



Boca Systems

LEMUR – Z KIOSK PRINTERS
Operator's Manual



Lemur-Z

Table of Contents

Page

FCC Notice & Warranty Information	2
1.0 Unpacking the printer Introduction	3
2.0 Introduction for Lemur-Z	4
3.0 Important Safety Information	7
4.0 Installation	8
5.0 Printer Mounting	10
5.1 Media Supply	11
6.0 Media Load Procedure	12
6.1 Reloading Receipt Media	14
6.2 Clearing Paper Jams	15
6.3 Remove Blockage, Upper Paper Guide	16
6.4 Media Width Adjustment	18
7.0 Standard Interface Pinouts	19
8.0 Thermal Paper – Theory & Specifications	20
9.0 Maintenance	22
9.1 Optical Sensors	22
9.2 Thermal Print Head	23
9.3 Platen	24
9.4 Cutter Assembly	25
10.0 Troubleshooting Guide	26
11.0 Spare Parts List	29
12.0 Accessories	31
12.1 Adjustable External Infeed Guide Installation (P/N 424050)	32
12.2 Adjustable Internal Infeed Guide Installation	33
12.3 Centering Infeed Guide Installation	34
12.4 Base Mounting Zebra Adapter Installation	36
12.5 Printer Mounting Plate Installation	37
12.6 Receipt Roll Holder Installation	38
12.7 Low Paper Sensor for Roll Holder	42
12.8 Low Paper Sensor for Fan Folded stock	44
Appendix A - ETHERNET PARAMETERS	46
Appendix B- INTERFACE TESTING A LEMUR	48
Appendix C – DOWNLOADING SOFTWARE COMMANDS	49
Appendix D – WINDOWS DRIVER INSTALLATION GUIDE	54
Appendix E – MAC DRIVER INSTALLATION GUIDE	54
Appendix F – CONFIGURE WI-FI CONNECTION	55
Appendix G– SERVICE PLANS	58
Appendix H– TECHNICAL SUPPORT	58
Appendix I – LEMUR Z REFERENCE DRAWING	59
Appendix J – REFERENCE DRAWING FOR ROLL HOLDER	60
Appendix K –REFERENCE DRAWING PRINER MOUNTING PLATE	61

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

See below link concerning terms and conditions, including warranty information.

<https://bocasystems.com/terms.html>

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

www.bocasystems.com/online-support-form.html

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

EXTENDED WARRANTY PLAN - BOCA offers [extended warranty plans](#) for all printer models. These plans cover all parts and labor. All labor is to be performed at the BOCA facility. Equipment damaged by misuse or negligence, including damage to print heads caused by defective media, 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.

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

1.0 Unpacking the Printer

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

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

The following items should be in the box:

- A) Lemur-Z Printer
- B) 24VDC power supply
- C) AC cord
- D) May come with below optional accessories listed below (depending on what was ordered):
 - Adjustable external infeed guide ([P/N 424050](#))
 - Adjustable internal infeed guide ([P/N 424069-Z-7](#)) *already installed on printer*
 - Center infeed guide ([P/N 424069-Z-5](#) (58mm) or [424069-Z-8](#) (80mm) *already installed on printer*
 - Base mounting Zebra adapter ([P/N 424077](#))
 - Printer Mounting Plate Installation ([P/N 424213](#))
 - Receipt roll holder ([P/N 424051-U](#))
 - Low paper sensor for roll holder ([P/N 424078](#))
 - Low paper sensor for fan folded stock ([P/N 424084](#))
 - Interface cable



Above show typical packing of printer with accessories located at bottom

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

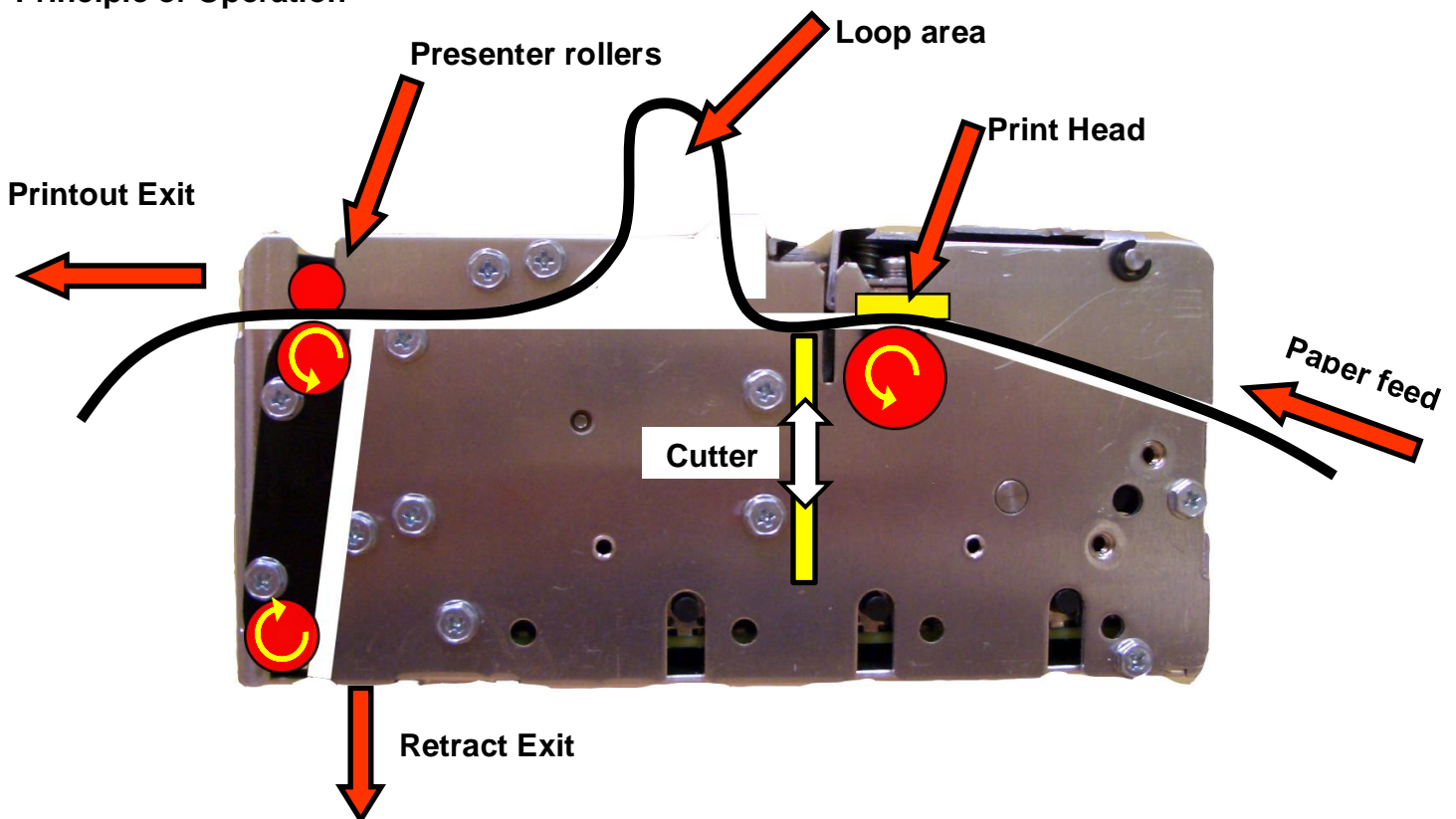
2.0 Introduction for Lemur-Z

The Lemur-Z is a direct thermal ticket/ receipt printer with integrated cutting mechanism. This manual will provide the user with general information regarding printer set-up, configuration and troubleshooting. Please read the important safety information section before installation is conducted. Review the [programming guide](#) for additional details.

The Lemur-Z series are kiosk printers designed for use with 2" (50.8mm) to 3.25" (82.5mm) rolled receipt stock (minimum core size of 1.0") or fan folded stock with black timing mark using direct thermal printing. The following is a link to the black timing mark specs www.bocasystems.com/ticket_specs10.html. The printer features integrated auto cut mechanism, easily adjustable paper guide (if equipped) and presenter with built in retract and retain function.

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

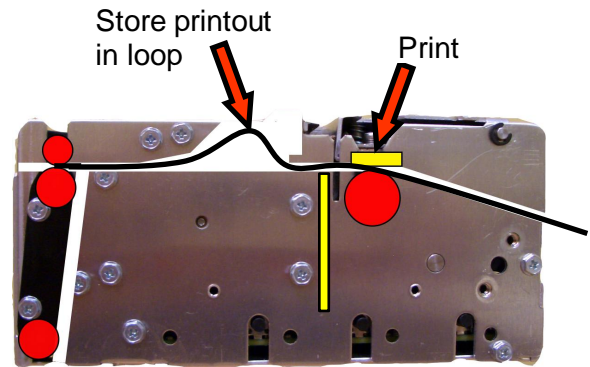
Principle of Operation



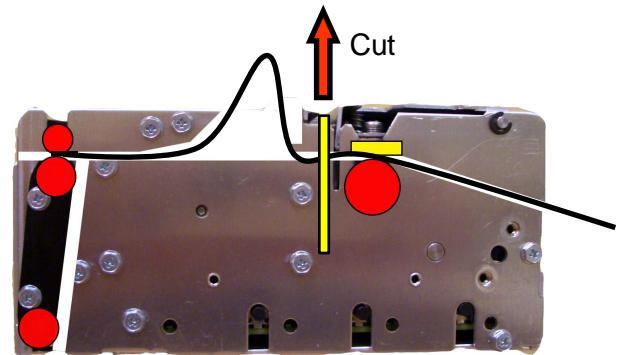
PRESENTER

The Lemur-Z printer features a presenter mechanism with a built in retract and retain function. The following illustrations provide an overview of the functionality of the various stages of printer operation.

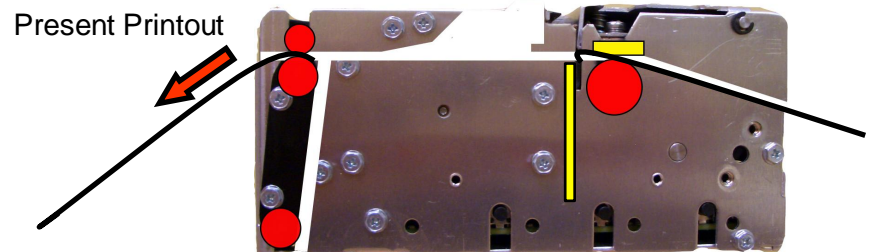
- **PRINT** – It handles documents of various lengths by storing the printed media in a loop.



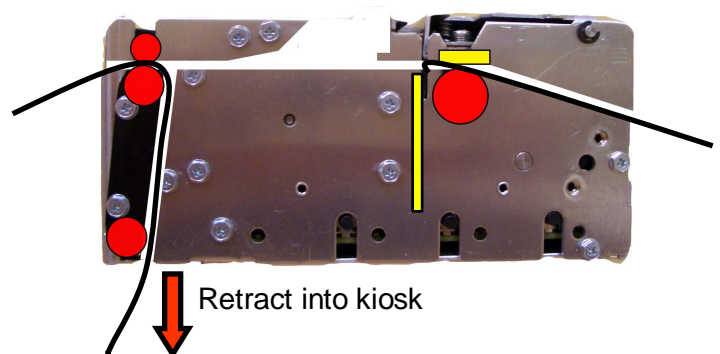
- **CUT** – It holds the printout until fully printed and cut before presenting the completed printout to the customer.



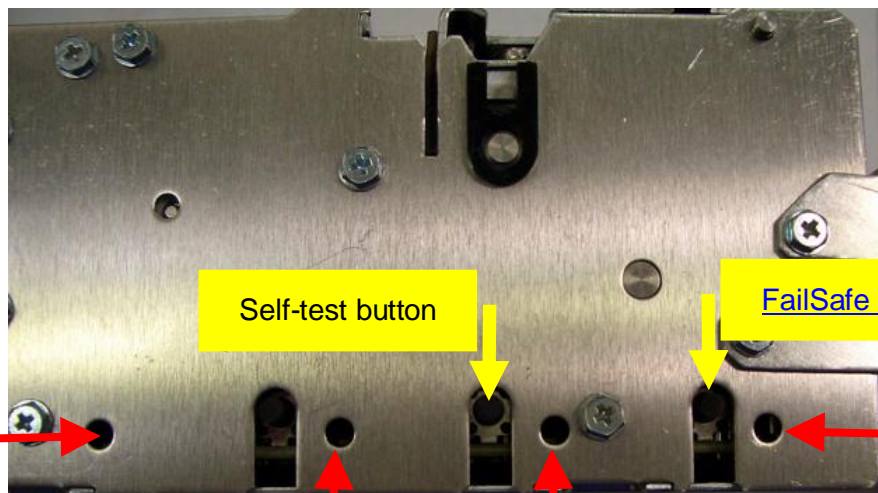
- **PRESENT** – The printout is presented to the customer.



- **RETRACT** – The retract and retain function can retract uncollected printouts and drop them back inside the kiosk. By default, this feature is disabled unless otherwise specified. [Appendix C – DOWNLOADING SOFTWARE COMMANDS](#) reviews how to enable and change timeout value.



Controls & Sensors



DATA

- ☐ No data received
- ☒ Data received

PAPER JAM

- ☐ No paper jam
- ☒ Paper jam

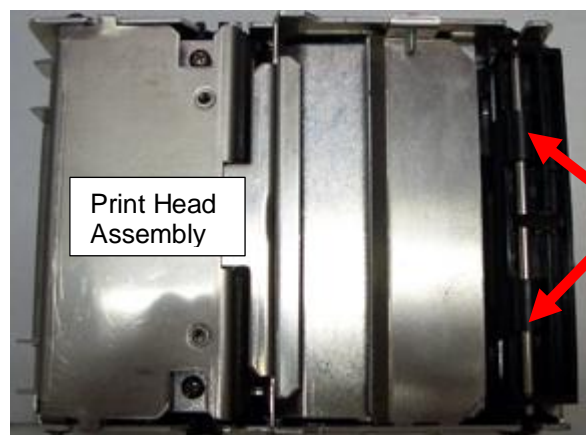
READY

- ☐ Not ready
- ☒ Ready

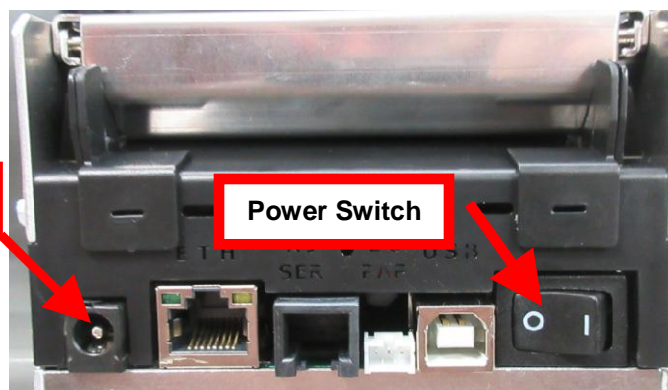
CHECK PAPER

- ☐ Has paper
- ☒ No paper

If both **CHECK PAPER** & **PAPER JAM** LEDs are flashing, that indicates printer is in cutter failure mode. See # 7 in [Troubleshooting Section](#).



Top View



Printer built after mid-January 2025

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

3.0 Important Safety Information



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

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

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

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

U.S.A. and Canada

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

United Kingdom only

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

Europe only:

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

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

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

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

产品的标识在设备的底部

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

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

WARNING: France and Peru only:

This unit cannot be powered from IT[†] 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.

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

4.0 Installation

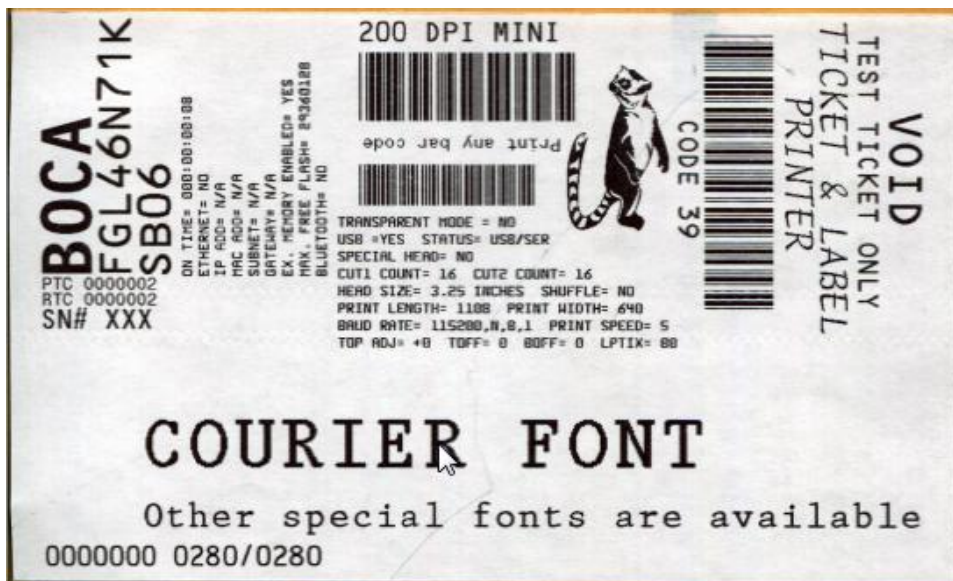
The Lemur-Z is designed to be mounted in a kiosk. [Appendix H](#) shows the mounting hole locations.

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

- Lay the printer flat on a counter top.
- Install optional items onto the printer.
 - Adjustable infeed guide ([P/N 424050](#) or [424069-Z-7](#))
 - Centering infeed guide ([P/N 424069-Z-5](#) or [424069-Z-8](#)) would have been installed
 - Base Mounting Zebra Adaptor ([P/N 424077](#))
 - Printer Mounting Plate ([P/N 424213](#))
 - Receipt roll holder ([P/N 424051-U](#))
 - Low paper sensors ([P/N 424078](#) or [424084](#))
- Attach the round DC connector of the 24VDC power supply into the printer.
NOTE: For printer without a power switch, do not power the printer on/off by unplugging this connector. Turn the printer on/off by plugging or unplugging the AC cord from the power pack.
- Plug the AC cord into the 24VDC power pack.
 - Printer with power switch will need to be turned on and off by said switch
 - Printer without power switch will automatically power up once the AC cord is plugged into its AC source. To power off the printer unplug the AC cord from the power pack.
- Wait five seconds after power up, during this time you will hear the cutter knife cycle. Begin loading media through the entrance slot with a smooth motion until the printer automatically positions the media. See section [6.0 Media Load Procedure](#).
- After the media is automatically positioned (the green READY led will be illuminated), press the center TEST button located on the control panel to print a self-test.
- **When the Lemur-Z leaves the factory, it is configured for use with receipt rolled stock (stock with no black timing mark). If you will use the printer with stock that has a black timing mark then it will need to be taken out of paper mode. See [Appendix C – DOWNLOADING SOFTWARE COMMANDS](#) to download the appropriate software command.**
 - **<pmd> this** will configure the printer for use with media with a black timing mark.
 - **<pmr> this** will configure the printer for use with receipt stock without a black timing mark.
- Verify that the printer properly works with your system by doing a printout through your computer system. You may also use our customer-based program to test the printer independently of your software application (see [Appendix B](#))

You may now install the printer in its permanent location. Adequate room should be provided behind the printer for the smooth feeding of the media. See section [5.1 Media Supply](#).

Below is a typical self-test printout

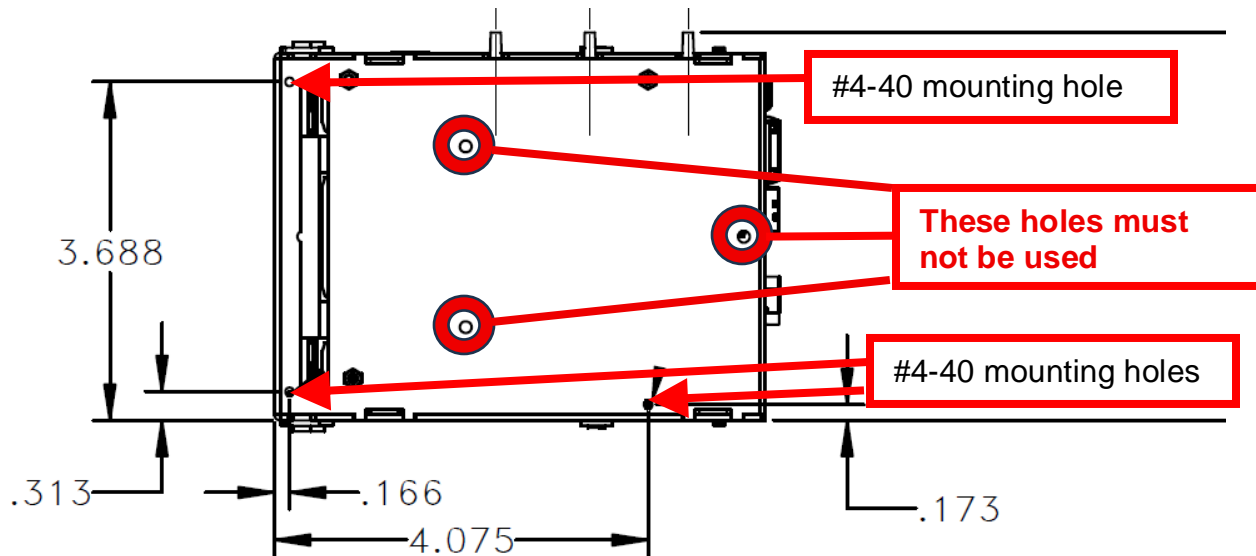


Your printout may vary depending on printer configuration and media used.

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

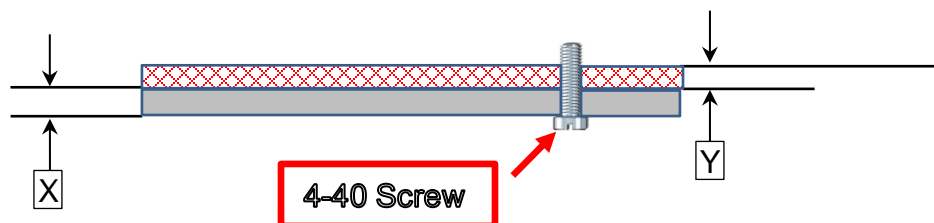
5.0 Printer Mounting

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



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

Below is a screw guide if not using the mounting screws that came with the printer.



X	TBD	Printer mounting surface
Y	0.050" (1.27mm)	Printer base plate thickness
X + Y = minimum length		

You may also purchase an optional [Base Mounting Adapter \(P/N 424077\)](#) that will enable the Lemur-Z to have the same mounting hole pattern as that of a Zebra KR403 and KR203. This will also enable it to be used with the Quick-Fit hubs when the printer is not in retracting mode.

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

5.1 Media Supply

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

- **Align printer with media** – The media roll or fan-fold stack should align with the right side of printer (from where stock is loaded into the printer) to keep the media un-damaged and prevent jams. An adjustable media guide ([p/n 424050](#) or [424069-Z-7](#)) is required when using fan folded media that has a width that is narrower than 3.25" (82.55mm).

The center 58mm infeed guide (p/n [424069-Z-5](#)) or center 80mm infeed guide (p/n [424069-Z-8](#)) may be installed on the printer if it will be replacing a Zebra KR203 or RK403 printer that used a similar center guide.

- **Media only contact media mounting and printer in kiosk** – The media should not touch cable, other kiosk components, or surface other than media guides or the fan-fold media tray. If media will be feed into the printer from below the infeed area, then recommend the use of a Printer Mounting Plate ([P/N 424213](#)).
- **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** - 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. Recommend the use of a BOCA roll holder [p/n 424051-U](#).

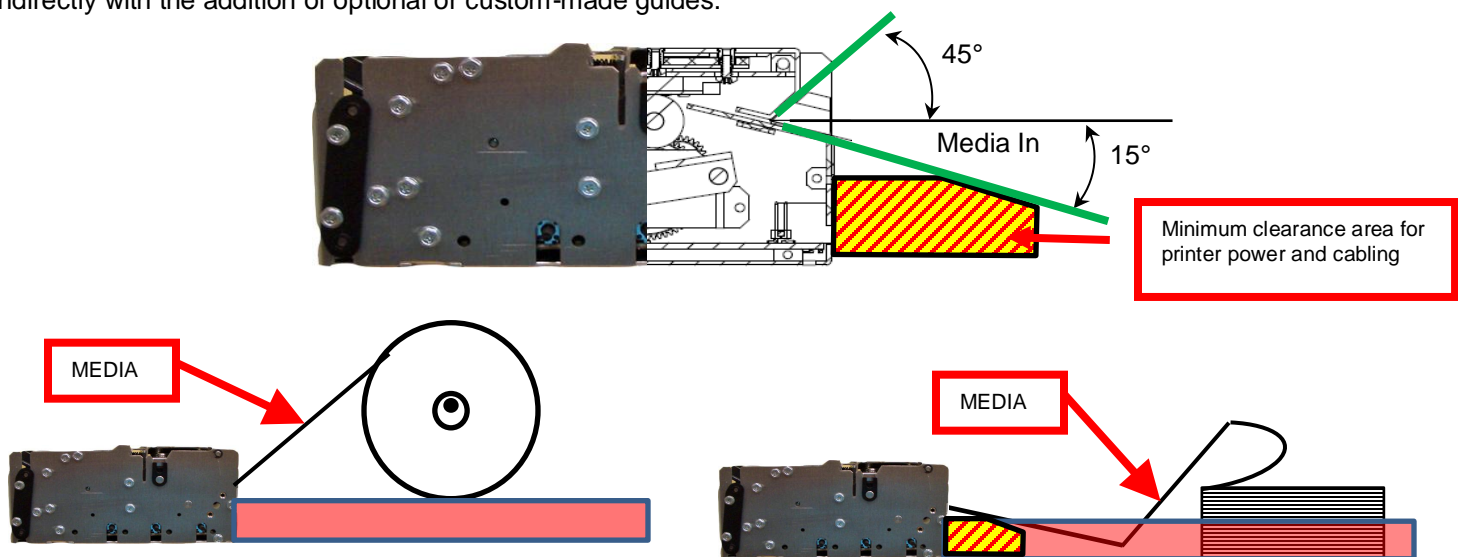
Fan-fold media must have sufficient room to unfold and not bind on media guide surfaces or at the perforations or sides.


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.

The printer supports two media supply types: outside roll mount; and stacked fan-folded media. The thermal side of the media faces up towards the top of the printer and away from the body of the printer. For roll media the minimum core size is 1.0".

Media Input Aperture

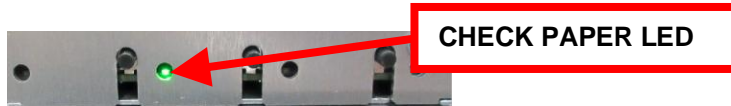
The printer has a wide aperture to support a range of media mounting locations. The media can enter the printer directly or indirectly with the addition of optional or custom-made guides.



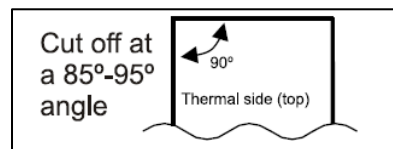
If the entrance of the media into the printer will fall below the red highlighted area shown above, then the highlighted yellow area  should have a continuous physical barrier separating the media from coming in contact with the cabling, printer body, kiosk chassis seams, etc. Recommend the use of the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

6.0 Media Load Procedure

1. Power printer on:
 - a. **If printer has power switch** - Attach the round DC connector of the 24VDC power supply into the printer. Plug the AC cord into the power pack. Turn the printer on via the power switch.
 - b. **If printer does not have a power switch** - Attach the round DC connector of the 24VDC power supply into the printer. Plug the AC cord into the power pack. The printer will power on at this time.
2. The red **CHECK PAPER** LED will be illuminated. You will also hear the cutter knife cycle during this time.



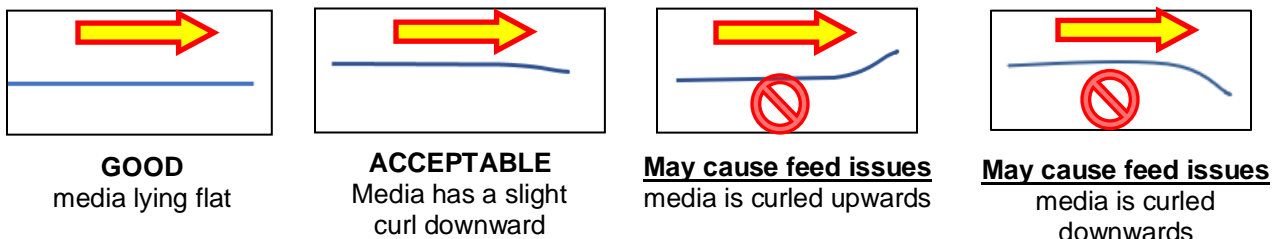
3. The leading part of the media should have a clean edge and be as flat as possible. If the media is curled upwards then it will need to be flattened prior to loading into the printer. The loading process works best with the media having as a square, straight edge. Cut the paper in a suitable angle.



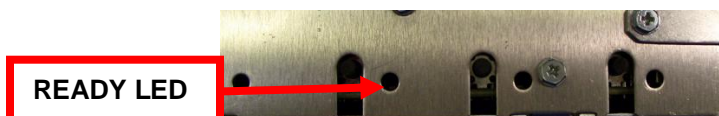
Also cutting a 45° angle on each side will help the flimsy media load through the paper path better.



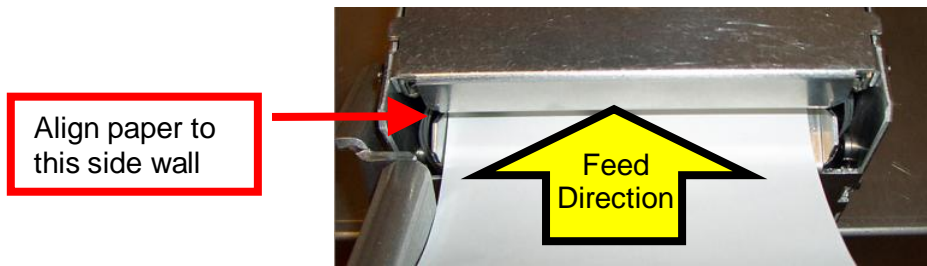
When feeding receipt media into the printer care needs to be take to ensure the leading edge of the media is lying flat and not curled upwards or downwards at a sharp angle. An upward or downward curled media may not feed properly into the printer and may lead to possible media feed or jamming.



4. Begin loading the media through the entrance slot with a smooth motion until it 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 load the media.
5. The receipt media will be fed out to the presenter sensor and retracted back to the print (idle) position. The green **READY** LED will be illuminated.

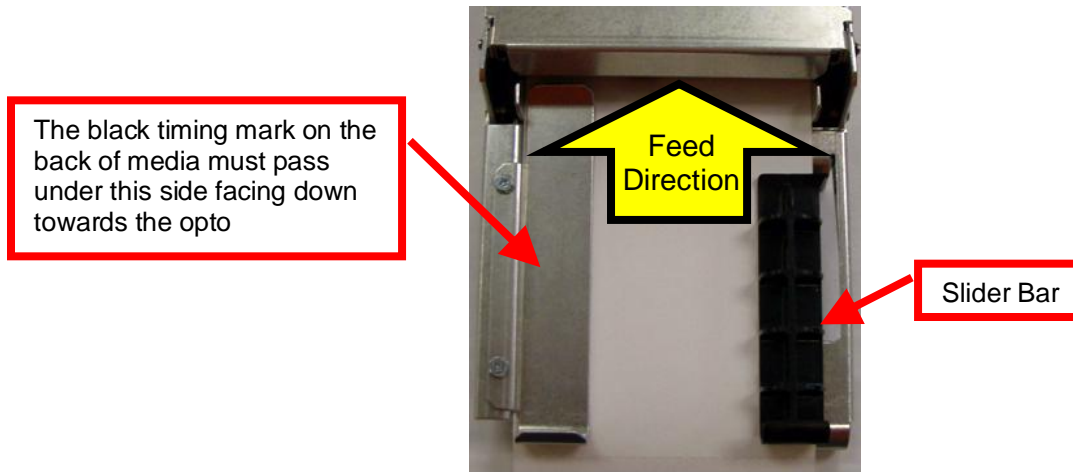


Receipt roll stock or with internal paper guide (424069-Z-7)



Fan folded stock (with external paper guide 424050)

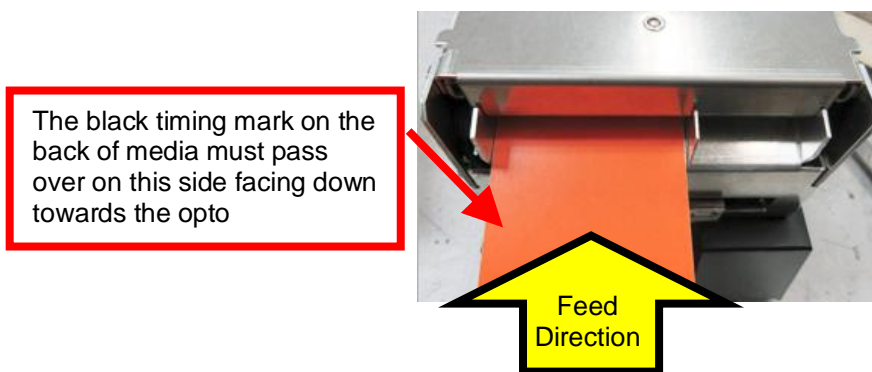
The printer will feed the stock forward toward the front of the printer and retracted back to the print (idle) position. For use with fan folded stock with black timing mark the stock will loop upwards.



Above show 3.25" wide media being loaded

Fan folded stock (with internal paper guide 424069-Z-7)

The printer will feed the stock forward toward the front of the printer and retracted back to the print (idle) position. For use with fan folded stock with black timing mark the stock will loop upwards.



Above show 2" wide media being loaded

When using media with a black timing mark the black mark must meet the specifications found on the following link www.bocasystems.com/ticket_specs10.html

If you have any ticket load issues then make sure the paper guide slider bar is properly adjusted (see [6.4 Ticket Width Adjustment](#)).

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

6.1 Reloading Receipt Media

The follow reviews how to reload receipt media into the printer in normal circumstances depending on what state it is in.

1. Used up complete roll of receipt media off the core. There is a possibility the printer may be in one of two states depending how much media was left when the printer went to print on the last of the media.

- a. The red **PAPER JAM LED** will be flashing. This would indicate the printer has gone into paper jam mode, see section [6.2 Clearing Paper Jams](#). This is most likely due to the receipt that was printed was too short to make it to the presenter rollers.



- b. The red **CHECK PAPER LED** is illuminated. This would indicate the printer is out of paper mode and media needs to be loaded in the manner outlined in section [6.0 Media Load Procedure](#). At step #1 no need to power up the printer as it is already powered on



2. Receipt media is still on the roll core and the green READY LED is illuminated.



- a. With the printer left powered on, open the print head assembly. See section [9.2 Thermal Printer Head](#).
- b. Remove the receipt media from the printer.
- c. Close the print head assembly and made sure both sides are latched closed.
- d. At this time the red CHECK PAPER LED should be illuminated. Proceed with loading the new roll of receipt media into the printer. See section [6.0 Media Load Procedure](#).



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

6.2 Clearing Paper Jams

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

1. Open the print head assembly. See section [9.2 THERMAL PRINT HEAD](#).
2. Remove and discard the damaged media.



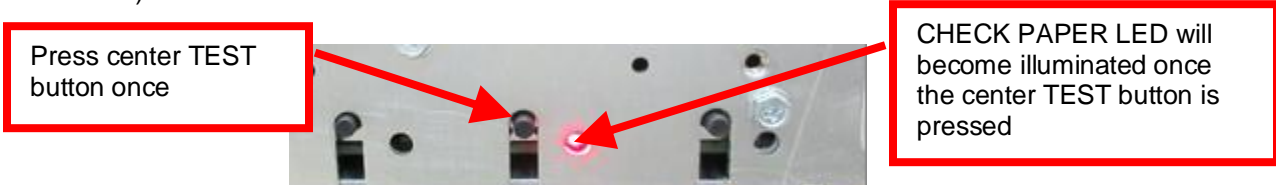
3. Cut the media off the from where it is loaded into the printer.



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



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

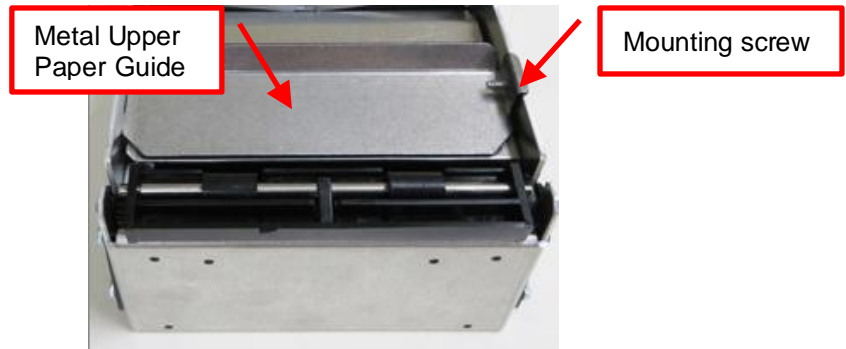
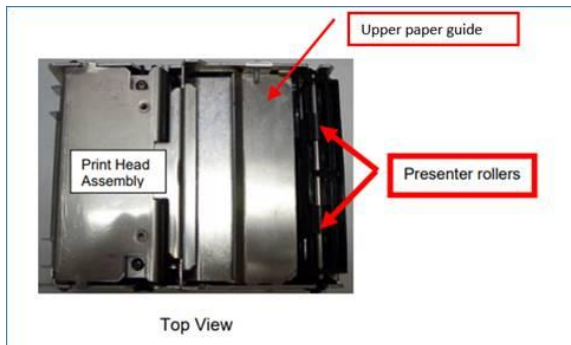


7. Feed the media back into the printer. See section [6.0 Media Load Procedure](#).

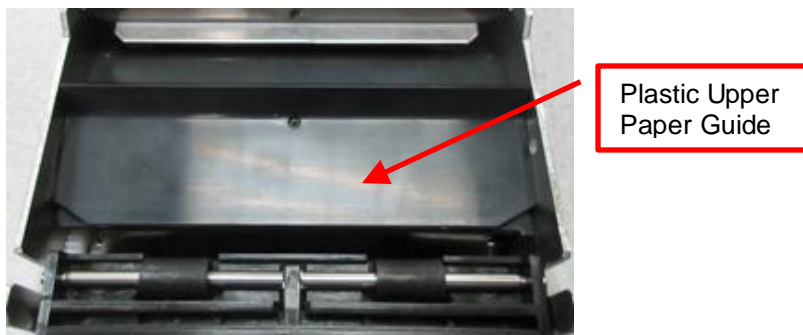
Click here to return to > [Table of Contents](#)

6.3 Remove Blockage, Upper Paper Guide

If the media is not able to pass from the print head assembly area to the presenter roller, then there may be blockage in the upper paper guide area. This could be due to either a piece of media or debris is blocking the paper path.



Printers sold in the latter part of September 2024 will have Plastic Upper Paper Guide.

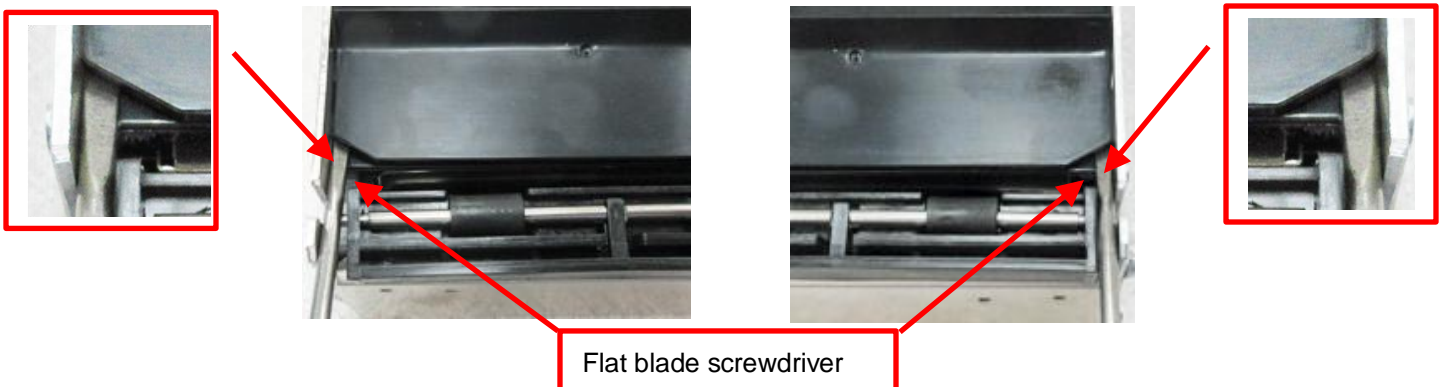


THE FOLLOWING IS TO BE DONE WITH THE PRINTER DISCONNECTED FROM POWER

If printer has a metal upper paper guide, see [METAL UPPER PAPER GUIDE](#) section.

PLASTIC UPPER PAPER GUIDE

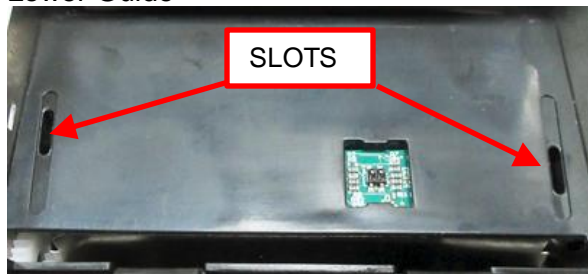
1. Insert a small flat blade screwdriver on each side of the upper paper guide and gently pry upwards to disengage it from the lower mid paper guide.



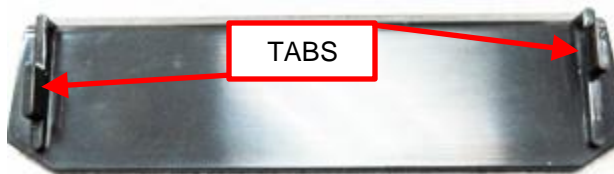
2. Remove the upper paper guide from the printer.
3. Inspect for any media or debris that may have been blocking the paper path or stuck to the bottom of the upper paper guide. Remove said blockage if seen.

4. In the lower paper guide, you will notice two slots and two tabs in the upper paper guide.

Lower Guide



Upper Guide



5. Align the upper and lower guide so the tabs and slots line up. Once aligned firmly press down to seat the upper guide back into the lower guide.



METAL UPPER PAPER GUIDE

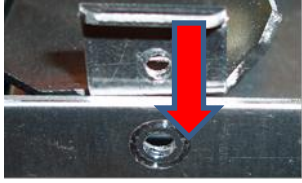
1. Remove the 3/16" hex head screw that secures the upper paper guide to the printer.



2. Remove the upper paper guide from the printer.
3. Inspect for any media or debris that may have been blocking the paper path or stuck to the bottom of the upper paper guide. Remove said blockage if seen. Note: the bottom of the upper paper guide is purposely painted black.
4. Install the upper paper guide back into the printer in the following manner.
 - a. Align the tabs of the upper paper guide with the slots in the printer frame. Fully insert tabs into their respective slots.



- b. Lower the other side of the upper pager guide down so the screw hole is properly aligned.



- c. Install the screw back in and tighten, taking care not to overtighten. While tightening the screw, apply pressure to the back on the upper paper guide lip.



Apply pressure

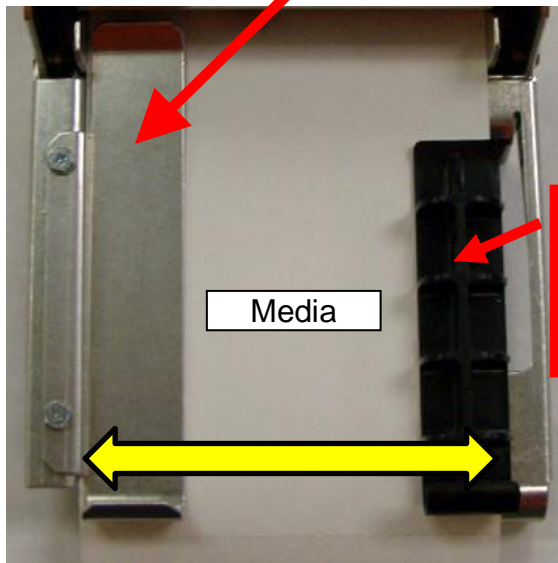
Click here to return to > [Table of Contents](#)

6.4 Media Width Adjustment

If your printer came with Adjustable external infeed guide then the below review how to adjust this path.

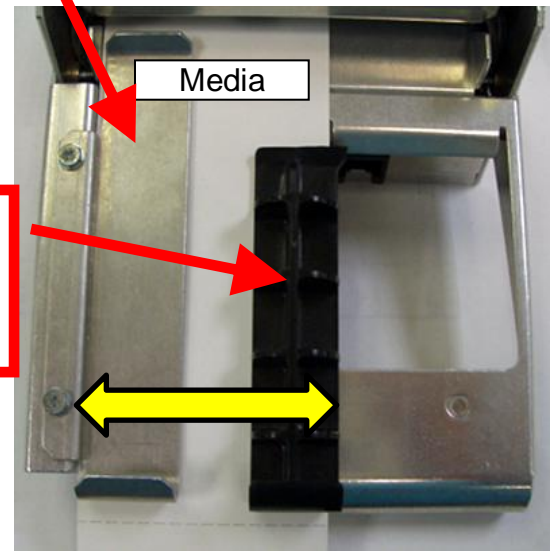
To adjust the paper path for use with a different media width, adjust the slider bar to the fully open position. Insert your media into the paper guide. Adjust the slider bar down to the proper media width, making sure the bar is not too tight against the media. The media should move freely in the paper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

Load your stock towards this side and below this metal plate



Slider Bar, **NOTE: stock must go under the slider bar.**

Above shows paper path adjust for 3.25" media.



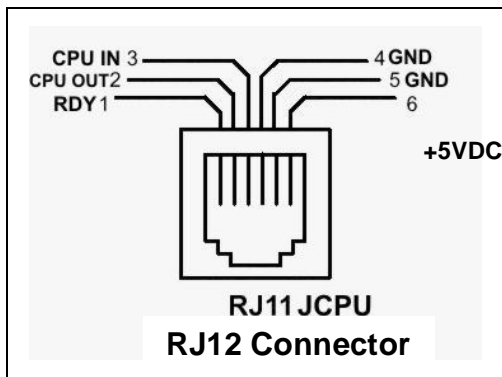
Above shows paper path adjust for 2" media.

If you are using the internal adjustable infeed guide part number 424069-Z-7 the please refer to [page 33](#) for adjustment.

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

7.0 Standard Interface Pinouts

RJ12 Serial Connection



TYPICAL DB9 to RJ12 PIN CONNECTIONS

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

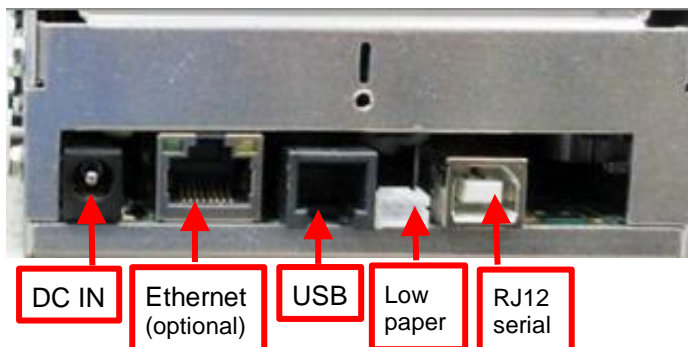
USB USB 2.0 compliant devices.

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

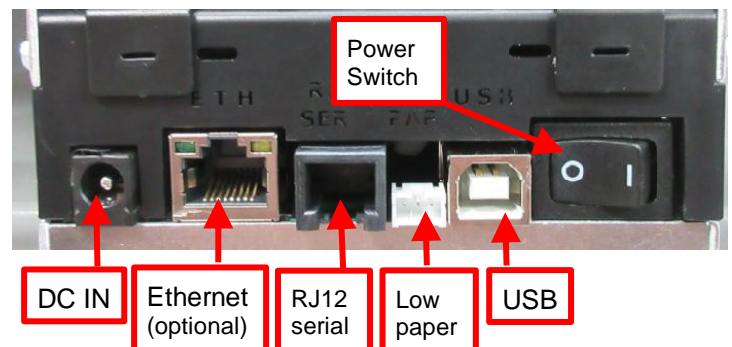
WI-FI (Optional) Support 802.11b/g/n Wi-Fi router. On dual-band router our printer needs be configured for the 2.4GHz band.

Low Paper Port used in conjunction with the roll holder with low paper sensor.

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



Printer build after mid-January 2025



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

8.0 Thermal Paper - Theory & Specification

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

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

MECHANICAL

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

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

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

ELECTRICAL

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

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

SPECIFICATION

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

200 dpi usage

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

Besides the above-mentioned stock, the Lemur-X is also able to support thicker stock like M10 & SKI-10

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

9.0 Maintenance

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



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

This section provides an overview of printer maintenance.

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

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

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

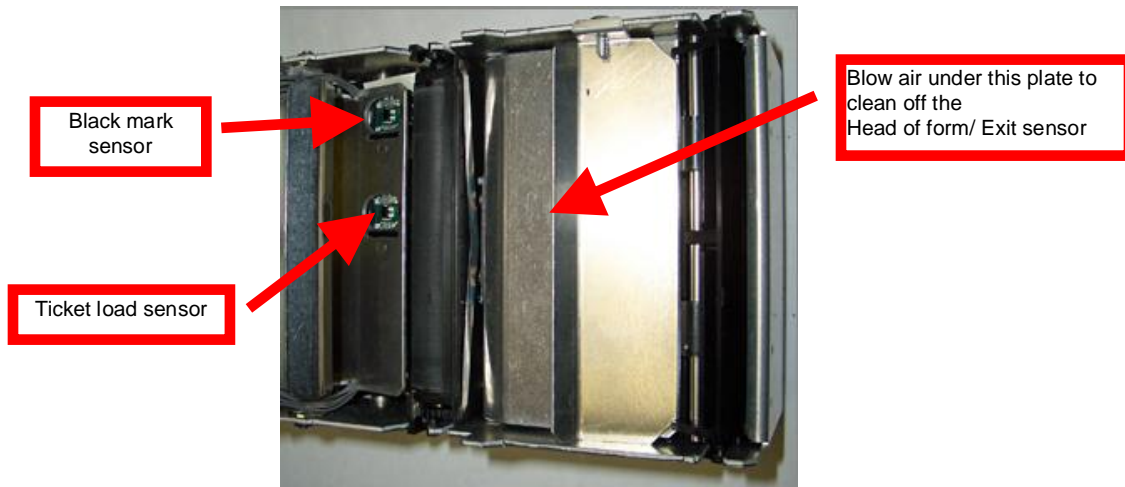
Routine Maintenance – Routine maintenance should normally be done a minimum once a year. Printer may require increased maintenance due to usage and environmental conditions.

See following link: https://www.bocasystems.com/documents/LemurZ_RoutineMaintenance.pdf

9.1 Optical Sensors

There are optical sensors (opto) which are responsible for detecting where the ticket stock is as all times. Printers with load opto configuration will be missing the black mark sensor.

Once a year the sensors should be blown off with air. This interval will vary depending upon the environment and the quality of the media.



PLEASE NOTE: Printers dedicated to the use of media without a black timing mark (receipt mode), will not have a black timing mark sensor.

CAUTION:

Exposure of these sensors to direct sunlight, incandescent or infrared lighting sources will lead to possible reliability issues. 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. Basically, these sources blind the sensors.

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

9.2 THERMAL PRINT HEAD

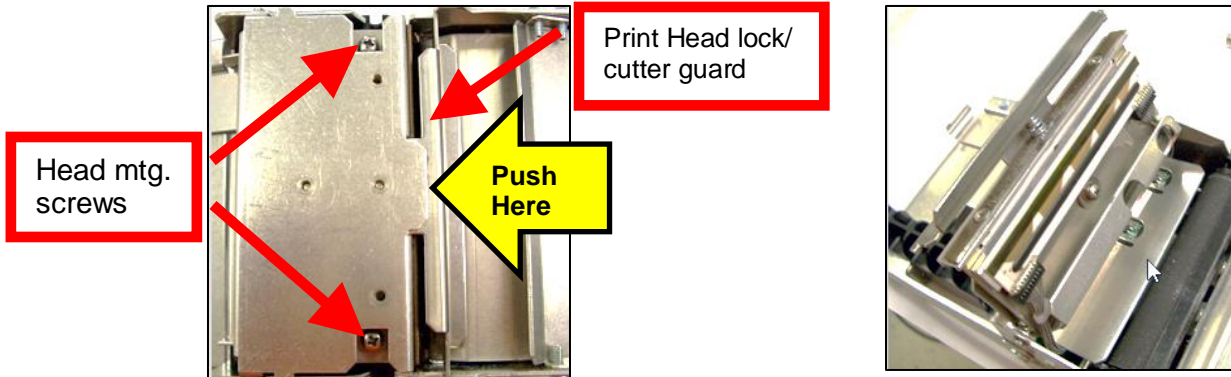
The print head should be cleaned periodically to prevent debris from building up on the print element. The required cleaning interval varies greatly depending on the quality of the media and the amount of dust entering the print area. Excessive dirt builds up on the print head will result in reduced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

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

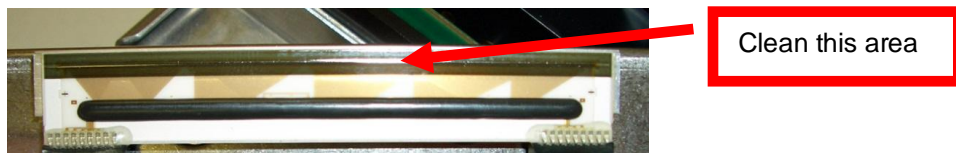
1. Disconnect AC cord from the power pack to turn off the printer.

2. DO NOT UNPLUG CABLE FROM PRINT HEAD.

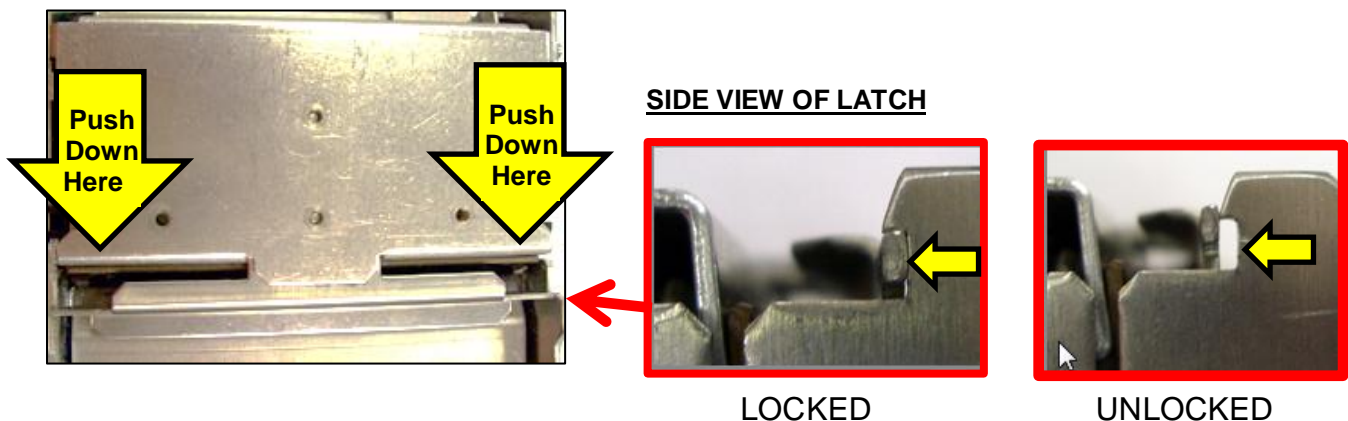
3. Open the print head by push back on the Print Head lock/ cutter guard to unlock the print head. Lift up on the head mounting assembly/ thermal head and tilt back.



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



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



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

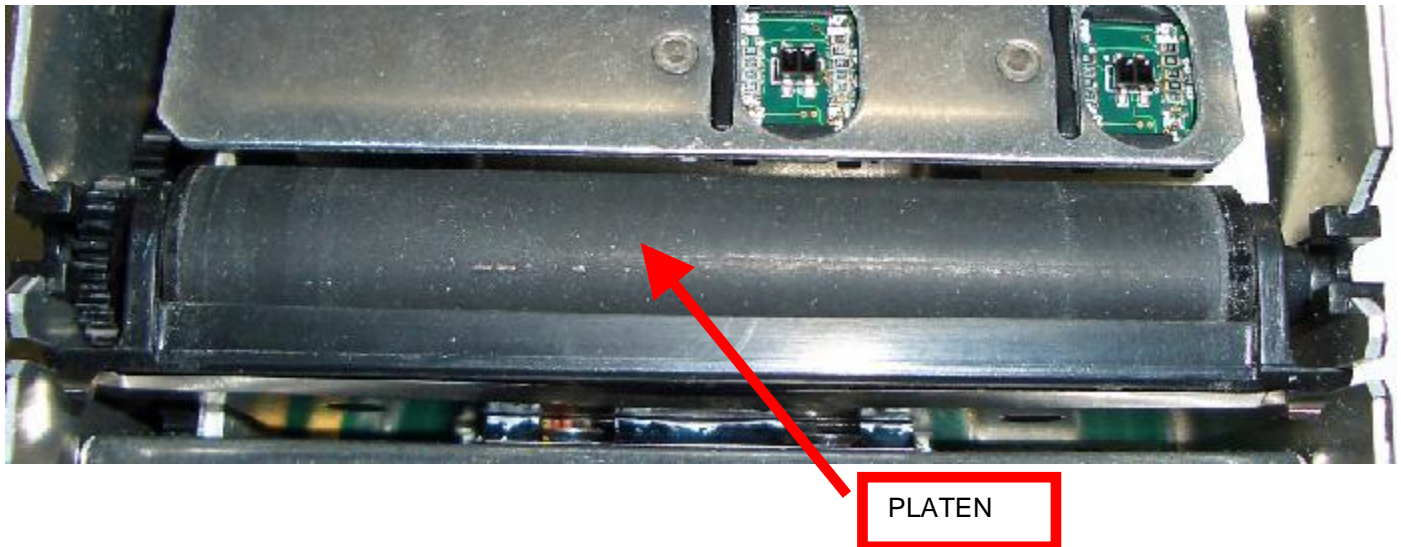
8. To replace print head (part number 200C3), gently remove the two head cable connector from print head and then remove print head from mounting plate by removing two Philip head screws.

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

9.3 Platen (Rubber Driver Roller)

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

1. Disconnect AC cord from the power pack to turn off the printer.
2. Unlock the cam lock lever and remove head mounting assembly/thermal head. (Refer to section [9.2 Thermal Print Head](#)).
3. Apply a small amount of Isopropyl alcohol onto a paper towel to clean the rubber roller.
4. Clean only the part of the rubber roller where the media makes contact.
5. Rotate the rubber roller clockwise a little and repeat step 4; continue in the same manner for one full revolution of the rubber roller.
6. Lock the head mounting assembly/thermal head back in place. Printer is now ready for normal operation.



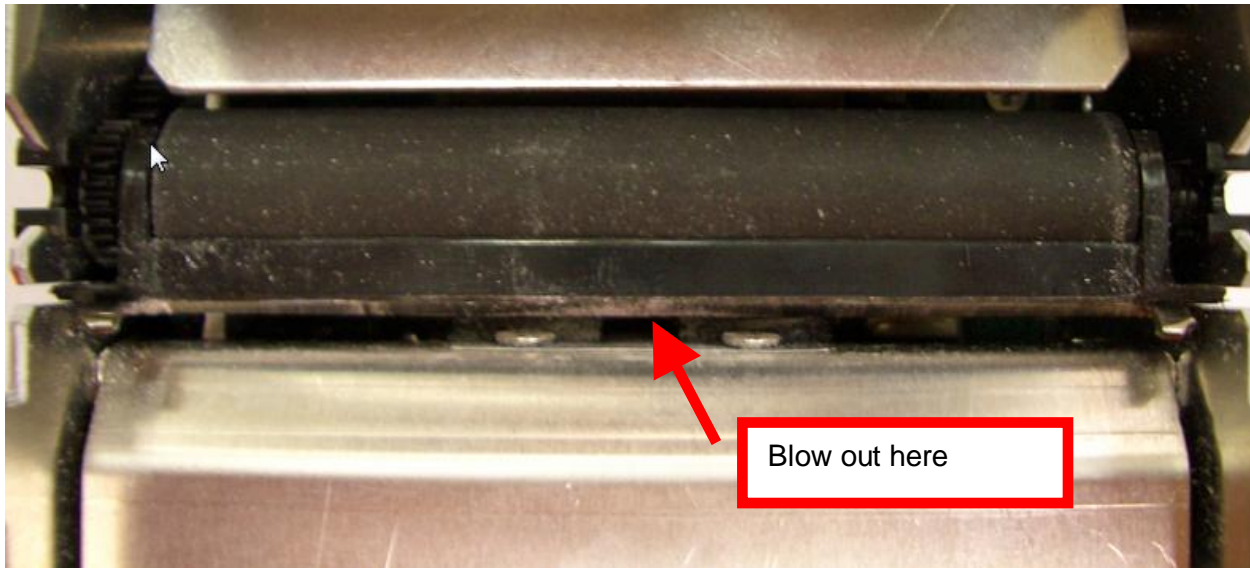
Click here to return to > [Table of Contents](#)

9.4 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 media into the printer after power up. During this time the cutter knife will move up and down. If media is fed into the printer before five seconds, a jam could occur.

The cutter area 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 media and the amount of paper dust entering the cutter area.



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

10.0 Troubleshooting Guide

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

1. NO OPERATION, LED'S DON'T LIGHT UP UPON POWER UP
 - a. Unplug the AC cord from the power source and wait 30 seconds then plug it back in.
 - b. Check the power cord for proper installation at both ends.
 - c. Check that there is power at the AC outlet.
 - d. Replace the 24 VDC power supply.
 - e. Contact your system provider or [BOCA](#) for further assistance.
2. POWER IS ON BUT NO OPERATION
 - a. Make sure the stock is being loaded properly into the printer. Consult section [6.0 Media Load Procedure](#).
 - b. Perform routine maintenance on the printer. Consult section [9.0 Maintenance](#)
 - c. If cutter knife does not go up and down after power up, See # 6.
 - d. Default the printer settings. With the printer powered off, hold down the center TEST button and then power up the printer. Keep the TEST button held down for 10 seconds and release (printer will reset).
 - e. Contact your system provider or [BOCA](#) for further assistance.
3. POWER IS ON BUT MEDIA WILL NOT LOAD
 - a. See # 2
 - b. Make sure the print head/cam lock assembly is fully locked in the closed position.
Consult [Thermal Print Head](#) section.
 - c. Check that the media is being loaded correctly. Consult [6.0 Media Load Procedure](#) section.
 - d. If using the paper guide then make sure the slider bar is properly adjusted for the width stock being used.
Consult [6.4 Media Width Adjustment](#) section
 - e. Make sure the printer is not exposed to direct sunlight, incandescent or infrared lighting source.
 - f. Contact your system provider or [BOCA](#) for further assistance.
4. CUTTER KNIFE DOES NOT MOVE (both red LEDs on side of printer are flashing)
 - a. Check for blockage in the cutter area.
 - b. Perform routine maintenance on the printer. Consult section [9.0 Maintenance](#)
 - 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.
 - d. Contact your system provider or [BOCA](#) for further assistance.
5. CUTTER KNIFE STAYS IN THE UP POSITION (both red LEDs on side of printer are flashing)
 - a. Check for blockage in the cutter area.
 - b. Perform routine maintenance on the printer. Consult section [9.0 Maintenance](#)
 - 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.
 - d. Contact your system provider or [BOCA](#) for further assistance.
6. CUTTER KNIFE IS MAKING A GRUNTING NOISE WHILE CUTTING
 - a. Check for blockage in the cutter area.
 - b. Perform routine maintenance on the printer. Consult section [9.0 Maintenance](#)
 - 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.
 - d. Slow down the cutter speed by sending **<mcs2>** command to the printer.
Consult [APPENDIX C – DOWNLOADING SOFTWARE COMMANDS](#)
 - e. Contact your system provider or [BOCA](#) for further assistance.
7. TWO RED LED'S ON SIDE OF PRINTER ARE FLASHING
 - a. See #6.

8. PRINTER SHOWING CHECK PAPER ERROR (Check Paper LED illuminated) when media is already loaded in the printer
 - a. Perform routine maintenance on the printer. Consult section [9.0 Maintenance](#)
 - 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.
 - c. Make sure the printer is not exposed to direct sunlight, incandescent or infrared lighting source.
 - d. Contact your system provider or [BOCA](#) for further assistance.
9. PRINTER SHOWING PAPER JAM ERROR (Paper Jam LED illuminated)
 - a. Check for blockage in the cutter area.
 - b. Perform routine maintenance on the printer. Consult section [9.0 Maintenance](#)
 - 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.
 - d. Check for any blockage under the Upper Paper Guide. Consult [6.3 Remove Blockage, Upper Paper Guide](#) section.
10. MEDIA IS NOT MAKING IT TO THE PRESENTER ROLLERS
 - a. Consult [6.3 Remove Blockage, Upper Paper Guide](#) section.
11. ERRATIC CUT POSITION
 - a. Clean off the opto sensors. Consult [9.1 Optical Sensors](#) section.
 - b. If using the paper guide then make sure the slider bar is properly adjusted for the width stock being used. Consult [6.4 Media Width Adjustment](#) section
 - c. Check that the platen is clean. Consult [9.3 Platen \(Rubber Driver Roller\)](#) section.
 - e. Make sure the printer is not exposed to direct sunlight, incandescent or infrared lighting source.
 - f. Contact your system provider or [BOCA](#) for further assistance.
12. ERRATIC PRINT POSITION
 - a. See # 4
13. POOR PRINT OUT (light print out)
 - a. Try a different receipt roll or stack of ticket stock.
 - b. Make sure the print head/cam lock assembly is fully locked in the closed position. Consult [Thermal Print Head](#) section.
 - c. Clean print head. Consult "[Thermal Print Head](#)" section.
 - d. Replace thermal head.
 - e. Contact your system provider or [BOCA](#) for further assistance.
14. POOR PRINT OUT (white voids in print out)
 - a. Clean print head. Consult "[Thermal Print Head](#)" section. For Lemur-R see "[Thermal Print Head](#)"
 - b. Replace thermal head.
 - c. Contact your system provider or [BOCA](#) for further assistance.
15. NO PRINT OUT
 - a. Try a different receipt roll or stack of ticket stock.
 - b. Check head cable for electrical connection at both sides of print head.
 - c. Check to make sure head cable is plugged in properly into the thermal head. Consult [Thermal Print Head](#) section
 - d. Replace the thermal head.
 - e. Contact your system provider or [BOCA](#) for further assistance.
16. PRINTER SKIPS TICKETS WHILE PRINTING
 - a. Check position and quality of black mark on the ticket stock.
 - b. If using the paper guide then make sure the slider bar is properly adjusted for the width stock being used. Consult [6.1 Media Width Adjustment](#) section.
 - c. Clean off SQ optical sensors (see [9.1 Optical Sensors](#)) with air.
 - d. Check that the platen is clean. Consult [9.3 Platen \(Rubber Driver Roller\)](#) section.
 - e. Contact your system provider or [BOCA](#) for further assistance.
17. PRINTER SKIPS TICKETS AND DIES
 - a. See # 10.

18. MEDIA JAM ENTERING THE CUTTER AREA
 - a. Make sure the entrance to the cutter area is not blocked.
 - b. If using the paper guide then make sure the slider bar is properly adjusted for the width stock being used.
Consult [6.4 Media Width Adjustment](#) section.
 - c. Contact your system provider or [BOCA](#) for further assistance.

19. ETHERNET WILL NOT CONNECT
 - a. When the Ethernet cable is connected to the printer the DATA LED on the control panel or Ethernet connector should start flashing. If it does not:
 - Check to make sure the Ethernet setting is not set to NO. The self-test ticket printout shows the status.
 - Check to make sure the Ethernet connect on the cable is good.
 - b. Printer leaves the factory with the Ethernet set to DHCP by default. Change the Ethernet setting via the control panel to DHCP/SUB/GATE (see [Appendix D – DOWNLOADING SOFTWARE COMMANDS](#))
 - c. Your Network IP server may not support the use of a DHCP protocol and require the Ethernet to be set to a static IP address. Ethernet Interface Addendum of the [FGL programming guide](#) reviews how to do this.

20. 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 used.
 - b. On initial setup, have the printer as close as possible to the Wi-Fi router.
 - c. Check to make sure you have the correct SSID and security values for the Wi-Fi router you are trying to connect to. Please note these values are case sensitive.
 - d. If you have multiple routers change the channel setting to 1, 6 or 11. Multiple routers using the same channel will cause connection and drop single issues.

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

11.0 Spare Parts List

#	Part Number	Description
1	200C3	Print Head 200dpi
2	424181	Cable, Print Head 2C (one on each side)
3	SQ OPTO-JST**	Opto Detector cut (JST connector)
3*	SQ OPTO	Opto Detector cut (AMP Connector)
4	SQ OPTO-L-JST-Z**	Opto Detector Ticket load (JST connector)
4*	SQ OPTO-L	Opto Detector Ticket load (AMP Connector)
4A	SQ OPTO-L-JST-Z**	Opto Detector Load Presenter (JST)
5	423760-L3B-Z	Platen complete
6	424012-PG-5	Platen Paper Guide
7	424012-PRES-C	Presenter Roller Assembly
8	SQ OPTO-CZ**	Opto Detector cutter knife (JST Connector)
9	PM25L-024	Stepper Motor
10*	sKR46***	Logic Board (power switch)
10	sKR46-E***	Logic Board with Ethernet (power switch)
11	424012-BRG-1	Platen Sleeve Bearing (one on each side)
12	423445Z2	Cutter Knife
13	423456Z2	Fixed Blade
14	424069-Z-1PL	Front Paper Guide for logic board w/ switch
15	424050	Adjustable External Infeed Guide
16	424069-Z-7	Adjustable Internal Infeed Guide
17	424069-Z-5	Center Infeed Guide (58mm)
18	424069-Z-8	Center Infeed Guide (80mm)
19	424077	Base Mounting Zebra Adapter
20	424213	Printer Mounting Plate
21	424051-U	Receipt Roll Holder
22	424078	Low Paper Sensor (Roll Holder)
23	424084	Low Paper Sensor (Fan Folded Stock)
24	424095	Power supply 24vdc (65W)
25	424069-Z-3PL	Infeed guide (left)
26	424069-Z-3PL-R	Infeed guide (right)
27	424013-RLL-SA	Eject roller

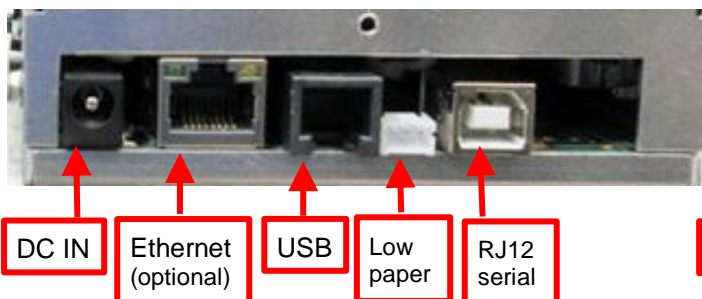
Parts with grey background are best replaced by a qualified BOCA service technician.

* Customer dependent and not shown in photos

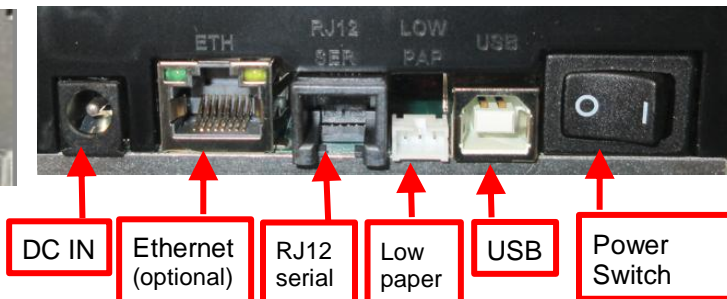
** Part used on printer serial number 457007 and up.

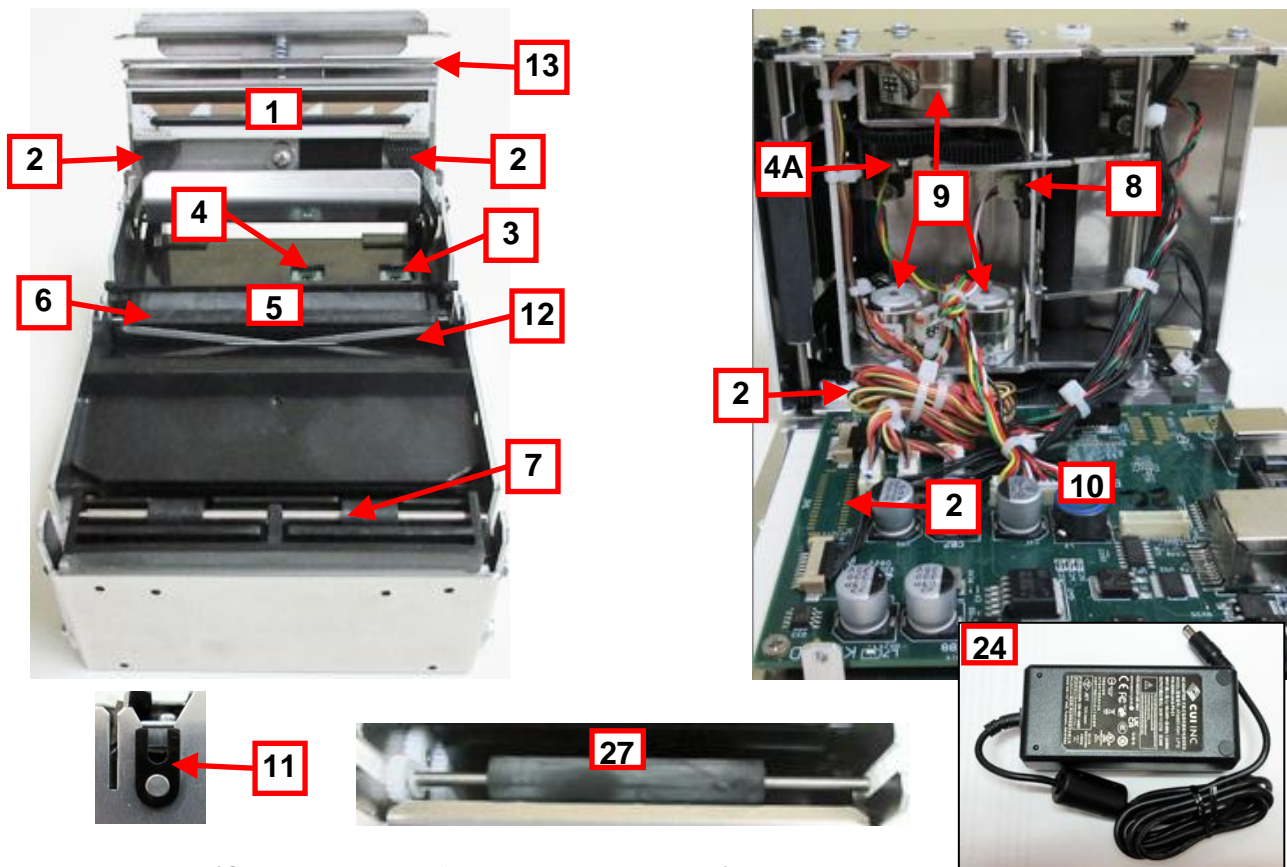
*** In mid-January 2025 printer logic boards have integrated power switch. If you need to replacement board on a printer that does not have a power switch already, then the front paper guide (p/n 424069-Z-1PL) needs to be ordered as well.

Below is a KJ46 board

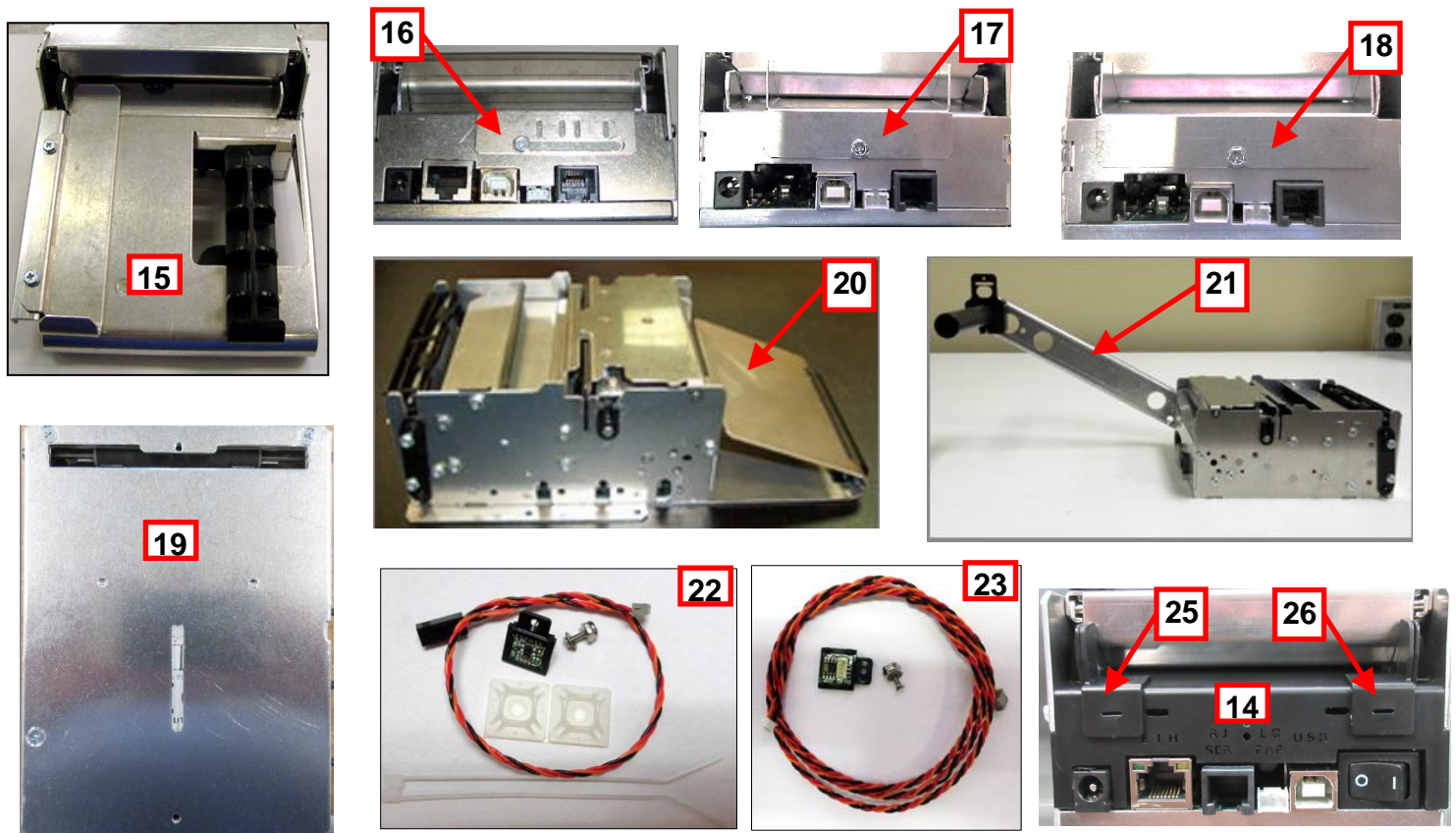


Below is a KR46 board with power switch





Accessories (Click on image for installation guide)



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

12.0 Accessories

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

- Infeed Guide – We offer different infeed guides (printer may be ordered with infeed guide preinstalled)
 - Adjustable external infeed guide ([P/N 424050](#))
 - Adjustable internal infeed guide ([P/N 424069-Z-7](#))
 - Center infeed guide ([P/N 424069-Z-5](#) (58mm) or [424069-Z-8](#) (80mm)) for Zebra replacement integration. **Printers built after mid-January 2025 do not use the above guide by have integrated tabs. See [12.3 Center Infeed Guide Installation](#).**
- Base mounting adapter ([P/N 424077](#)) for Zebra replacement integration.
- Printer mounting plate ([P/N 424213](#))
- Receipt roll holder ([P/N 424051-U](#))
- Low paper sensor for roll holder ([P/N 424078](#))
- Low paper sensor for fan folder stock ([P/N 424084](#))

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

12.1 Adjustable External Infeed Guide Installation

(P/N 424050)

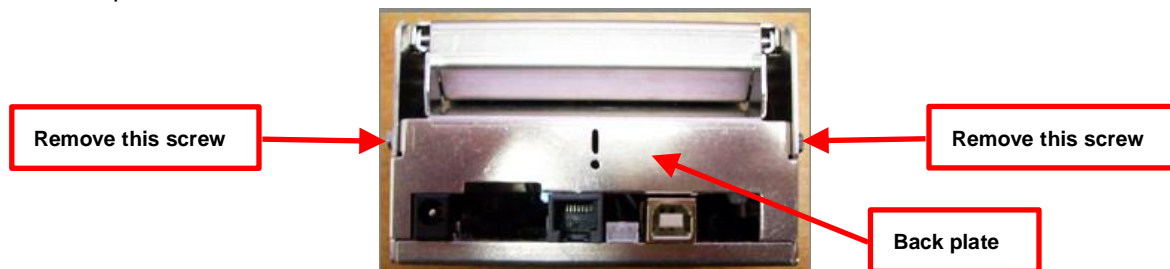
The below reviews installing an optional adjustable external infeed guide. Kit will include paper guide and two mounting screws.



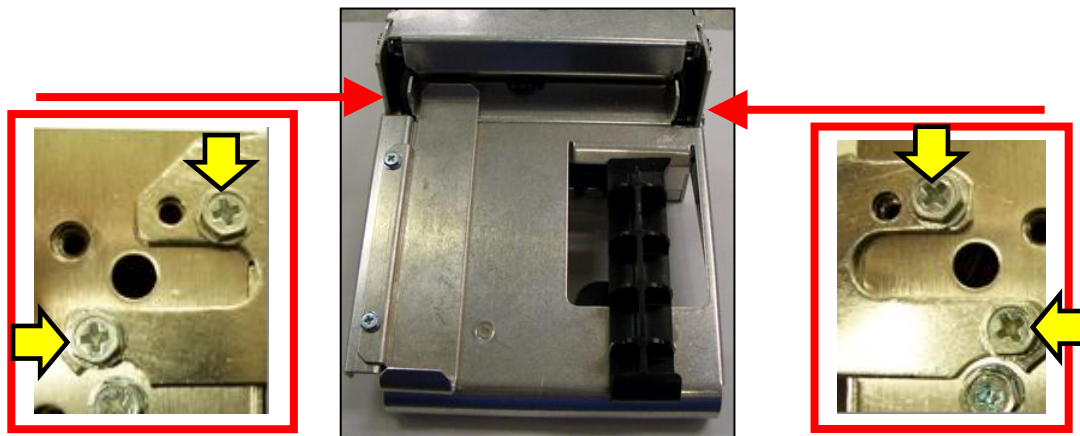
1. The paper guide is installed onto the Lemur-Z using four mounting locations shown below.



2. Remove the two Philip 3/16" Hex head screws on each side holds the back plate onto the printer. Do not remove the black plate.



3. Install the paper guide onto the back of the printer and align the mounting holes to the above referenced installation location. Install the four Philip 3/16" Hex head screws, two that were removed and two included with the paper guide and tighten.



The black slider bar may be adjusted to accommodate media widths from 2" to up to 3.25".

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

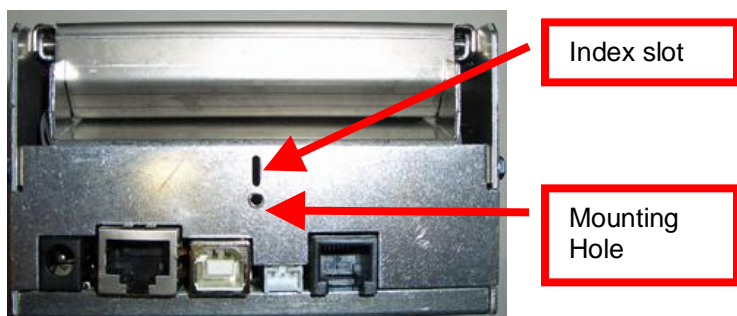
12.2 Adjustable Internal Infeed Guide Installation

(P/N 424069-Z-7)

The adjustable infeed guide enables the Lemur-Z to be used with 2" to 3.22" wide media when the external adjustable infeed guide (p/n 424050) is not practical. For 3.25" wide media the guide is not needed.

The below reviews how to install the optional infeed guide.

1. The guide is mounted onto the back of the Lemur-Z using the hole shown in the photo below.



2. Use the #4 -40 self-tapping screw that came with guide to mount it onto the printer. Firmly hold the guide down while tightening the screw.



Above shows guide all the way to right for 2" wide media

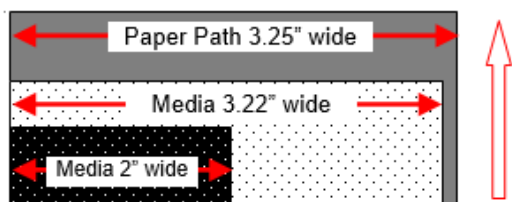
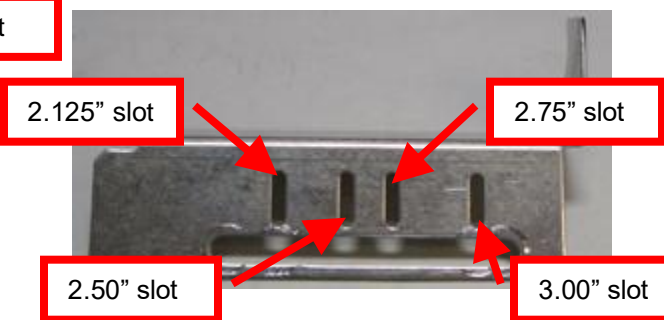


Above shows guide all the way to left for 3.22" wide media

3. The guide may be adjusted for media widths in between the two above mentioned positions. The guide comes with four index slots that match up with the slot on the printer for the desired index width.



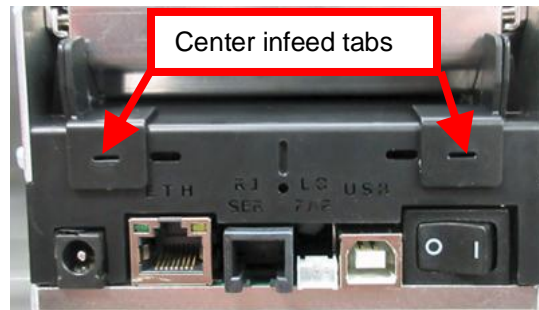
Above shows guide configured for 2.125" wide media



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

12.3 Center Infeed Guide Installation

Printers built in mid-January 2025 will have plastic center infeed guides. If the back of your printer looks metal instead of plastic (as shown below) got to [page 35](#).



Printer will come with center infeed guide set for 80mm unless otherwise specified when printer is ordered.

- If printer will be used with the below the center infeed tabs need to be removed.
 - Media that is wider than 80mm.
 - Adjustable external infeed guide ([P/N 424050](#))
 - Adjustable internal infeed guide ([P/N 424069-Z-7](#))
- The center infeed tabs will need to be moved inward if used with 58mm wide media.

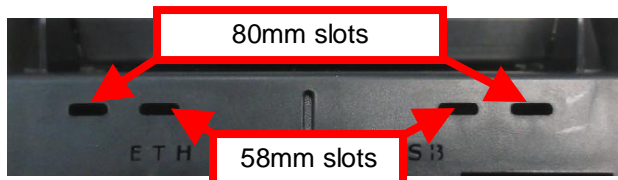
REMOVING GUIDE

1. Insert a thin blade screwdriver behind the tab and gently pry outward. Do the same for tab on both sides of the printer.



INTERT TAB

1. There are 80mm slots and 58mm slots positions.



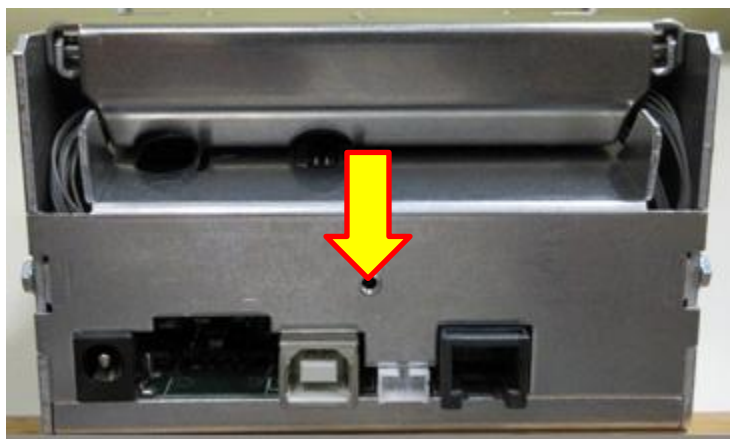
2. Insert the tab of the guide into the slot width you want and gently press down to secure it in place.



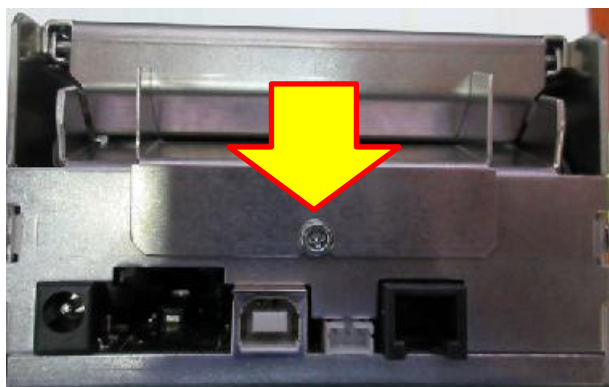
The center 58mm or 80mm infeed guide enables a Lemur-Z built prior to mid-January 2025 to be used in existing kiosk using said media widths that needs to be centered in the middle of the printer.

The below reviews how to install the optional centering paper guide.

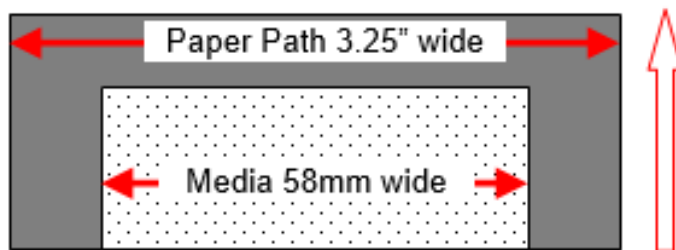
1. The guide is mounted onto the back of the Lemur-Z using the hole shown in the photo below.



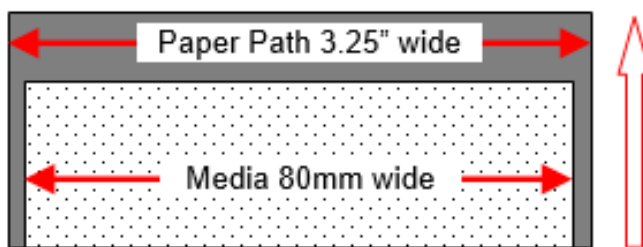
2. Use the #4 -40 self-tapping screw that came with guide to mount it onto the printer. Firmly hold the guide down while tightening the screw.



Above shows 58mm center guide (p/n 424069-Z-5)



Above shows 80mm center guide (p/n 424069-Z-8)



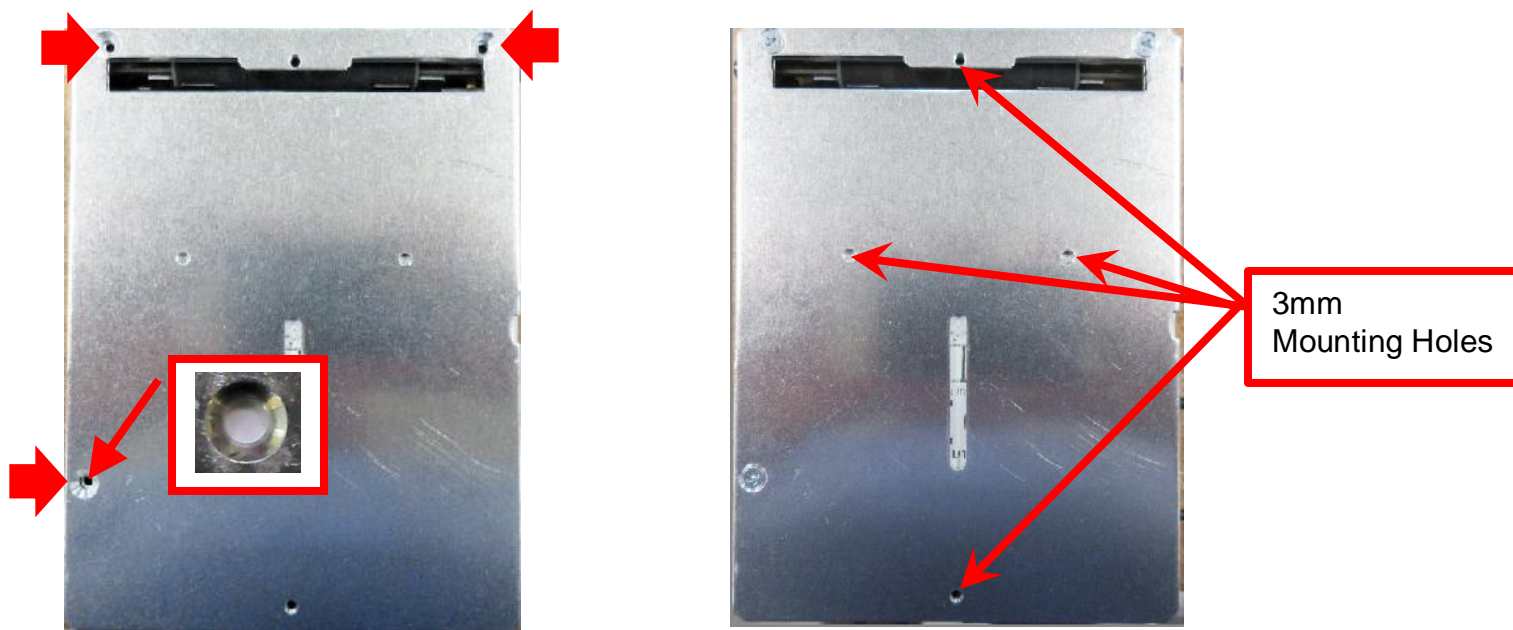
Click here to return to > [Table of Contents](#)

12.4 Base Mounting Adapter Installation (P/N 424077)

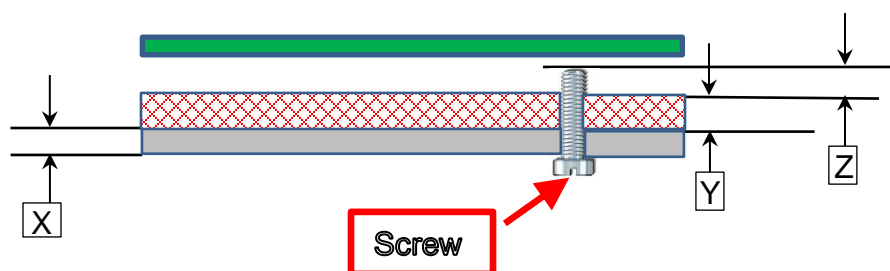
The base mounting adapter enables the Lemur-Z to have similar mounting holes as a Zebra KR203 and KR403 printer. It also allows it to be used with the quick fit hubs when the retracting feature of the printer is not being used.

Using the three Philip head #4-40 self-tapping screws, that came with the plate, to mount the plate onto the bottom of the Lemur-Z printer.

The side of the plate that has countersink holes needs to face away from the bottom of the printer.



Care needs to be taken concerning mounting screw length, see guide below. ***The use of the incorrect length screw may damage the circuit board.***



X	TBD	Surface thickness printer will be mounted to
Y	0.140" (3.55mm)	Base Mounting Adapter & printer thickness
Z	0.030" (0.76mm) maximum	Greater than this will penetrate into the circuit board
X + Y = minimum screw length		
X + Y + Z = maximum screw length		
Greater than this will cause the screw to penetrate into the circuit board.		

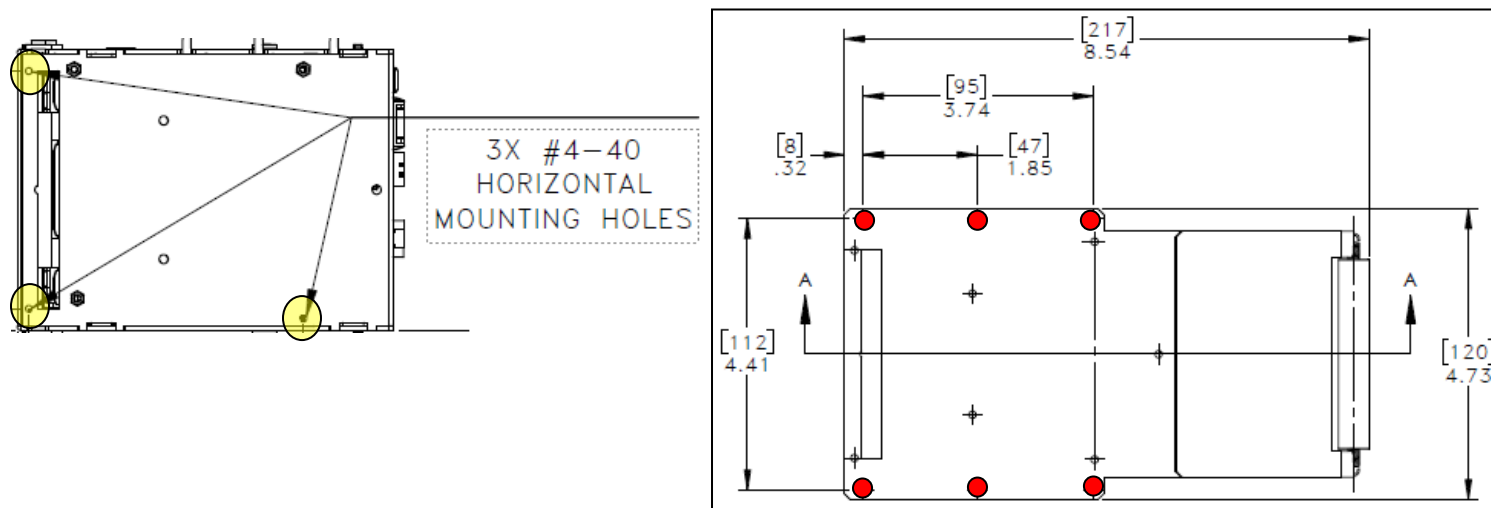
Click here to return to > [Table of Contents](#)

12.5 Printer Mounting Plate Installation (P/N 424213)

The Printer Mounting Plate performs several functions:

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

The plate attaches to the three mounting hole locations on the bottom of the Lemur-Z printer.

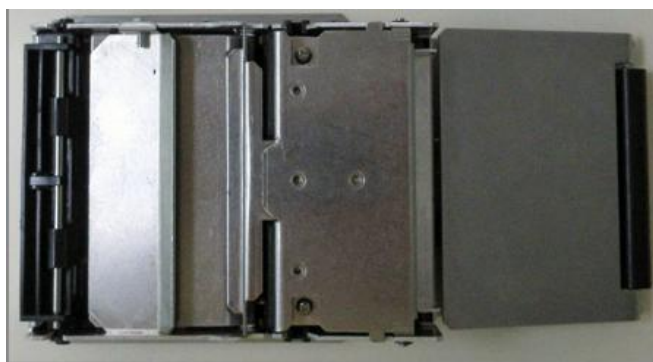


Above shows the location of the six .112" through holes

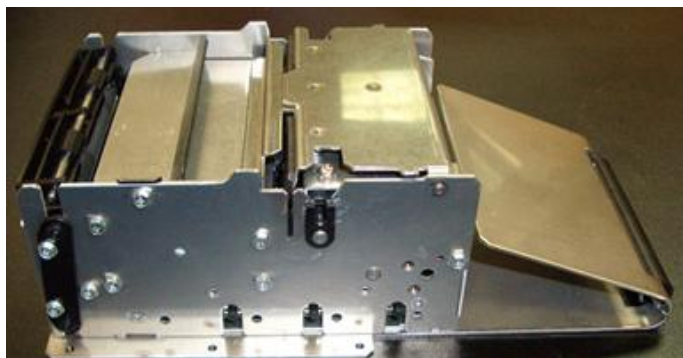
Use the three 3/16" Hex head Taptite screws, that came with the plate, to mount the plate onto the bottom of the printer.



Bottom View



Top View



Side View

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


12.6 Receipt Roll Holder Installation (P/N 424051-U)

This roll holder kit is designed to be used with either a Lemur-X or Lemur-Z model printer. It may also be used with a Lemur-Z using an optional 58mm or 80mm center infeed guide. This kit will work with a roll that has a minimum cord inner diameter of 1.0" or greater.

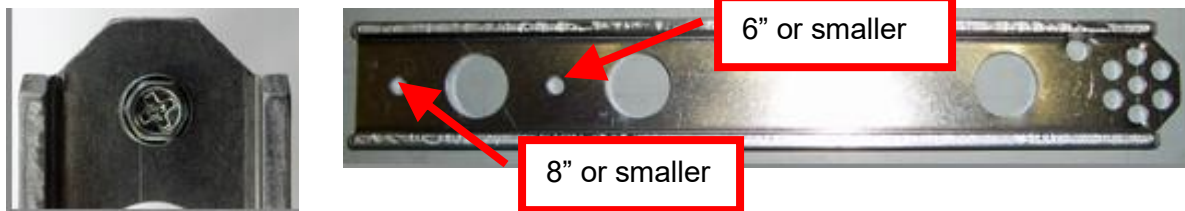
Kit will include mounting plate, roll holder arm, spindle, stopper disc and mounting hardware.



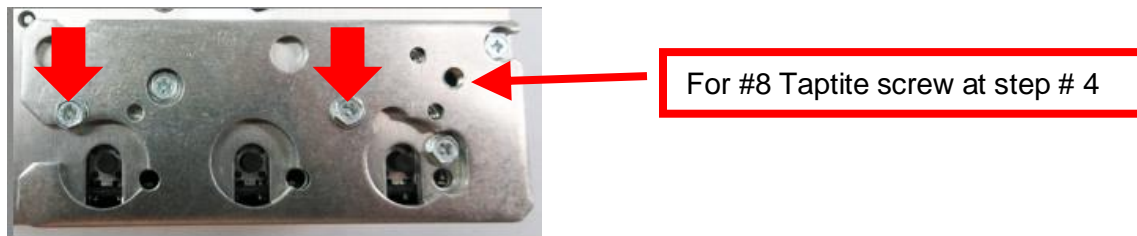
Some parts may look different than the above photo

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

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

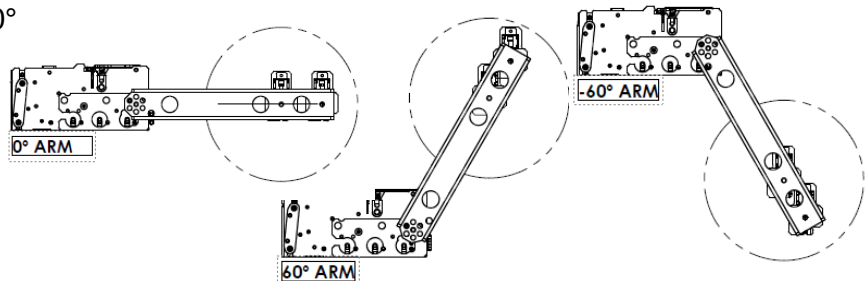
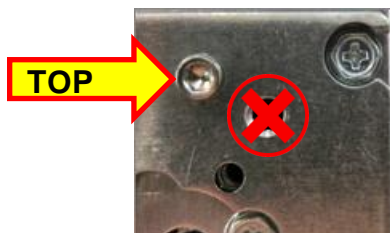


2. Install the roll holder arm mounting plate onto the printer using two 3/16" Hex Head #4 Taptite screws. The plate may be installed on either side of the printer.

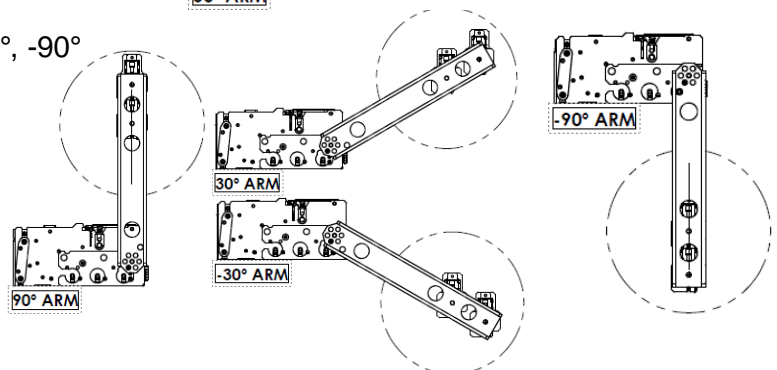
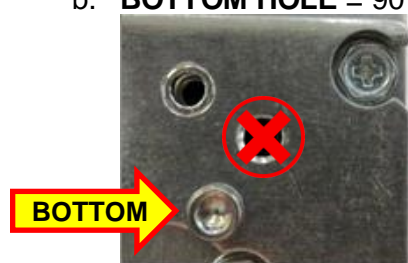


3. Install the one 3/32" Allen head screw into the mounting plate. Location will depend on the desired angle you want to set the arm at. See last page for diagram of possible arm positions angles.

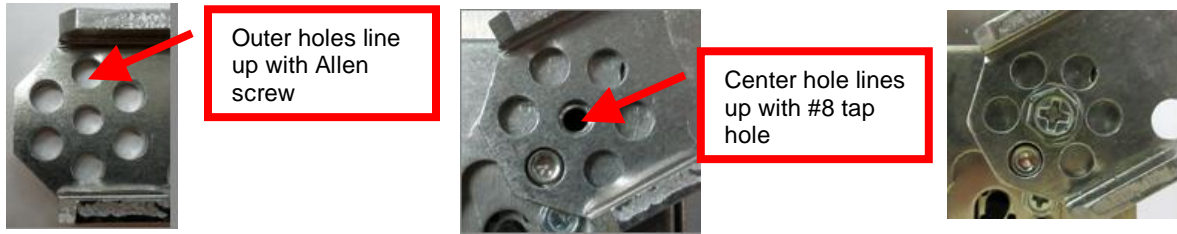
a. **TOP HOLE** = 60°, 0°, - 60°



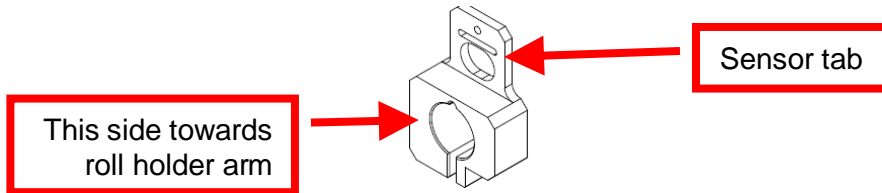
b. **BOTTOM HOLE** = 90°, 30°, - 30°, -90°



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

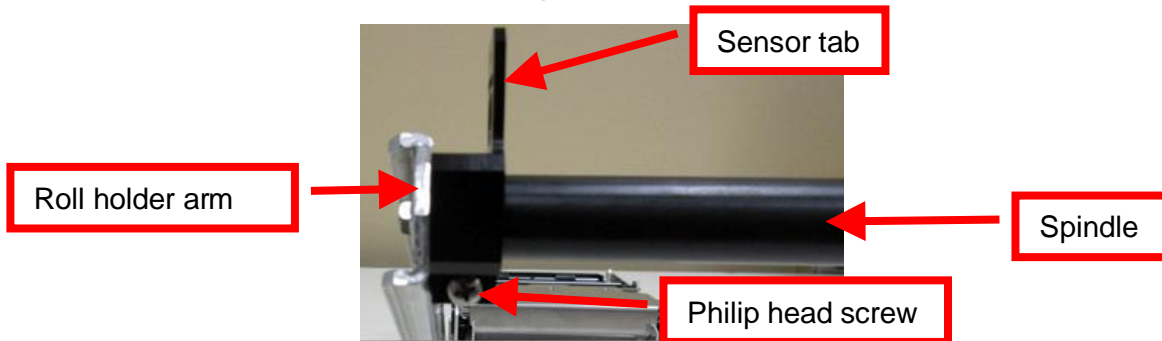


5. Slide the roll holder block onto the spindle with the sensor tab away from the roll holder arm.

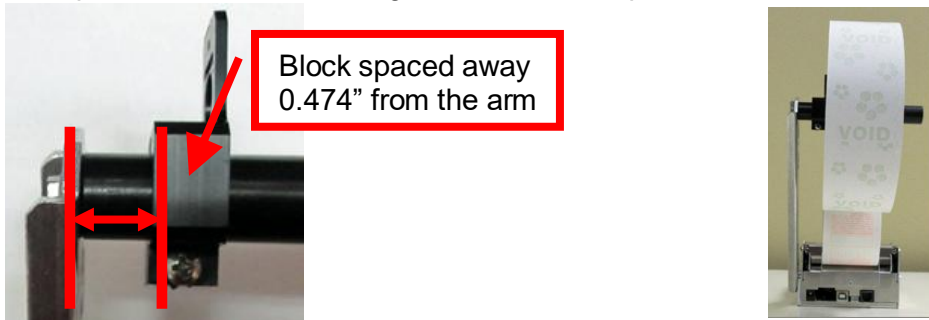


6. Slide the block to the desired location.

- a. For Lemur-Z without or with 80mm center infeed guide, slide the block all the way to the roll holder arm. See below photo.



- b. For 58mm, the block should be spaced 0.474" away from the roll holder arm. The roll needs to line up with the center infeed guide. See below photos.



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

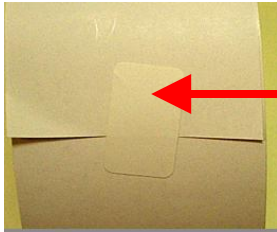


- d. Tight the Philip screw on the block to hold it in place.



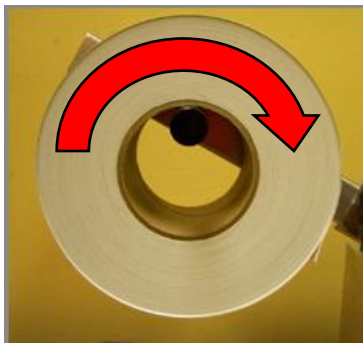
Philip head
screw

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

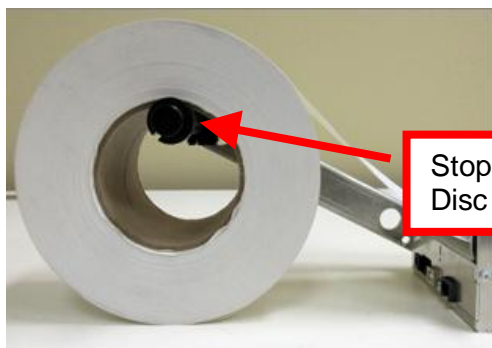


Must be
completely
removed

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



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

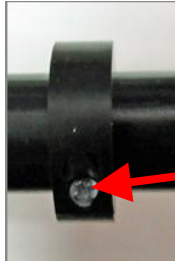


Stopper
Disc



Stopper
Disc

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



Philip head
screw

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








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

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

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

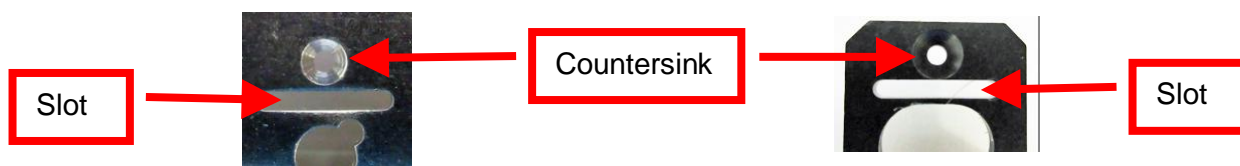
Kit contains the following items:



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

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

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



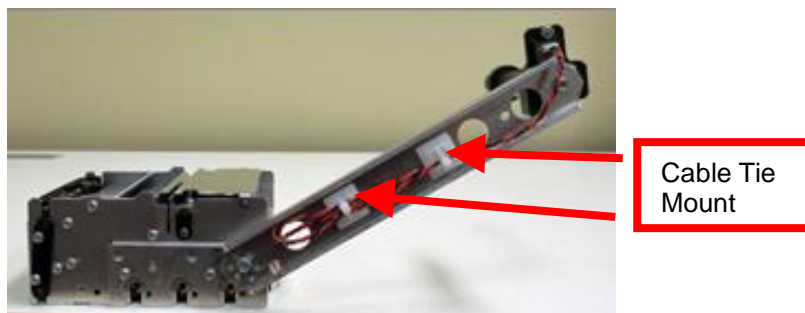
3. Install the sensor, so that the sensor tab is facing towards the slot on the arm or roll holder block.



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

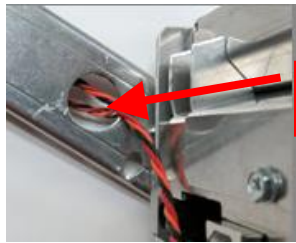


5. Attach the cable tie mount to the roll holder arm, similar to what is shown in the below photo. Connect the white connector to the sensor and route the wire through the hole in the arm. Zip-tie the cable onto the cable tie mount.



Roll holder arm (P/N 424051-U)

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



Hole in Arm



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

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

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

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

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

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

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

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

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

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

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

An optional low paper sensor may be used for fan folded stock.

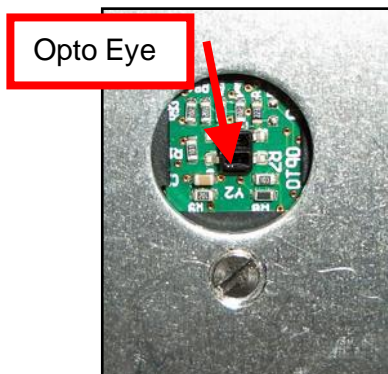
Each kit comes with the following:



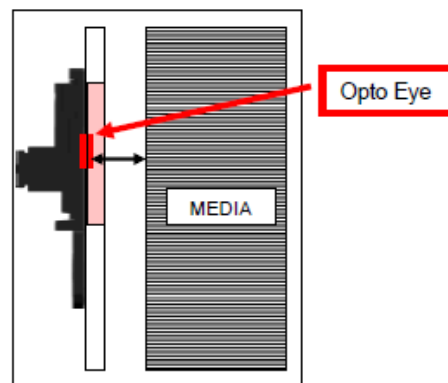
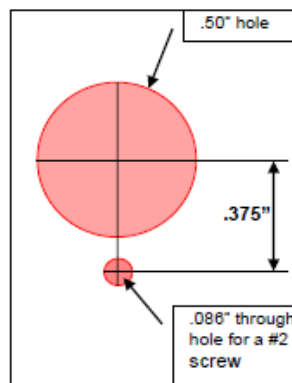
	1X	Low paper sensor		1X	36" Cable
	1X	2-56x 3/8" Phil flat head screw		1X	Flat washer
	2X	2-56x3/16" nut			

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

The paper low sensor opto is to be mounted on the side of the media locator tray to the customer's specified height. The distance from the sensor eye to the side of the media should be no greater than .330" (8.38mm) but may be less. Below shows one possible mounting configuration. The opening may be round or square but must be large enough to not short any of the components on the board to metal.



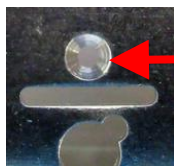
Above shows a .50" hole.



Distance between opto eye & stock is no greater than .330"

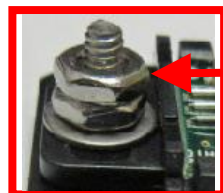
The sensor is installed in the following manner:

1. Insert the screw into the countersink side.



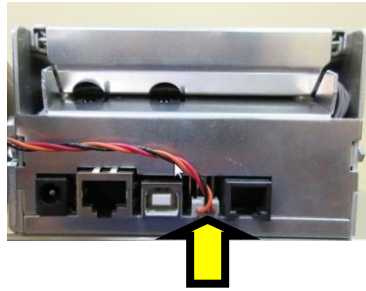
Countersink

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



Second nut installed

3. The white connector of the cable is plugged in to the sensor opto. The other end is connected to the low paper connector on the printer.



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

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

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

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

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

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

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

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

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

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

APPENDIX A –ETHERNET PARAMETERS

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

ETHERNET (only) – Via Web Browser

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

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

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

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

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



Login

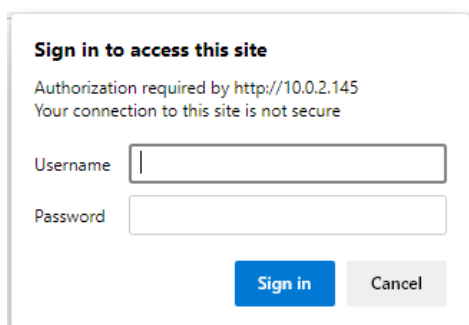
Note: the printer's webpage is currently not password protected.

If you wish to secure the webpage enter a password, otherwise leave blank.
(Password can be up to ten printable characters)

Enter Password:

Confirm Password:

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



Sign in to access this site

Authorization required by <http://10.0.2.145>
Your connection to this site is not secure

Username

Password

The menu will come up, click on Submit button to go to the configuration page if you do not want to pass work protect.

Login
<p>This webpage is password protected.</p> <p>If you wish to change your password please fill in a new one. (Password can be up to ten printable characters)</p> <p>Otherwise, just press Submit.</p>
<p>Current Password: <input type="text"/></p>
<p>New Password: <input type="text"/></p>
<p>Confirm New Password: <input type="text"/></p>
<p><input type="button" value="Submit"/></p>

- Below shows the configuration page

Boca Systems' Printer Configuration Page					
Firmware:		FGL46R5 / SB07			
Serial Number:		XXX			
On Time:		000:00:04:37 d/h/m/s			
MAC ID:		00.0D.71.00.00.00			
<p>FACTORY MENU : items with an * should not be changed or selected without first consulting Boca Systems.</p>					
BAUD RATE=	115200.N 8,1	MINI/MICRO=	MINI	PRINT SPEED=	5
TICKET TYPE=	SPECIAL TICKET	STATUS ENABLED=	USB/SER	TRANSPARENT MODE=	NO
*HEAD DPI=	200	SPECIAL HEAD=	NO	PATH TYPE=	PATH1
CLEAR DOWNLOAD=	NO	DEFAULT SETTINGS=	NO	CUT1 COUNT=	16 (1-200)
*2-SIDED PRINTER=	NO	PARK TICKET=	NO	TICKET MODE=	SINGLE
PRINT INTENSITY=	NORMAL	SKI MODE=	NO	FLASH ACK MODE=	NO
BI-DIRECTIONAL=	NO	TEST TICKET=	STANDARD	BASEBALL MODE=	NO
FONT ENCODING=	NONE	ACKNOWLEDGE=	NORMAL	*HIGH SPEED MODE=	NO
*SHUFFLE MODE=	NO	*CUTTER TYPE=	BOCA	*CUTTER SPEED=	NORMAL
ETHERNET=	DHCP/SUB/GATE	IP ADDRESS=	010.000.002.145 (Enter 12 digits)	SUBNET MASK=	255.255.0.0
DNS SERVER=	008.008.008.008 (Enter 12 digits)	SPEED/DUPLEX=	AUTO-NEGOTIATE	DEFAULT WEBPAGE=	CONFIGURATION
TICKETS REMAINING 1=	0	TICKETS LOW 1=	0	TICKETS REMAINING 2=	0
RFID=	NO	USB DEVICE TYPE=	PRINTER	BLUETOOTH=	NO
MAGNETICS=	NO				
<p><input type="button" value="SAVE CHANGES"/></p> <p>Press Save button to store changes! Note: Printer will reset after a few seconds. In order to continue, you must refresh your screen after printer resets!</p>					
<p>Realtime Status Configure Email Configure SNMP</p>					

- 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](#).

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

APPENDIX B – TESTING A LEMUR-Z

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>

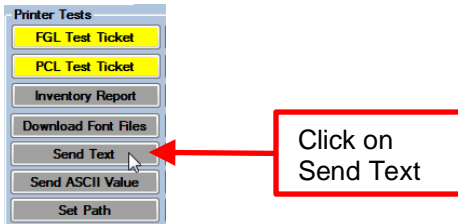
Click here to return to > [Table of Contents](#)

APPENDIX C – DOWNLOADING SOFTWARE COMMANDS

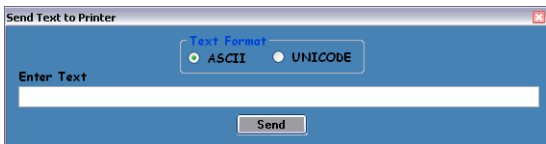
Menu setting changes may be done by utilizing the software commands listed below. This is best done using configure and test program (see [Appendix B](#))

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

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



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











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

























The following commands are available for the Lemur-Z: *the command only needs to be sent once to take permanent effect. These commands are not to be included along with the data that is being sent to print a receipt or ticket. If you wish to have any setting changes you make become the new default settings instead of the way it left the factory then page 53 reviews how to establish new default settings.*

Note: The printer may be used with stock that has a black timing mark if needed Lemur-Z (www.bocasystems.com/ticket_specs10.html).

When the Lemur-Z leaves the factory, it is configured for use with receipt rolled stock (stock with no black timing mark) unless otherwise specified. If you are using the printer with stock that has a black timing mark then it will need to be taken out of receipt mode.

- **<pmd>** this will configure the printer for use with media with a black timing mark. Printer will reset after receipt of command.
- **<pmr>** this will configure the printer for use with receipt stock without a black timing mark. Printer will reset after receipt of command.
- **<ket#><p>** This will enable the retract feature and set the kiosk eject timeout command (# = seconds value). This controls the time delay the printer will retract the media if not taken. The default value is 3 seconds. Range is 1 - 255 seconds.
For example, the <ket10> command will configure the printer to present the media for 10 seconds before retracting it back if not taken. *The printer will issue a blank receipt/ ticket upon receipt of said command.*
- **<ket0><p>** Will disable the retracting feature of the printer. *The printer will issue a blank receipt/ ticket upon receipt of said command.*
- **<mcs2>** Will slow down the cutter motor speed to add more torque if the cutter is having an issue cutting through the media. The printer will reset after receipt of said command.
- **<kem#><p>** Kiosk eject mode configuration command. Each bit represents a different configuration option. *The printer will issue a blank receipt/ ticket upon receipt of said command.*

LOOP		= Loop media inside		= no loop
NAK		= no NAK		= NAK on trashed media
MOTOR		= small platen motor		= N/A
EJECT		= present media to be pulled out		= eject media immediately

LOOP						
NAK						
Motor						
Eject						
Value	0	1	2	3	8	9

The default value is zero (0). This configures the printer as follows: Internal media loop, no NAK on trashed media, small platen motor and media is presented to be pulled out by customer. Note: if media is not removed within the 'kiosk eject timeout' period it will be retracted into the trash bin (trashed).

As an example, if you wanted the media to not loop inside before ejecting immediately you would send **<kem9>** command to the printer.

REVERSE – by default the printer does not back in in receipt mode. Some may require the print position be closer to the leading edge of the media (the first part that comes out of the printer). To set the printout closer to the leading edge of the receipt, add 16 to the above values. Only support is software version N158 and higher.

WAIT – by default the printer will not print the next receipt/ticket until the receipt/ticket is taken when the printer is sent present mode. Some may require the ability to be able to print a receipt/ticket even if the receipt/ticket has not been taken. To disable the wait mode, add 32 to the above values. This setting is normally used in conjunctions with the **<ket0>** command. Only support is software version N158 and higher.

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

FAILSAFE MODE:

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

ETHERNET MODE COMMANDS:

<eth#> This command sets the Ethernet mode for the printer and is permanently stored in flash. This can also be set using the 'Factory Menu'. The printer will reset after receipt of this command. The values can range as shown below:

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

<ip###.###.###.###> This command changes the IP address of the printer and stores it in flash. The printer will rest after receipt of the command. For example, if you want to set the IP address for 10.0.1.25 you would send the below command **<ip10.0.1.25>**.

<dwg###.###.###.###> This command changes the Default Gateway address of the printer and stores it in flash. The printer will rest after receipt of the command. For example, if you want to set the Default Gateway address for

10.0.1.254 you would send the below command <ip10.0.1.254>.

<sub#> This command changes the Subnet Mask of the printer and stores it in flash. The printer will rest after receipt of the command. The values can range from 0 to 32:

For example, if you want to set the Subnet Mask for 255:255:225:0 you would send the below command <sub24>.

0	0.0.0.0 (reserved)	17	255.255.128.0 (class C)
1	128.0.0.0 (class A)	18	255.255.192.0 “
2	192.0.0.0 “	19	255.255.224.0 “
3	224.0.0.0 “	20	255.255.240.0 “
4	240.0.0.0 “	21	255.255.248.0 “
5	248.0.0.0 “	22	255.255.252.0 “
6	252.0.0.0 “	23	255.255.254.0 “
7	254.0.0.0 “	24	255.255.255.0 “
8	255.0.0.0 “	25	255.255.255.128
9	255.128.0.0 (class B)	26	255.255.255.192
10	255.192.0.0 “	27	255.255.255.224
11	255.224.0.0 “	28	255.255.255.240
12	255.240.0.0 “	29	255.255.255.248
13	255.248.0.0 “	30	255.255.255.252
14	255.252.0.0 “	31	255.255.255.254 (unusable)
15	255.254.0.0 “	32	255.255.255.255 (host-single address)
16	255.255.0.0 “		

PRESENTER COMMAND SETTINGS

Below are various ways you may configure the Lemur-Z, concerning presenting the media after it is printed.

1. **Present with no retract** - The following software command will disable the retract feature of the printer:

<ket0><p>

The printer will present and hold the media in place to be taken. You are not able to print the next transaction until the receipt/ ticket has back taken out of the presenter. The printer will issue a blank receipt/ ticket upon receipt of command and command only needs to be sent once. **This is how a printer will leave the factory unless otherwise specified.**

2. **Present and retract** - The printer will present and hold the media in place to be taken and then retract it back into the printer after 3 seconds. This is how the printer is currently configured.

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

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

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

<bce><ket0><kem32><bcd>

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

4. **Eject the media completely out** – The following command will disable the present and retract feature and have the media ejected completely out of the printer once it has been printed: **<kem8><p>**.
The printer will issue a blank receipt/ ticket upon receipt of command and command only needs to be sent once.

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

STATUS COMMAND SETTINGS

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

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

<cs><p>

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

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

Printer will send the below unsolicited and solicited status messages:

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

* Is only sent when printer path type is set for *path 1 – exit opto*, **by default the printer is not set for this mode**. Will not work if presenter is set to eject media (<kem8>) completely out of the printer or set to no wait mode (<kem32>).

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

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

Printer will send the below unsolicited and solicited status messages:

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

* Is only sent when printer path type is set for *path 1 – exit opto*, **by default the printer is not set for this mode**. Will not work if presenter is set to eject media (<kem8>) completely out of the printer or set to no wait mode (<kem32>).

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

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

Printer will send the below unsolicited and solicited status messages:

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

* Is only sent when printer path type is set for *path 1 – exit opto*, **by default the printer is not set for this mode**. Will not work if presenter is set to eject media (<kem8>) completely out of the printer or set to no wait mode (<kem32>).

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

<p16>

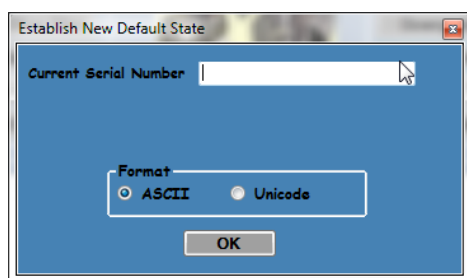
ESTABLISH NEW DEFAULTS

Any changes you have made will be permanently saved so when the printer is powered off it will keep the changed settings. If the printer is defaulted it will erase any changes you have made and revert back to the way the printer left the factory.

If you want to printer to keep the setting changes you have made even when the printer setting is defaulted then you may use the same configure and test program to Establish New Default settings. This will cause the printer to save your current setting as the new factory default settings.

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

1. Click on the “Establish New Default” button. Type the serial number of the printer in the Current Serial Number box and click on the OK button.



2. Once you click Ok button the printer will reset. This will indicate the printer had saved the new default settings.

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

APPENDIX D – WINDOWS USB DRIVER INSTALLATION GUIDE

Boca printer driver package needs to be installed prior connecting your printer to the host computer.

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 application. We recommend that the print driver is installed by either your system administrator or IT support staff.

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

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

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

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

APPENDIX E – MAC DRIVER INSTALLATION GUIDE

Boca printer driver package needs to be installed prior connecting your printer to the host computer.

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 application. 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:

https://bocasystems.com/documents/MAC_Driver_Install_Guide_2021.pdf

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

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

APPENDIX F – CONFIGURE WI-FI CONNECTION

To use the wireless capabilities of a printer equipped with the optional 802.11b wireless interface (Wi-Fi), it will first be necessary to setup the printer with information and security settings that match the settings of the IEEE 802.11b 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.

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:

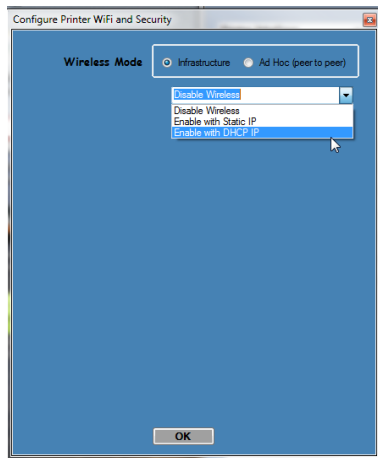
- Wi-Fi router is a b/g/n wireless device that supports 2.4 GHz speed (we do not support 5 GHz speed)?
- If the printer needs to be configured for DHCP or Static IP address?
- SSID name of the router you are connecting to?
- What security mode is required (Disabled, WAP, WAP2 or WEP)?
- If security mode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

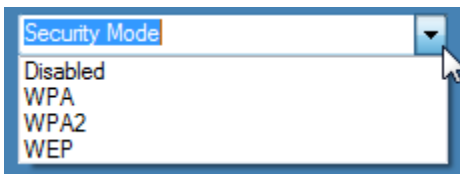
1. For initial install the printer must be as close as possible to the Wi-Fi router itself. This will ensure maximum signal strength. Once you have confirmed the Wi-Fi is operational, the printer may be moved to its desired location.
2. You need to confirm you are able to print a ticket using our Configure and Test program for Windows or Customer program for MAC. The printing of a ticket via this program will confirm it is communicating with the printer. Leave the program open and move onto the next step.
3. In the Configure and Test program for Windows click on the “Setup Wi-Fi button. In the Customer program for MAC select “Setup Wi-Fi” under the “Select Printer Operation”.
4. When the Configure Printer Wi-Fi and Security menu comes up you have a few choices.
 - a. **Wireless Mode** – Infrastructure (this is default setting). **DO NOT SELECT Ad Hoc (peer to peer)**
 - b. **Disable Wireless** – You would choose this if you wanted to disable the Wi-Fi
 - Enable with Static IP** – This would be for networks that require a static IP address.
 - Enable with DHCP IP** - Automatically attempts to get an IP address from Local Server (this is the most common one and the one we will be using for the rest of the steps).



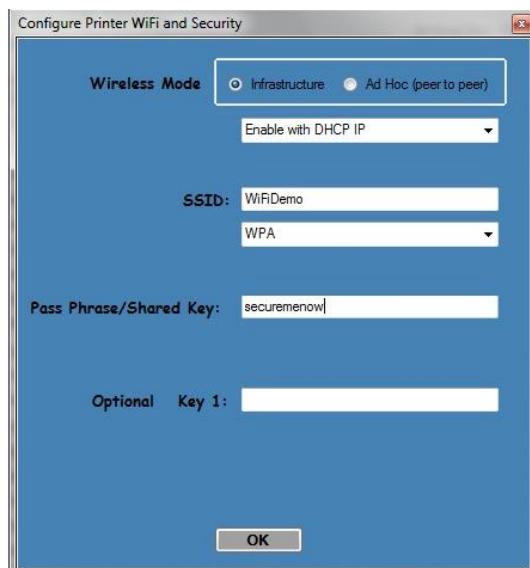
5. You will need to enter the **SSID value**. The Service Set Identifier is a 1-to-32-byte string. This normally would be the name of the Wi-Fi router you are connection to. **Please note the ID is case sensitive.**

SSID:

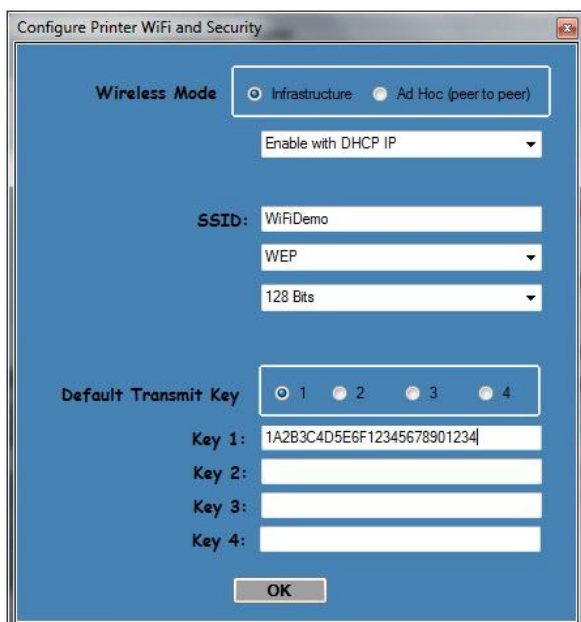
6. Security Mode: you will need to choose the security mode that is appropriate for your WiFi router.
Disable – Allows the user to communicate through the wireless network without any security encryption involved.
WPA – Go to [Step 7](#)
WPA2 – Go to [Step 7](#)
WEP – Go to [Step 8](#)



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



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



9. The printer will reset. Depending on your operating system, this rest may happen less than 60 seconds or as long as 5 minutes. Upon re-initialization it will establish wireless communication with the local network. Depending on your network, a connection can be established in less than 60 seconds or as long as 5 minutes.
10. Press the TEST button to print out a self-test ticket. This ticket will show the IP address that was acquired by the printer. You may use the configuration and test program to test this interface connection. You would run the program like you are connecting to an Ethernet printer and enter in the IP address that is shown on the self-test ticket.

If it fails the see [item #14](#) on the Troubleshooting Guide

Please go to the link below if you need assistance in configuring your Wi-Fi connection.
www.bocasystems.com/online-support-form.html

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

The printer is not able to support both USB and Wi-Fi interface connections at the same time. If you need to go back to using the USB or optional 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 RJ12 serial port will not work with a printer that has optional Wi-Fi interface.

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

APPENDIX G – SERVICE PLANS

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

I. GOLD SERVICE

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

A. 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
- Return shipping (from factory to customer) via UPS Ground service (other delivery options to be billed to the customer)
- Replacement printer provided within one business day, if requested. (This service will become available one week after the platinum plan begins.)

The following items are not covered by the service plans:

- **Preventative Maintenance** – the customer is responsible to provide a reasonable level of preventative maintenance as described in [section 9](#) of this manual.
- **Negligence** – parts damaged by misuse or negligence, including damage due to defective media, 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

APPENDIX H – TECHNICAL SUPPORT

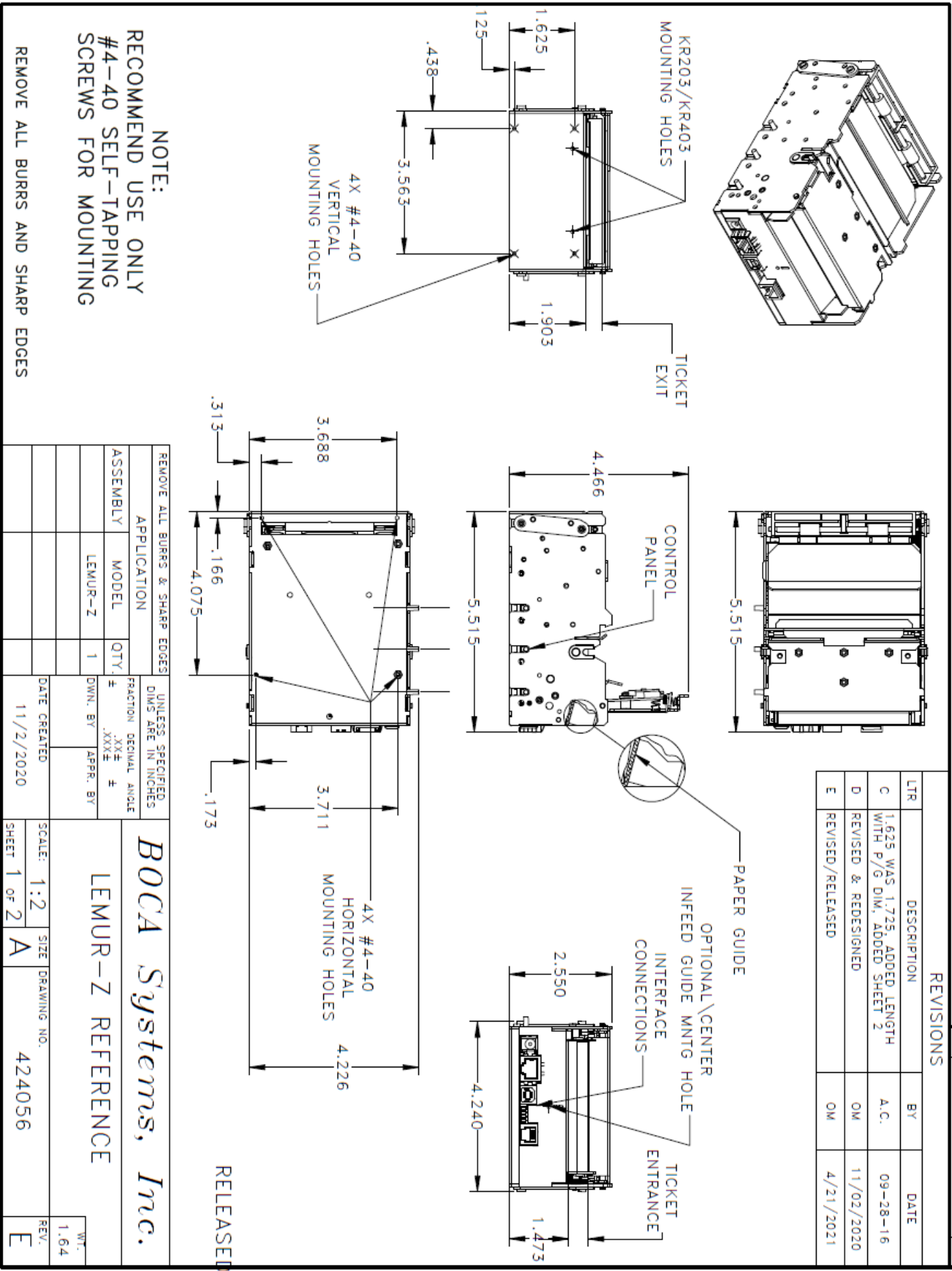
Please go to the link below if you require technical support with your BOCA printer. There is no fee for initial email support.

www.bocasystems.com/onlinesupportform.html

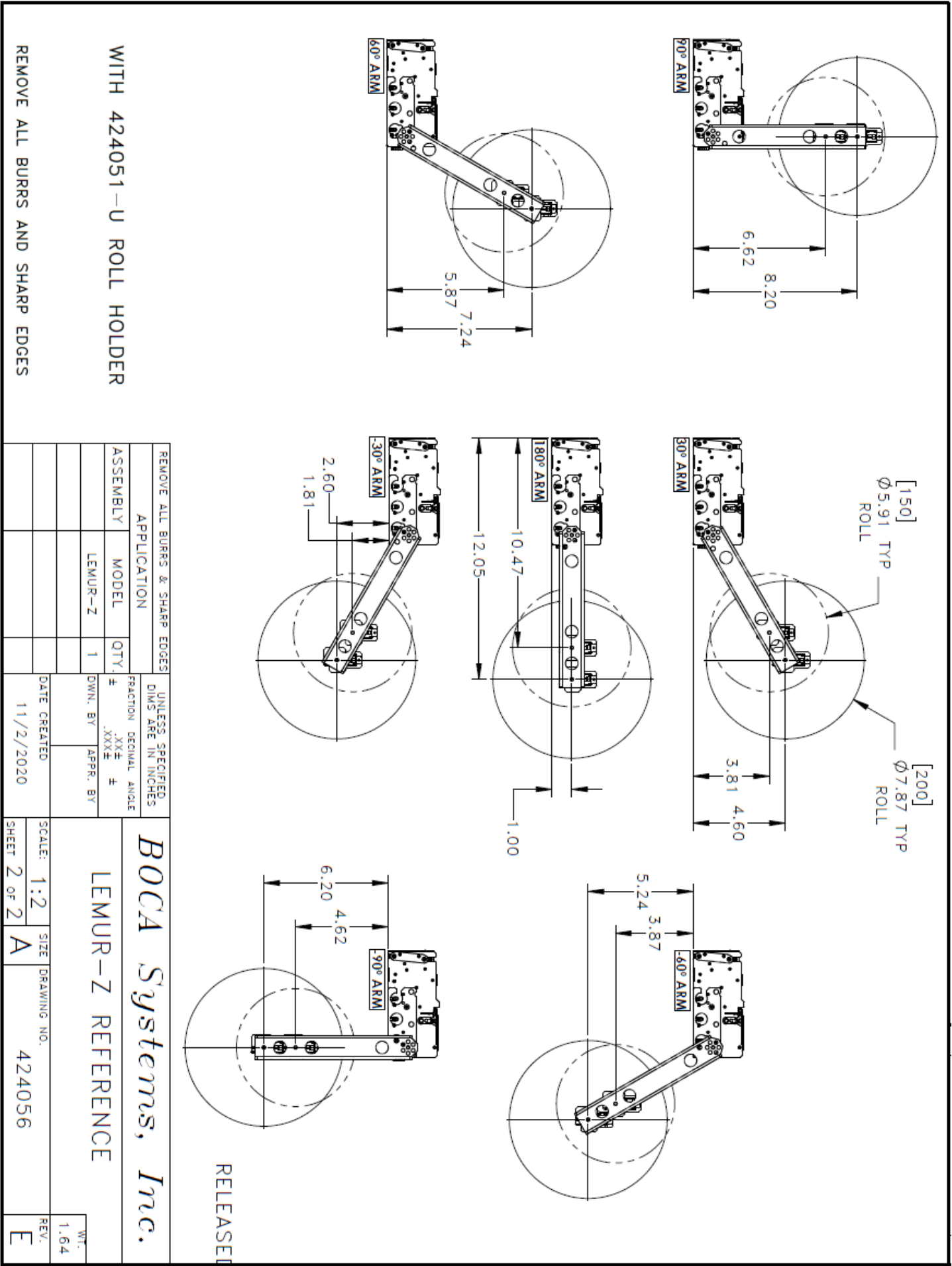
PHONE / EMAIL SUPPORT - BOCA provides free technical support via email for all printers under warranty or service contracts. (Phone support may be provided for covered printers at BOCA's sole discretion as needed.) Email support for non-warranty/non-contract printers is billable at \$100.00 per incident.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

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

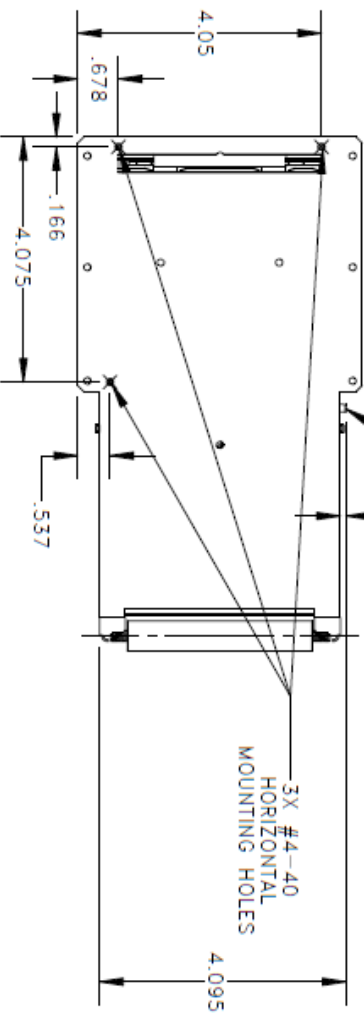
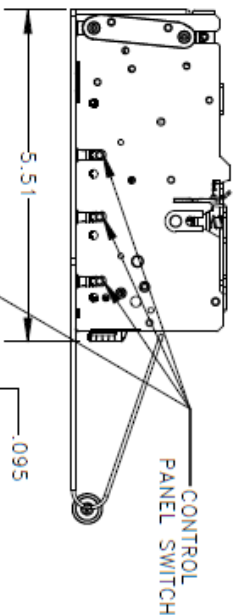
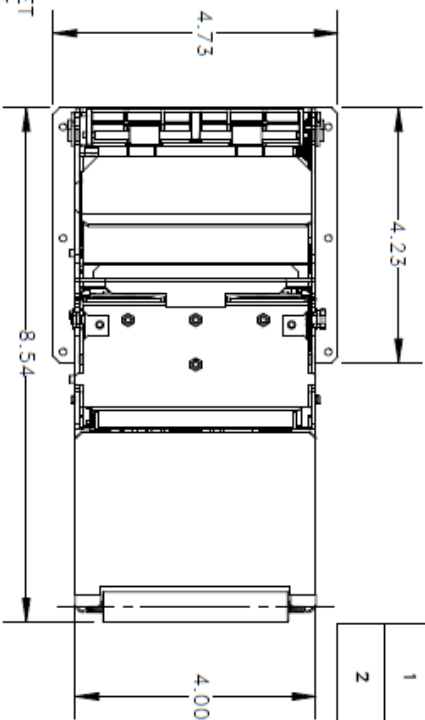
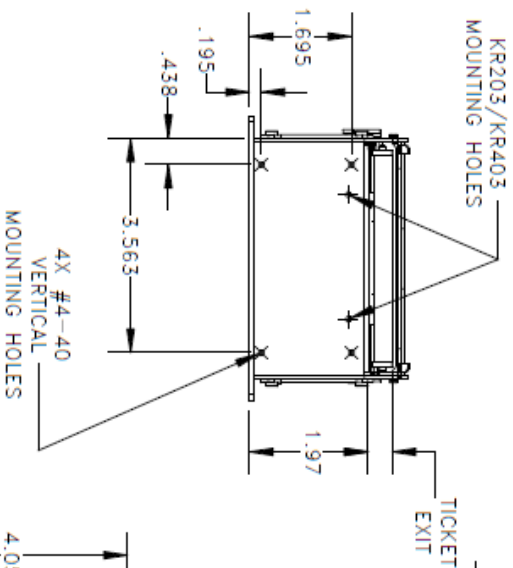
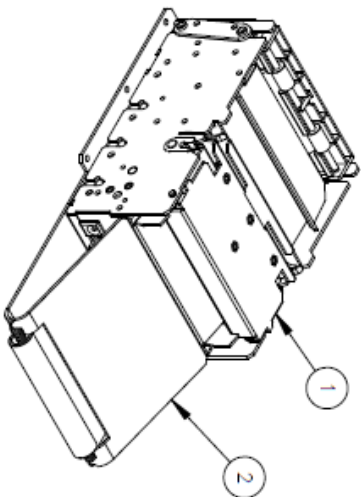
APPENDIX I – LEMUR-Z REFERENCE DRAWING



APPENDIX J – REFERENCE DRAWING ROLL HOLDER



APPENDIX K – REFERENCE DRAWING PRINTER MOUNTING PLATE



RELEASED

NOTE:
RECOMMEND USE ONLY
#4-40 SELF-TAPPING
SCREWS FOR MOUNTING

BOCA SYSTEMS: 6/2/2022 (W:\424213\424213A-BKT (REV A)\...)		
LEMUR/Z/MODEL: BKT		
ITEM.	PART NO.	DESCRIPTION.
1	LEMUR-Z	Lemur-Z, Assembly
2	424213 (REV B)	Lemur-Z Printer Mounting Plate Assembly

REMOVE ALL BURRS & SHARP EDGES		
DIM'S ARE IN INCHES		
FRACTION DECIMAL ANGLE		
ASSEMBLY	MODEL	QTY.
LEMUR/Z	BKT	
DOWN BY APPR. BY		
DATE CREATED		
6/2/2022		
SCALE: 1:8		
SHEET 1 OF 1		
SIZE DRAWING NO.		
A 424213A-BKT		
REV.		
A		

BOCA Systems, Inc.

LEMUR/Z BRACKET
REFERENCE

WT.
2.412