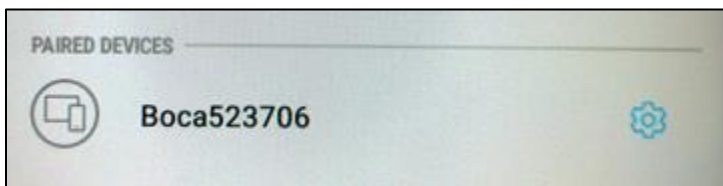
- You will see the below during the pairing process.



- If the printer has an optional LCD display, you will see the following:  
The BT DISCONNECTED means the device has disconnected the interface channel but it is still paired with the printer.




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



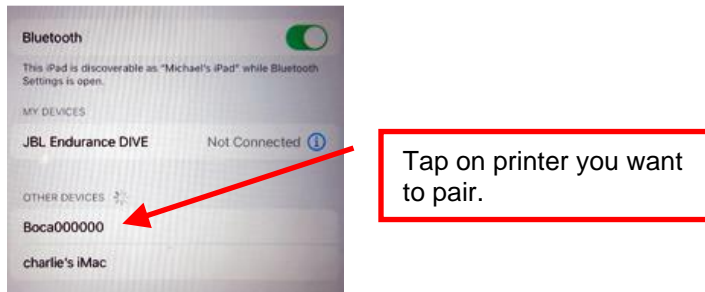
## ***iPad Connection***

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

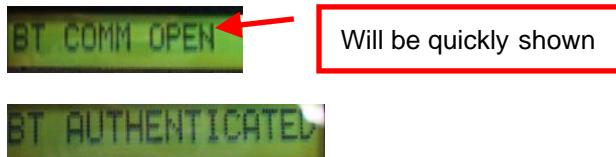
- Touch the setting icon. 
- When setting menu comes up click on Bluetooth.
- Turn Bluetooth ON if it was OFF.



- 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



- Touch on this serial number to enable the iPad to pair to it.
- If the printer has an optional LCD display, you will see the following:



- The iPad should show that it is connected when successfully paired.
- Anytime a Bluetooth device disconnects from the printer the display will show BT DISCONNECTED. It will disappear when the printer prints a ticket. You will need to manually reconnect to the printer.



- 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.

- If you want the printer to try to reconnect to the iPad the printer was originally paired with, then the reconnect menu feature may be enabled (BT RECONNECT). See [APPENDIX A - CONTROL PANEL](#).
  - If the printer is able to connect to the printer the Bluetooth host it was paired with then below will be seen on the LCD display (if so equipped).



- If the printer is NOT able to connect to the printer the Bluetooth host it was paired with then below will be seen on the LCD display (if so equipped).



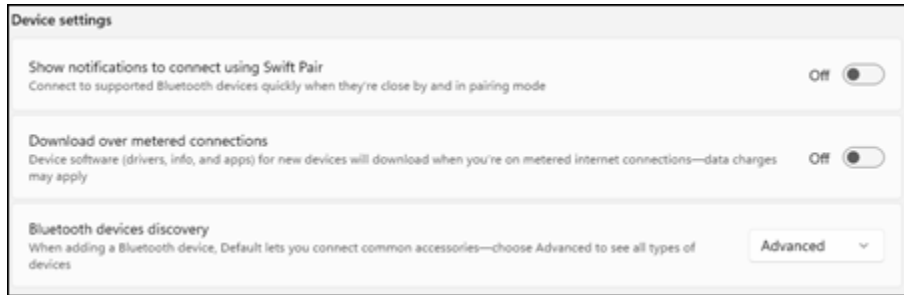
You may use our iPad test program that is on the Apple store to test the printer. The search will need to be done via the iPad and search name would be *BocaPrinter* (<https://itunes.apple.com/us/developer/boca-systems/id951179235>).

## Windows 11 Connection

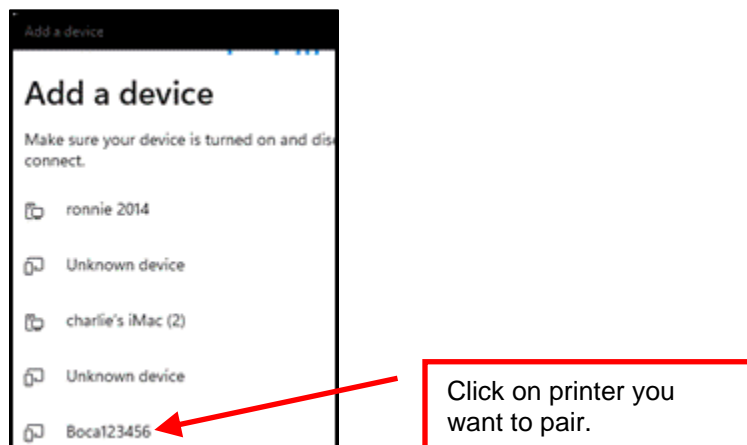
The below provides an overview of a Windows 11 connecting to a BOCA printer with optional Bluetooth interface.

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>



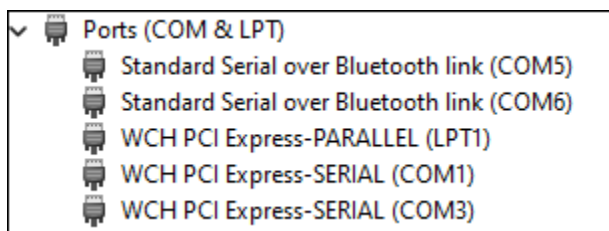
2. When you do your search, you should now see Boca#####. In the below example my test printer is serial number123456, you should see Boca522557. Click on it to pair your PC to the printer and follow the instructions provided.



3. Once connected go to Device Manager settings, the blow 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.**

This may be done as follows:

1. Depress both the **MENU** and **TEST** buttons while turning on the printer. Keep both buttons depressed until **OPERATOR MENU** appears in the LCD window or the display starts scrolling through different topics.
2. Using the **MENU** button scroll down to the **BLUETOOTH?**
3. Using the **CHOICE** button select **DISABLED**. Once you have done this press the **TEST** button. The display will show **EXIT AND SAVE**, press the **TEST** button a second time. The printer will reset and will be disabled.

|                 |                                 |
|-----------------|---------------------------------|
| <b>DISABLED</b> | Bluetooth function is disabled. |
| <b>ENABLED</b>  | Bluetooth function is enabled.  |

4. To activate the Bluetooth, repeat the above steps but as step #3 select **ENABLED**.

If the printer doesn't have an LCD display, then the below command may be sent to the printer instead. 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 [DOWNLOADING SOFTWARE COMMANDS](#) section provides download procedures.

**<bld>** = DISABLE

**<ble>** = ENABLED

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## APPENDIX J – 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:

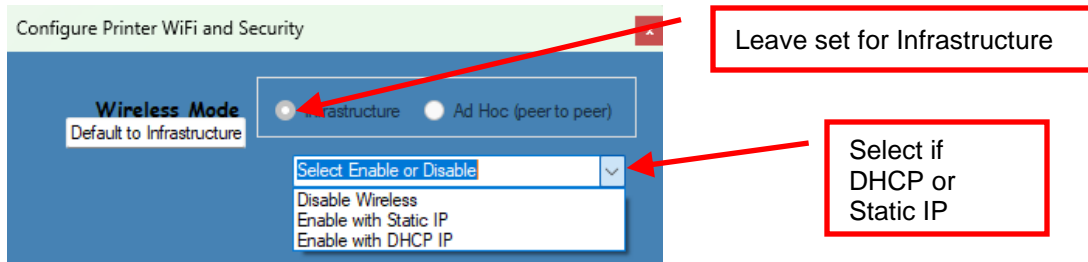
- Wi-Fi router is a b/g/n wireless device that supports 2.4 GHz speed (we do not support 5 GHz speed)?
- If the printer needs to be configured for DHCP or Static IP address?
- SSID name of the router you are connecting to?
- What security mode is required (Disabled, WAP, WAP2 or WEP)?
- If security mode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

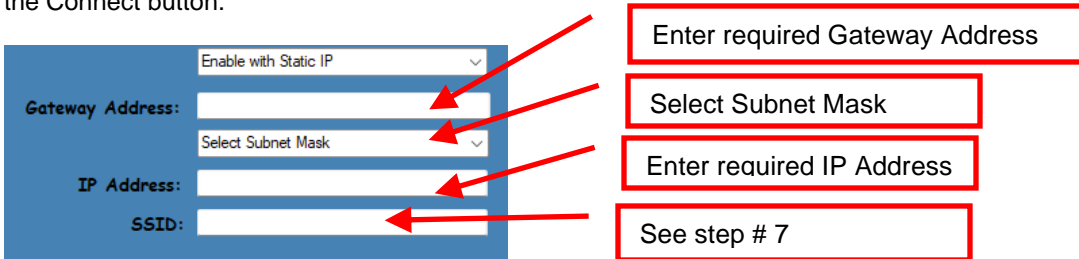
- If connection via Ethernet, use the IP address that is on the self-test ticket.
- If connecting via USB then the appropriate print driver needs to be used:
  - **MAC** – [https://bocasystems.com/documents/MAC\\_Driver\\_Install\\_Guide\\_2021.pdf](https://bocasystems.com/documents/MAC_Driver_Install_Guide_2021.pdf)
  - **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 signal 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 F](#)). 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. You will need to know IP Address, Subnet & Gateway information.
    - Enable with DHCP IP** - Automatically attempts to get an IP address from Local Server (this is the most common one).



- If you selected **Enable with Static IP** then go to the next step. If you selected **Enable with DHCP IP** then go to step #
- Enter in the needed network connection information.  
When typing in the address don't include the leading zeros (If IP=189.010.000.002 then type in 189.10.0.2). Click on the Connect button.

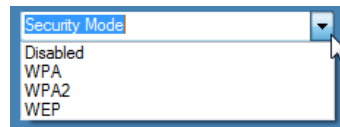


- You will need to enter the **SSID value**. The Service Set Identifier is a 1-to-32-byte string. This normally would be the name of the Wi-Fi router you are connection to. **Please note the ID is case sensitive.**

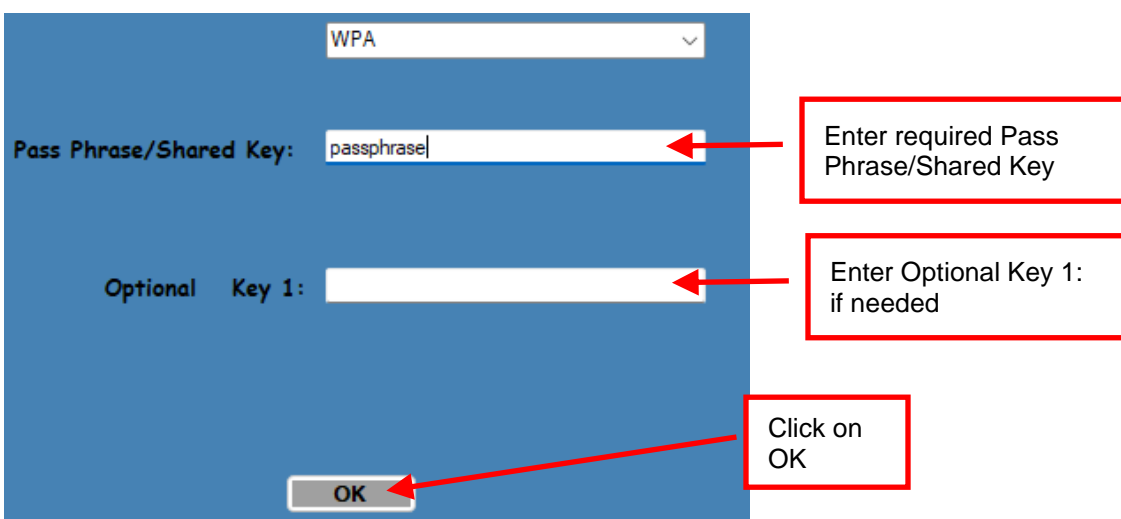
SSID:

- Security Mode: you will need to choose the security mode that is appropriate for your WiFi router.  
**Disable** – Allows the user to communicate through the wireless network without any security encryption involved.

**WPA** – Go to [Step 9](#)  
**WPA2** – Go to [Step 9](#)  
**WEP** – Go to [Step 10](#)

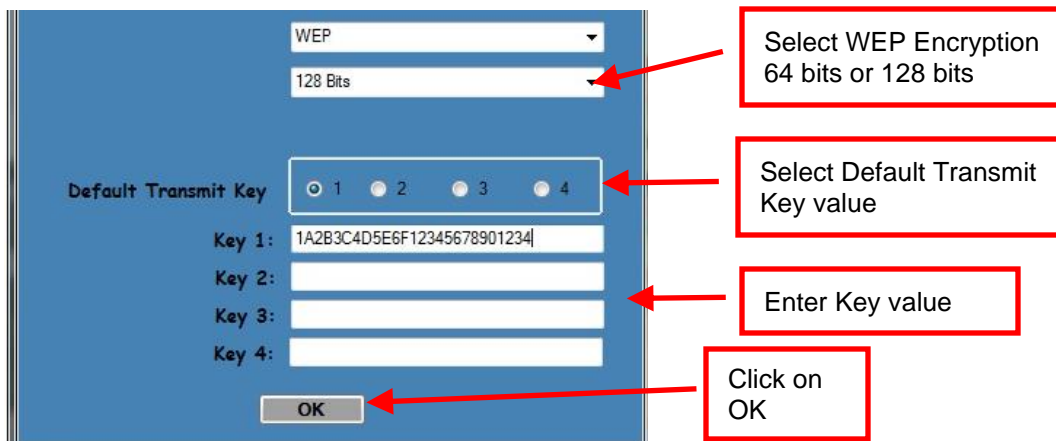


- WPA and WPA2 Personal Security Mode** – Allows the user to communicate through the network using WPA or WPA2 Personal wireless encryption. When this security encryption mode is chosen it will be required to enter the “WPA Shared Key” for the local wireless network. Some networks also enforce the use 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 #11](#).



Your setting will differ than what is shown above

10. **WEP Security Mode** – Allows the user to communicate through the network using WEP wireless encryption. With WEP one can select 64 bits or 128 bits 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 #11](#).



Your setting will differ than what is shown above

11. 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. If printer has optional LCD display. Messages will be displayed on the LCD display when the printer is connecting. When it is connected the display will show pound signs (#####) representing signal strength (see image below). At this point the printer is connected to your Wi-Fi router.



If it fails or displays IDLE then there is a problem. See [item #13](#) on the Troubleshooting Guide.

12. 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 must 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.

- a. For printers with firmware level N171 or R16 and higher you will see EHTERNET=WIFI

```
ETHERNET= WIFI
IP ADD= 010.000.002.002
MAC ADD= 00.00.71.01.E2.40
SUBNET= 255.255.0.0
GATEWAY= 010.000.002.002
```

- b. For printers with firmware level lower than N171 or R16 you will see ETHERNET=NO

```
ETHERNET= NO
IP ADD= 010.000.002.002
MAC ADD= 00.00.71.01.E2.40
SUBNET= 255.255.0.0
GATEWAY= 010.000.002.002
```

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

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

If your printer has an options Ethernet port then this port will be disable 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 disable. This may be done by repeating the above procedure but at step # 4 choosing **Disable Wireless**.

The Wi-Fi will need to be disabled if you choose to communicate to the printer via the USB port.

This may be done as follows:

Depress both the **MENU** and **CHOICES** buttons while turning on the printer. Keep both buttons depressed until **FACTORY MENU** appears in the LCD window or the display starts scrolling through different topics.

5. Using the **MENU** button scroll down to the **WIRELESS?**
6. Using the **CHOICE** button scroll through the different choices.
7. At choices STATIC IP and DHCP you want to denote if there is a cursor blinking next to said choice? If so, then that is the current setting the printer is set for. This is the setting you need to select when you go to activate Wi-Fi again. For example, if the printer was set for DHCP Wi-Fi connection you would see the below.



8. Continue pressing the **CHOICE** button until you get to **DISABLED**. Once you have done this press the **TEST** button. The display will show **EXIT AND SAVE**, press the **TEST** button a second time. The printer will reset and Wi-Fi should be disabled.

|                  |   |
|------------------|---|
| <b>DISABLED</b>  | Will turn off the Wi-Fi                                       |
| <b>STATIC IP</b> | Enable you to create a static IP address for the Wi-Fi        |
| <b>DHCP</b>      | Automatically attempts to get an IP address from Local Server |

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## APPENDIX K – WINDOWS 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 Windows PC platforms X86, AMD64 or IA64. This includes Windows 7, 8.1, 10 and Server 2012 R2.

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

[www.bocasystems.com/documents/WindowsDriverInstallGuide.pdf](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/onlinesupportform.html](http://www.bocasystems.com/onlinesupportform.html)

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## APPENDIX L – 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/onlinesupportform.html](http://www.bocasystems.com/onlinesupportform.html)

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## APPENDIX M – ADHESIVE STOCK

When using the adhesive label stock in your BOCA printer the below setting changes need to be made via the control panel to ensure proper operation of your printer. If your printer doesn't have a LCD display then please see the bottom section of this document.



Please follow the enclosed steps to change your label mode setting.

1. Depress both the **MENU** and **CHOICES** buttons while turning on the printer. Keep both buttons depressed until **FACTORY MENU** appears in the LCD window or the display starts scrolling through different topics.
2. Using the **MENU** button scroll down to the **PRINT MODE?**
3. Use the **CHOICE** button to select **RIBBON**. Once you have done this press the **TEST** button.
4. Using the **MENU** button scroll down to the **SKI MODE?**
5. Use the **CHOICE** button to select **YES**. Once you have done this press the **TEST** button.
6. The display will show **EXIT AND SAVE**. Press the **TEST** button again and the printer will reset at this time.
7. Your printer is now configured for label stock uses.

### Without LCD Display

For those printers without an LCD display the following command string needs to be sent to the printer. [Appendix G](#) explains how to do this using our configure and test program. The printer will reset upon successful receipt of the command and it only needs to be sent to the printer once to be permanently saved.

**<bce><rib><sme><bcd>**

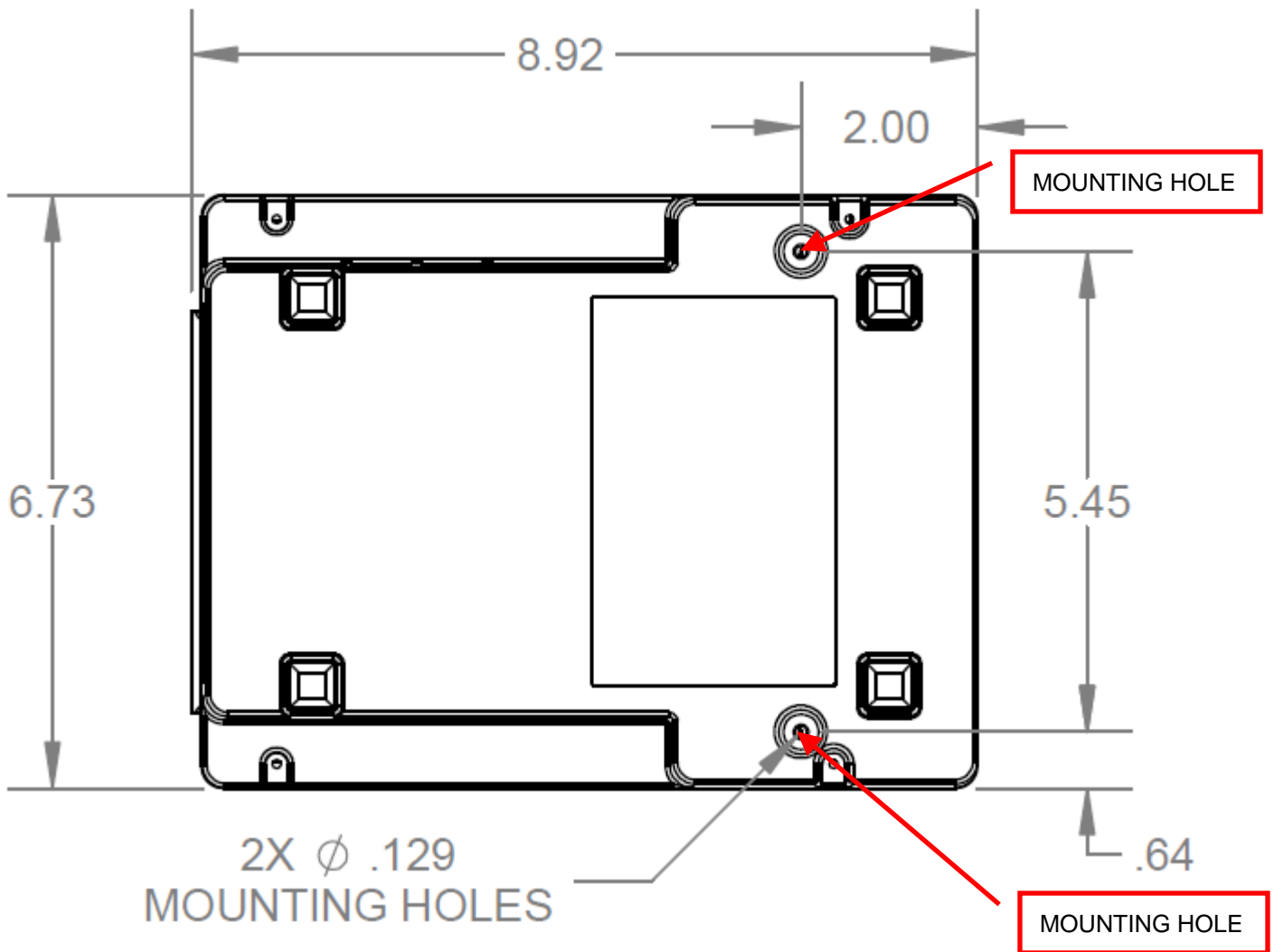
Click here to return to > [Table of Contents](#)

## APPENDIX N – LEMUR-K MOUNTING

The Lemur-K is configured to be mounted within a kiosk. Thus, the printer is shipped without rubber feet or an exit hopper.

Two #6x32 -.375" hex head screws are included with the printer to help facilitate installation of said printer into a kiosk.

The below diagram shows the two mounting holes on the bottom of the printer.



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## APPENDIX O – SERVICE PLANS

For enhanced [warranty](#) coverage or 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
- Free printer and parts return via UPS ground service (other delivery options to be billed to the customer)

### PLATINUM SERVICE

- Printer repair at BOCA facility (3-day business day turnaround)
- Replace defective parts (ship within one business day) – customer must return defective parts
- Free printer and parts return 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 below link.  
<https://www.bocasystems.com/documents/LemurMaintenance.pdf>
- **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 P – 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.

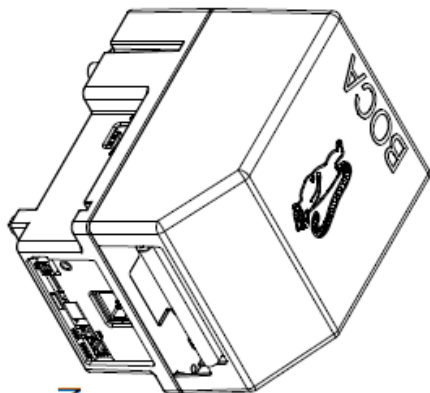
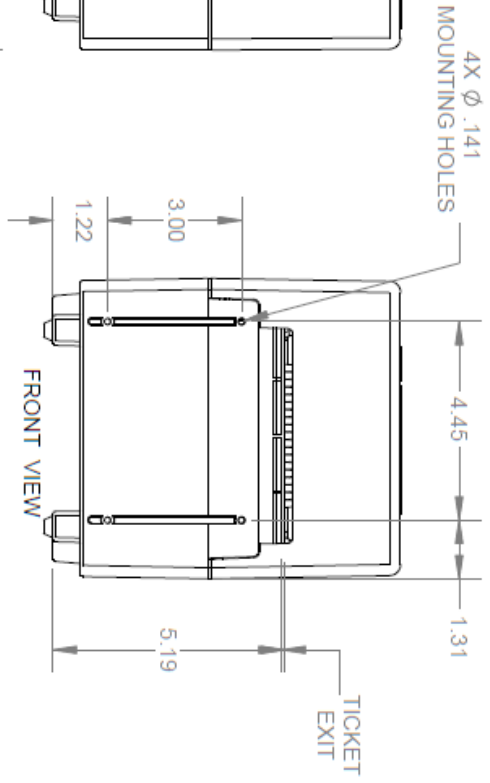
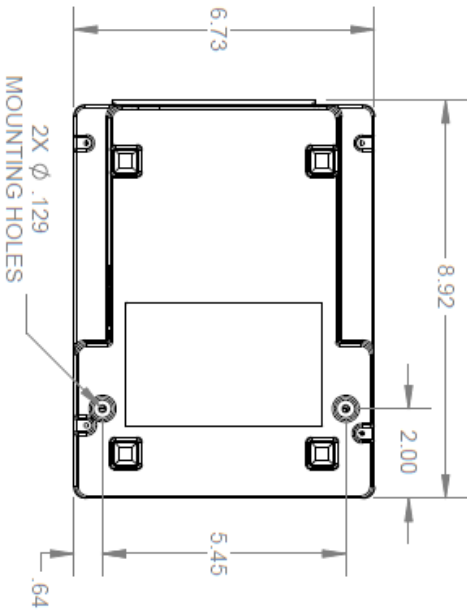
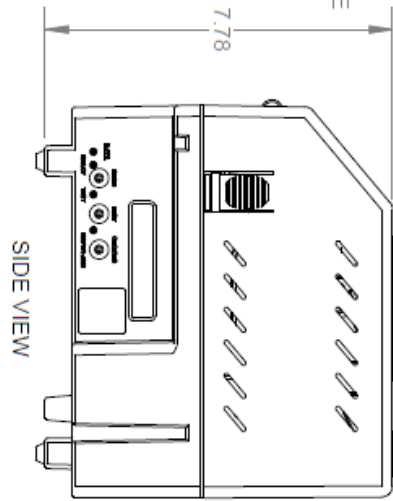
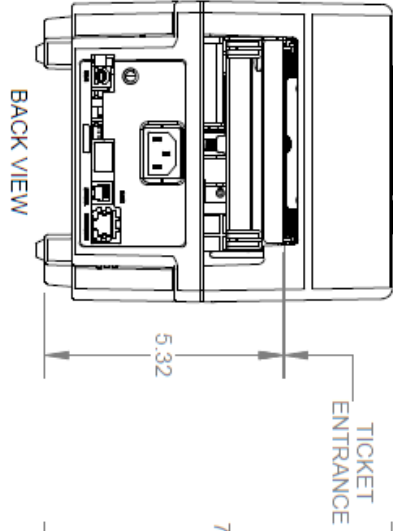
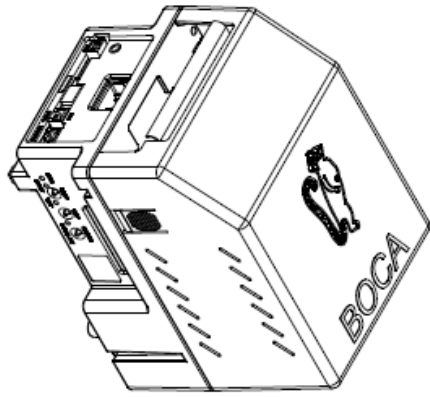
[www.bocasystems.com/onlinesupportform.html](http://www.bocasystems.com/onlinesupportform.html)

**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.

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**APPENDIX Q – REFERENCE DRAWINGS**



NOT/RELEASED

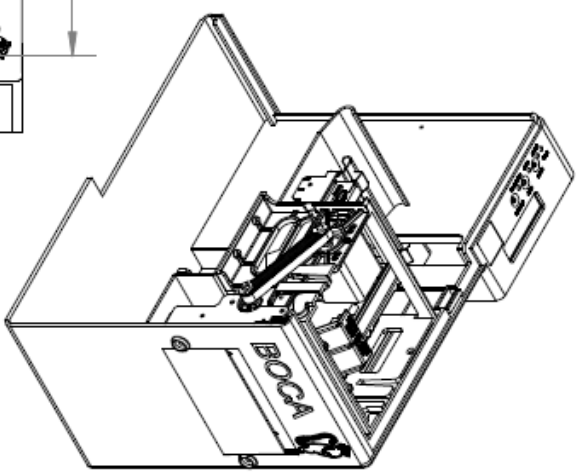
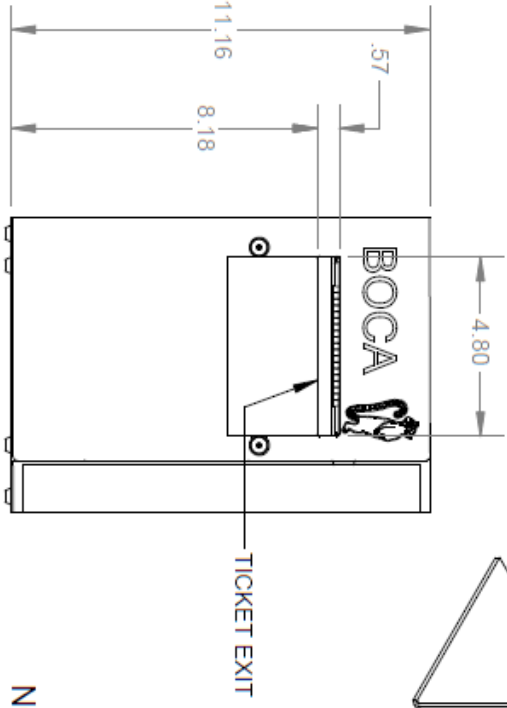
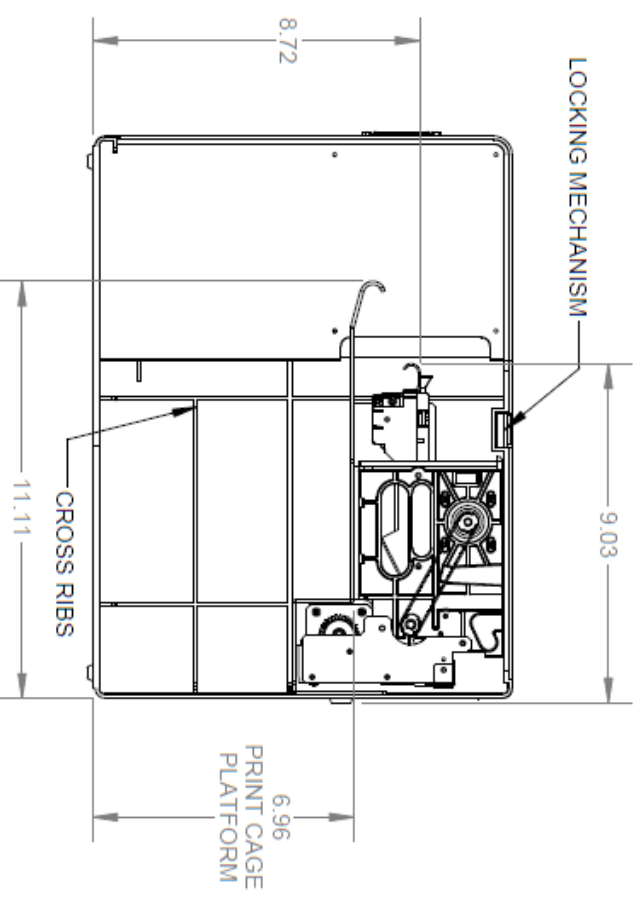
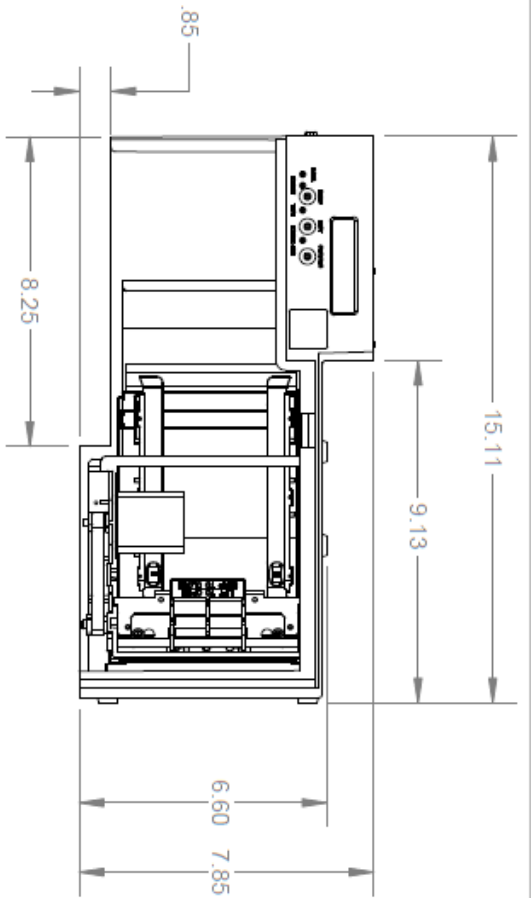
| REVISIONS |             |      |
|-----------|-------------|------|
| LTR       | DESCRIPTION | DATE |
|           |             |      |

| REMOVE ALL BURRS & SHARP EDGES |          | UNLESS SPECIFIED DIMS ARE IN INCHES |          |
|--------------------------------|----------|-------------------------------------|----------|
| APPLICATION                    | MODEL    | FRACTION                            | DECIMAL  |
| ASSEMBLY                       | MODEL    | QTY.                                | ANGLE    |
| LEMUR                          | UPG/2022 | 0                                   |          |
|                                |          | DWN. BY                             | APPR. BY |
|                                |          |                                     |          |
|                                |          | DATE CREATED                        |          |
|                                |          | 10/23/2023                          |          |

|  |     |      |                   |
|--|-----|------|-------------------|
| SCALE  | 1:4 | SIZE | DRAWING NO.       |
| SHEET  | 1   |      | 424149A-(RF)-2022 |
| <p>BOCA Systems, Inc.</p> <p>LEMUR/UPG-2022</p> <p>REFERENCE DRAWING</p> |     | WT.  | 3.98              |
|  |     | REV. | a                 |

| REVISIONS |             |    |            |
|-----------|-------------|----|------------|
| LTR       | DESCRIPTION | BY | DATE       |
| a         | SKETCH      | OM | 10/23/2023 |



NOT/RELEASED

|                                |        |                                     |         |            |              |                      |      |       |  |
|--------------------------------|--------|-------------------------------------|---------|------------|--------------|----------------------|------|-------|--|
| REMOVE ALL BURRS & SHARP EDGES |        | UNLESS SPECIFIED DIMS ARE IN INCHES |         | SCALE: 1:8 |              | SIZE: DRAWING NO.    |      | WT.   |  |
| APPLICATION                    |        | FRACTION DECIMAL ANGLE              |         | SHEET 1    |              | 423952A-S-(REF)-2022 |      | 6.390 |  |
| ASSEMBLY                       | MODEL  | QTY.                                | DWN. BY | APPR. BY   | DATE CREATED |                      | REV. |       |  |
| LEMUR-S                        | S/2022 | 0                                   |         |            | 10/23/2023   |                      | a    |       |  |

BOCA Systems, Inc.

LEMUR-S-UPG-2022  
REFERENCE DRAWING