Boca Systems

LEMUR-M TICKET PRINTERS

Operator's Manual

Lemur-M

Lemur-MK

RevA: 08.07.18

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FCC NOTICE

NOTE: The equipment has been tested and found to comply with the limits for a class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at the user's expense.

Operation is subject to the following two conditions:
1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

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

WARRANTY INFORMATION

BOCA warrants the equipment manufactured and sold by it to be free from defects in material and workmanship under normal use and service for a specified period of time. Parts damaged by negligence or misuse (bad ticket stock, improper operating conditions, etc.) are excluded from this warranty. Warranties for printers are 1 year from date of shipment. (NOTE: The print head is a consumable part and is warranted for 90 days.) Spare parts carry a 90 day warranty. Tickets are warranted, under proper storage conditions, for a period of 3 years. All warranty work is to be performed either by BOCA or by an authorized BOCA service center. Shipping charges to the repair center are the customer's responsibility. BOCA will pay for the equipment's return via ground service.

Please go to the link below if you have any reported issues with your new BOCA printer.
www.bocasystems.com/onlinesupportform.html

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

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

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1.0 Introduction

The Lemur-M is a direct thermal ticket printer with read-write magnetic capability (or optional non-magnetic) and integrated bursting mechanism designed for ticketing environments which require encoding and verification of data on a magnetic stripe. The printer is available in a credit card (ISO 3 track) version. 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.

2.0 Unpacking the Printer

The printer is shipped in a ruggedized container. **Please save packing material for future use.** Remove the printer and accessories from the box and inspect for obvious damage. If damage is noticed, please report it immediately to BOCA. Email: cathy@bocasystems.com Tel: (561) 998-9600 Fax: (561) 998-9609

The following items should be in the box:

a) Ticket Printer
b) Hopper (if applicable)
c) AC power cord
d) Sample Magnetic Encoder Cleaner Strip (P/N P63-1000)
e) Interface cable (optional)t

NOTE: When shipping, make sure plastic film is placed on the bottom and top of printer.

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3.0 Important Safety Information

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

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

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

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

U.S.A. and Canada

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

United Kingdom only

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

Europe only:

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

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

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

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 labeled Neutral, connected directly to earth (ground).

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

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4.0 Installation

The Lemur-M and Lemur-MK series printer was designed to be mounted either on a desktop or shelf in a counter to.

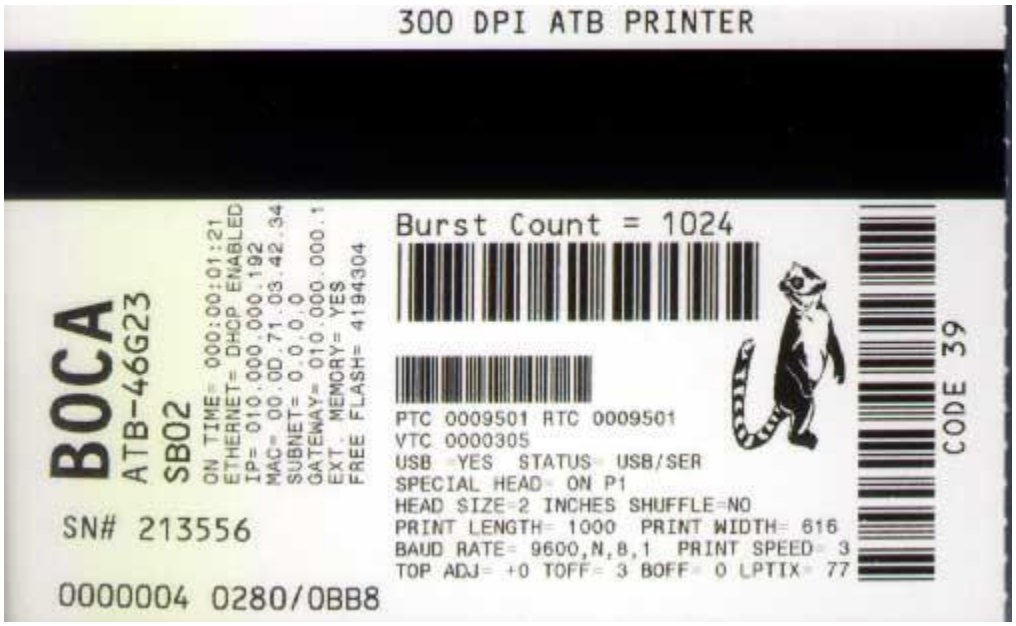
Prior to site preparation and installation, the printer should be powered up and run in the self-test mode.

- Lay the printer flat on a counter top.
- Attach the AC cord and interface cable into the proper connectors.
- Install ticket hopper (if applicable) to catch the tickets. Lemur-MK printer won't have a ticket hopper.
- Turn power on. The LCD will display PAPER OUT and the red Check Paper led will be illuminated.
- Begin loading tickets between the two entrance rollers until it is positioned under the first drive roller. See section 5.0 Ticket Load Procedure.

NOTE: For printers with magnetic encoders you want to make sure that the magnetic strip is in the correct location. See http://www.bocasystems.com/tickets_specs7.html for magnetic strip layout specs.

- Press the TEST button so the printer will automatically positioned the ticket stock (the green READY led will be illuminated), press the TEST button located on the control panel to print a test ticket. The picture below shows a sample FGL self-test ticket.
- Verify that the printer properly works with your system by issuing a ticket through your computer system. You may also use out customer-based program to test the printer independently of your ticketing system (see Appendix E)

You may now install the printer in its permanent location. Adequate room should be provided behind the printer for the smooth feeding of ticket stock. Please do not prevent the ticket hopper (Lemur-M models) from operating by touching tickets during the printing cycle.



Above sample self-test was printed on a 2.125" x 3.375" top ½" magnetic strip ticket. Your printout may vary depending on printer configuration and ticket stock used.
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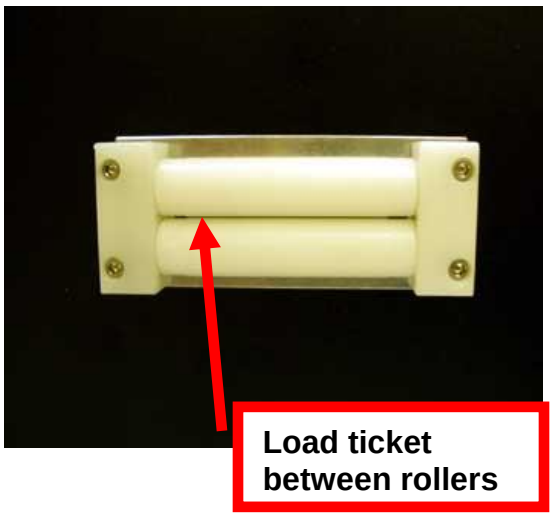
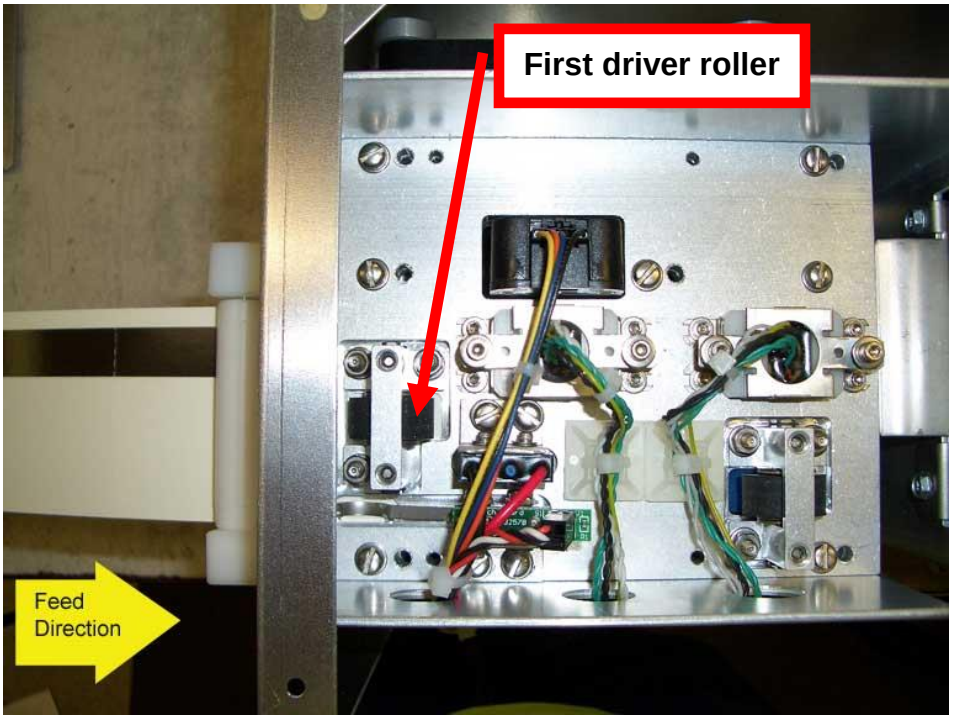
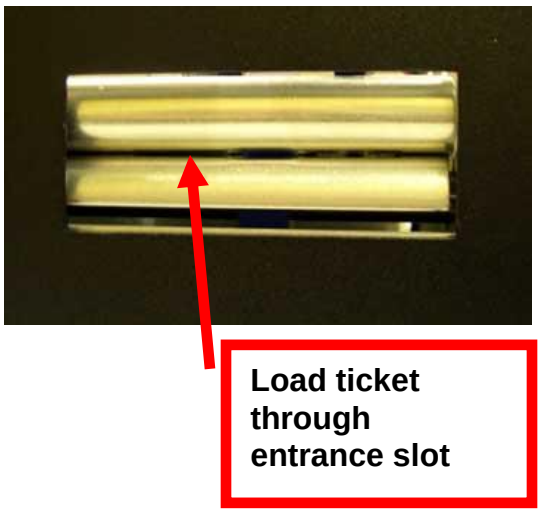
5.0 Ticket Load Procedure

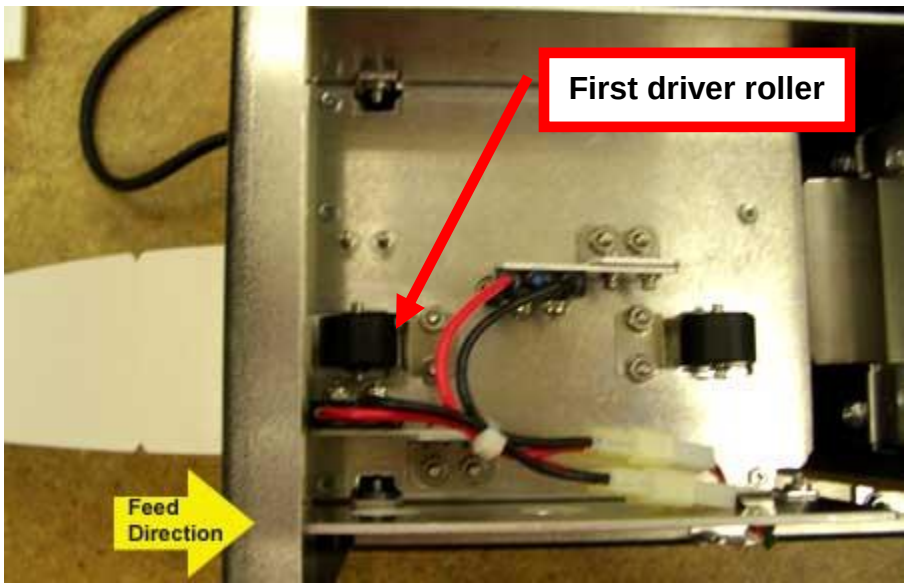
Turn the printer on and wait five seconds. The red CHECK PAPER led will be illuminated (if your printer has an optional LCD then it will display PAPER OUT). Begin loading the tickets through the entrance roller or slot with a smooth motion until the ticket stock is positioned under the first driver roller. For a top encoding printer the ticket stock should be loaded with the thermal side of the ticket facing up (as seen in the photo below). For a bottom encoding printer the ticket stock should be loaded with thermal side of the ticket facing up and the magnetic strip facing down towards the floor (closer to the control panel side).





Above are photos of TCC magnetic encoding Lemur-M or Lemur-MK. Below are photos of a Lemur-M or Lemur-MK without magnetic encoding.





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6.0 Configuration

The Lemur-M and Lemur-MK printers are factory configured for a variety of customer requirements.

For a comparison of the different electronics packages, refer to the BOCA Systems website under the BASIC section.

For a listing of configuration choices, refer to the BOCA Systems website under the SPECIFICATIONS section.

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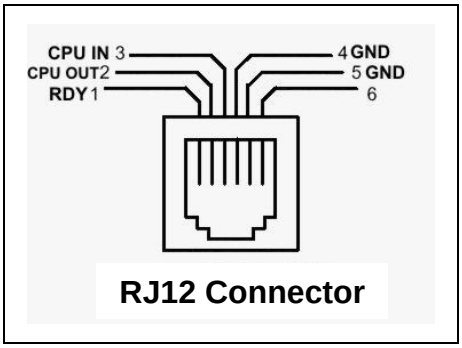
7.0 Standard Interface Pinouts

RJ12 Serial Connection



+5VDC

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

PARALLEL

PIN	FUNCTION
1	Strobe (negative)
2-9	Data (DB0 - DB7)
10	ACK (negative)
11	BUSY
12	PAPER OUT
13	SELECT (negative)
15	ERROR (negative)
18	Ground

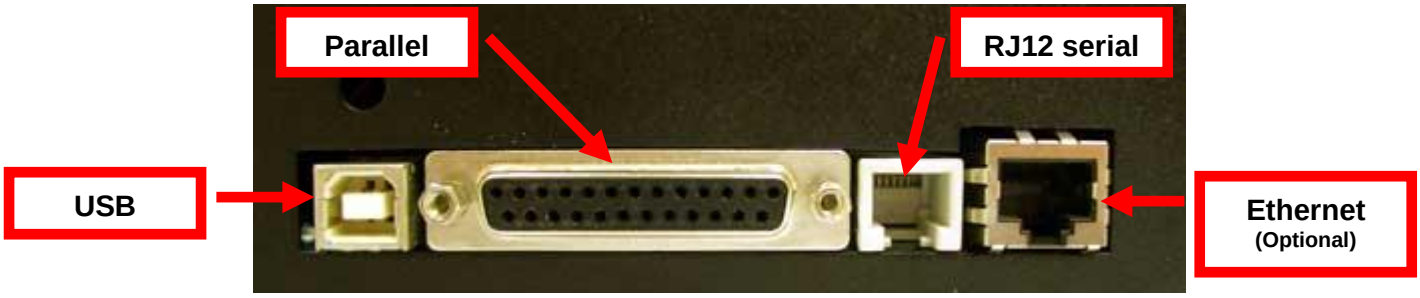
USB Printers prior to serial number 271200 are USB 1.1 compliant devices. Printers after serial number 271200 are USB 2.0 compliant devices.

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

WI-FI (Optional) is compatible with 802.11 b/g networks and supports security settings WEP/WPA/WPA-2.

BLUETOOTH (Optional) may be ordered as Classic or Low Energy (LE).

NOTE: The above pinouts may vary on certain printers due to special customer request.



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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 inks colors such as opaque white (which contains titanium dioxide) are also highly abrasive.

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

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

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

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

See below link for ticket stock recommend usage
www.bocasystems.com/ticketandlabel.html

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

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9.0 Maintenance and Adjustments

Your ticket printer is solidly constructed and has been designed for high volume use. It requires minimal care to provide maximum service.

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

This section provides an overview of printer maintenance, including part alignments, adjustment and replacement.

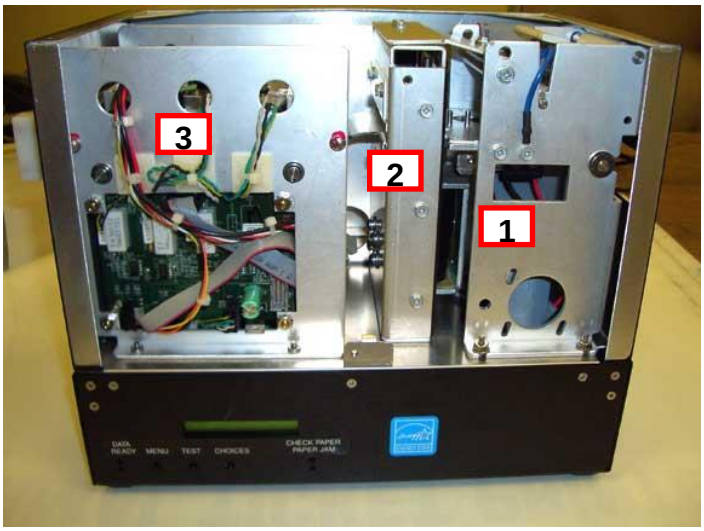
For discussion purposes, the printer consists of three major modules or assemblies:

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

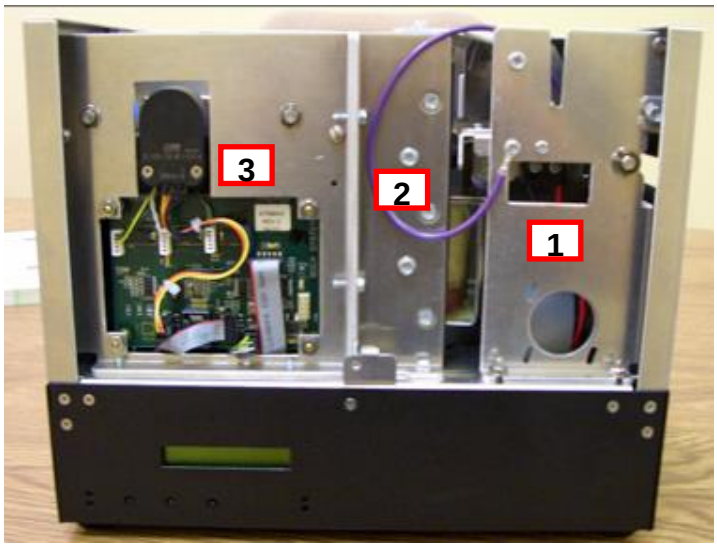
As a safety precaution, all service to the printer should be done by qualified persons with power off and the AC cord unplugged from the printer. Following any procedure requiring the removal of covers and/or doors, please verify that they have been properly attached and fastened prior to operating the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

9.1 Printer Assemblies

The printer is made up of following basic modules or assembly. 1- Print module, 2- Burster assembly and 3- Magnetic or non-magnetic module. All replacements and adjustments of the components on these modules and assembly may be done without removing them. The most common adjustments and replacements regarding this assembly follow:



Above photo is of a Lemur-M built prior to June-2014.



Above photo is of a Lemur-M built after May-2014. The burster area was stiffened up based upon customer feedback.

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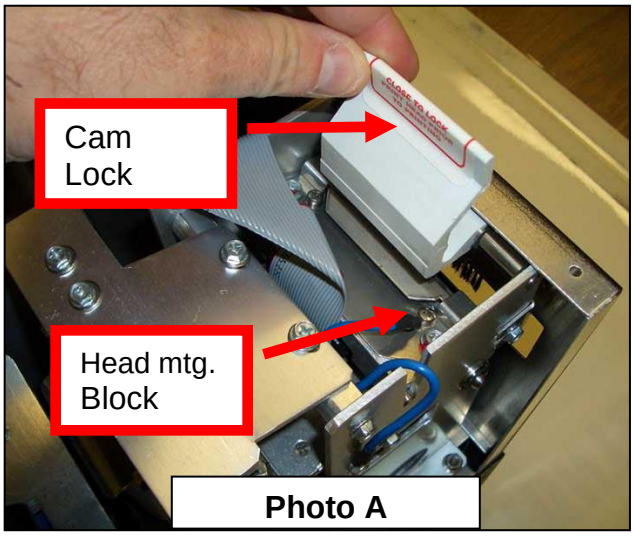
9.1.1 THERMAL PRINT HEAD

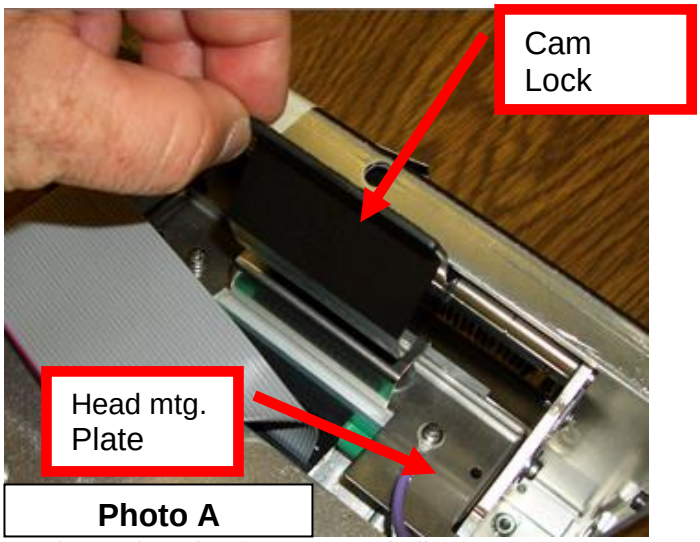
The print head should be cleaned periodically to prevent debris from building up on the print element. The required cleaning interval varies greatly depending on the quality of the ticket stock and the amount of dust entering the print area. Excessive dirt build up on the print head will result in reduced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

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

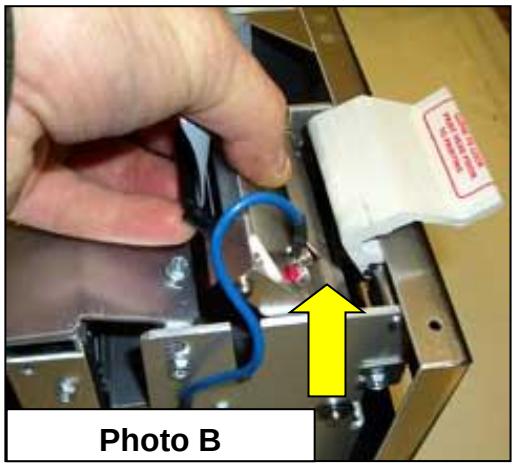
1. Make sure power is off and the AC cord is disconnected from the printer.
2. **DO <u>NOT</u> UNPLUG CABLE FROM PRINT HEAD.**
3. Lift up on the cam lock assembly (located above the head mounting block or plate) to remove pressure from the thermal head. **Photo A**
4. Lift up on the head mounting block/thermal head to remove. **Photo B**
5. Clean the thermal print head surface (the side that makes contact with the paper) with isopropyl alcohol. **Photo C**
6. Install the head by reversing the above procedures.
7. Restore pressure to the head by pushing down on the cam lock assembly.
8. The printer in now ready for operation. If the print quality is still poor, then the thermal head needs to be replaced.
9. To replace the print head, remove the ribbon connector from the print head and then remove the print head from the mounting plate by removing two Philip head screws.

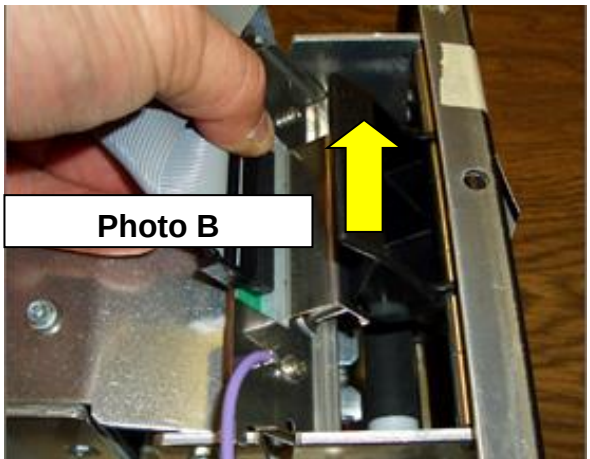


Above photo is of a Lemur-M built prior to June-2014
Cam Lock may vary from what is shown in photo.



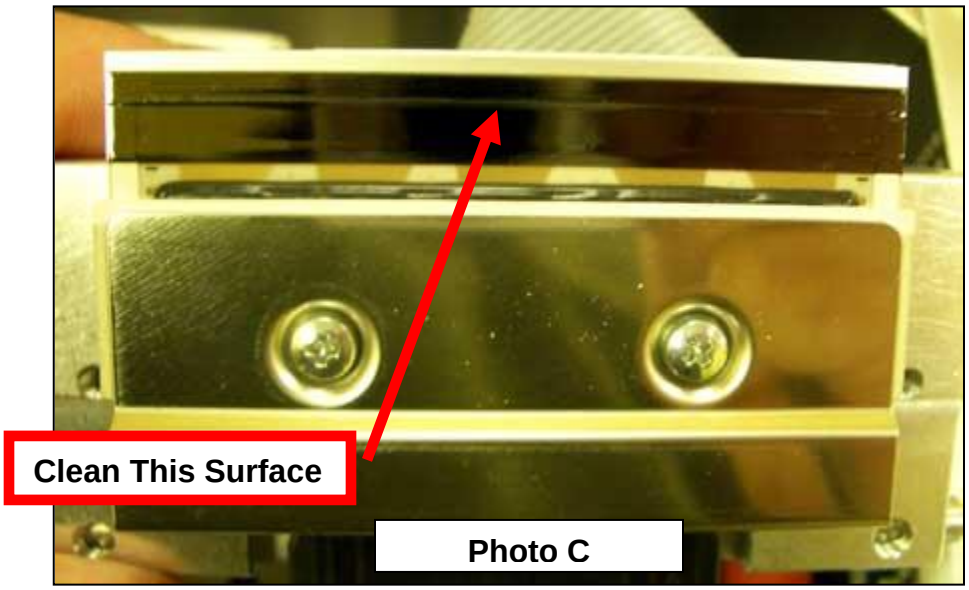
Above photo is of a Lemur-M built after May-2014.



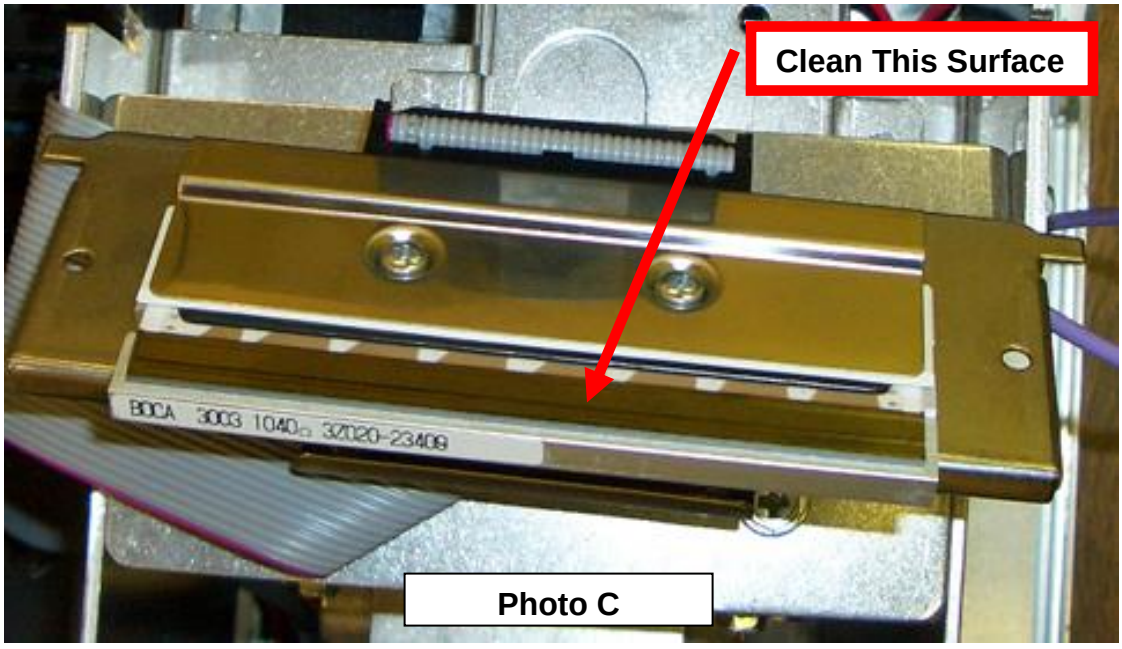


Above photo is of a Lemur-M built prior to June-2014

Above photo is of a Lemur-M built after May-2014.



Above photo shows print head used in a Lemur-M built prior to June-2014



Above photo shows print head used in a Lemur-M built after May-2014

Printers build after February-2015 will have a black stick on the print head that is required for the SQ load opto and MUST not be removed.

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9.1.2 Platen (Rubber Driver Roller)

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

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

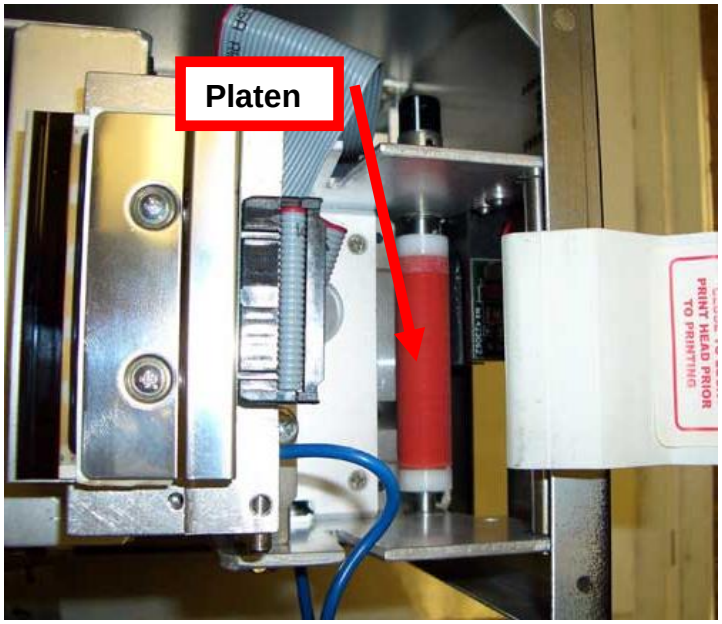
2. Unlock the cam lock lever and remove head mounting block/head. (Refer to section 9.1.1 Thermal Print Head)

3. Apply a small amount of Isopropyl alcohol onto a paper towel to clean the rubber roller.

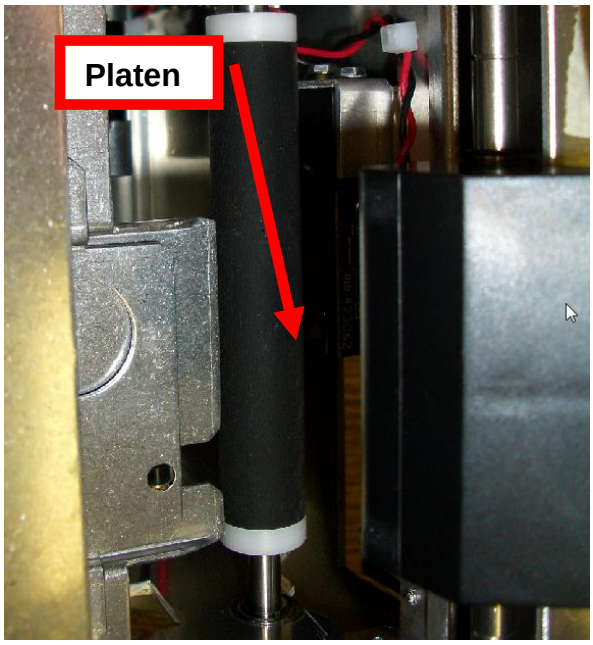
4. Clean only the part of the rubber roller where the ticket stock makes contact.

5. Rotate the rubber roller clockwise a little and repeat step 4; continue in the same manner for one full revolution of the rubber roller.

6. Install the head mounting block/ plate and lock the cam lock lever back in place. The Printer is now ready for normal operation.



Above photo is of a Lemur-M built prior to June-2014



Above photo is of a Lemur-M built after May-2014

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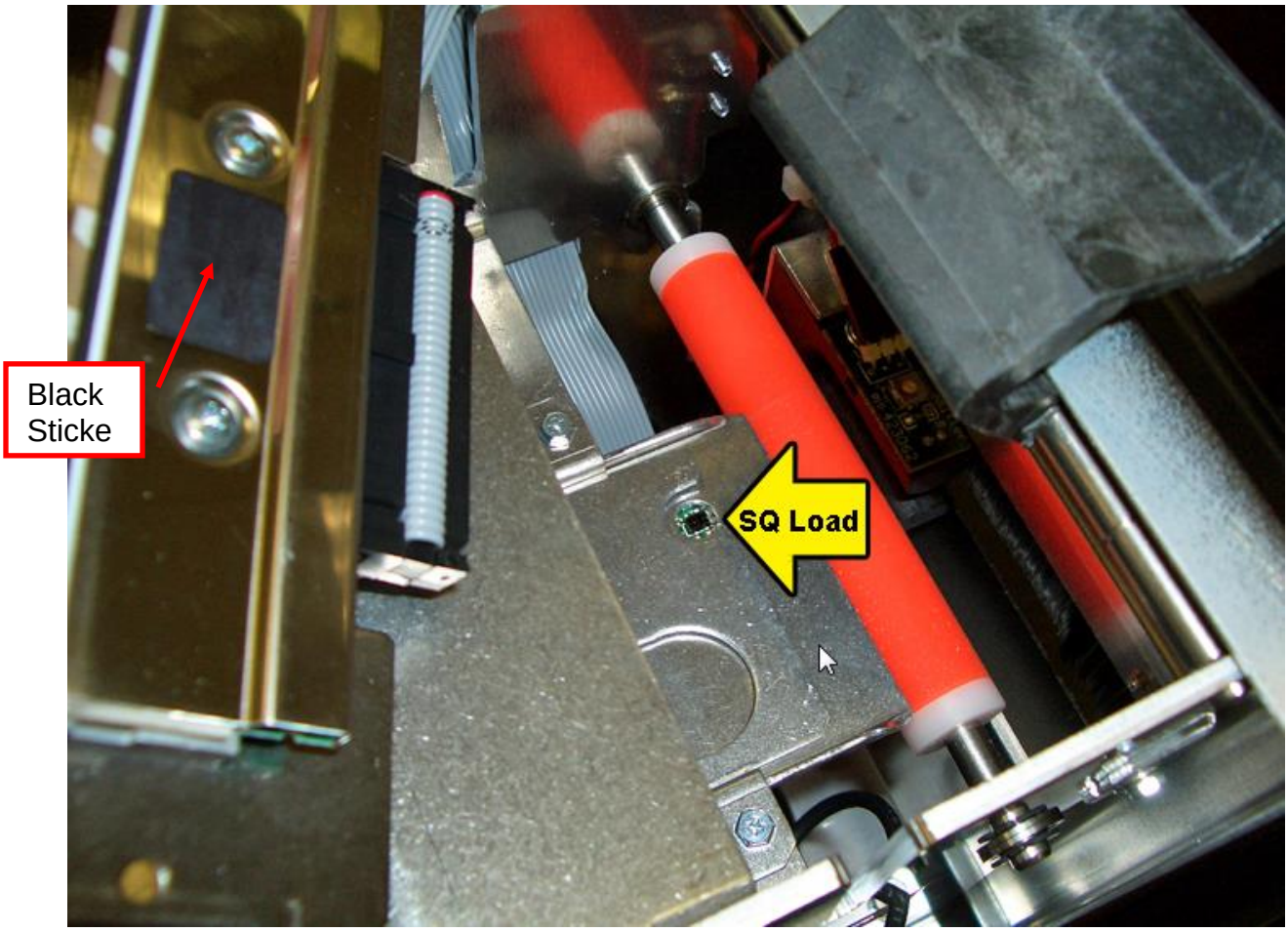
9.1.3 SQ load Sensor

The SQ load opto was incorporated in printers built after February – 2015 (s/n 320833 and higher).

The area shown by the yellow arrow should be blown off with air once a year to prevent paper dust from building up. (NOTE: The sensor may require more frequent cleaning in dusty environments or when using inferior ticket stock.). The thermal head also will have a black stick on the bottom that is positioned above the opto.



Printers build after February-2015 will have a black stick on the print head that is required for the SQ load opto and MUST not be removed.

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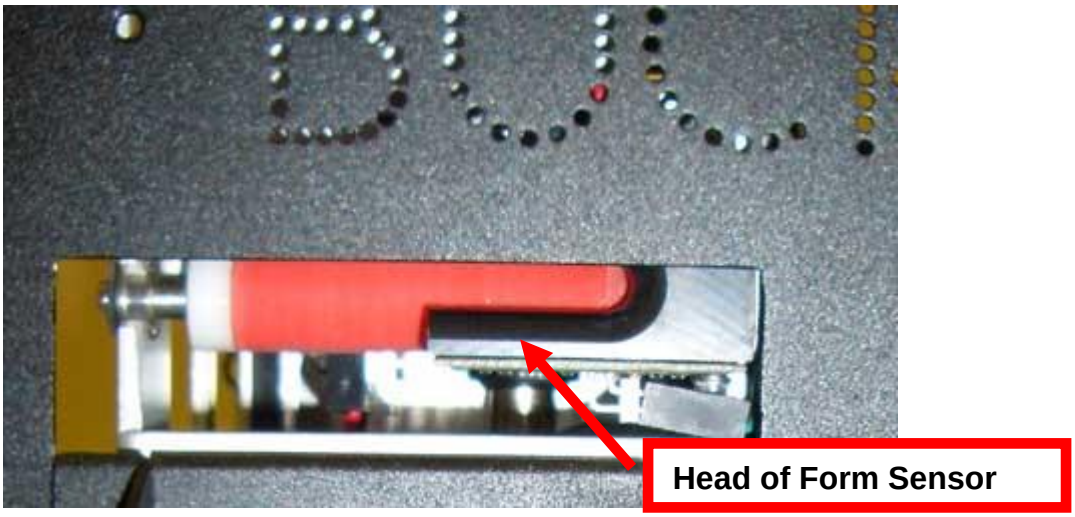
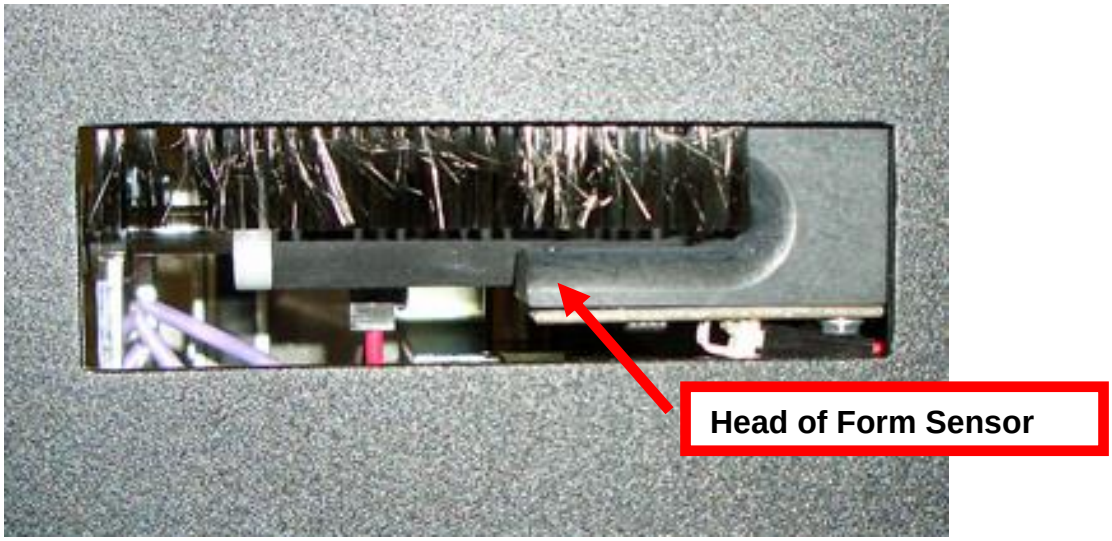
9.1.4 Head of Form Sensor

The Head of Form Sensor should be blown off with air once a year to prevent paper dust from building up on the sensor. This sensor is responsible for detecting the leading edge of the ticket that is used to help determine print and burst position. The required cleaning interval may need to be increased depending on the quality of the ticket stock and the amount of dust entering the print area. Excessive build up of paper dust on the sensor will result in erratic print and burst position.



Above photo is of a Lemur-M built prior to June-2014



Above photo is of a Lemur-M built prior to June-2014

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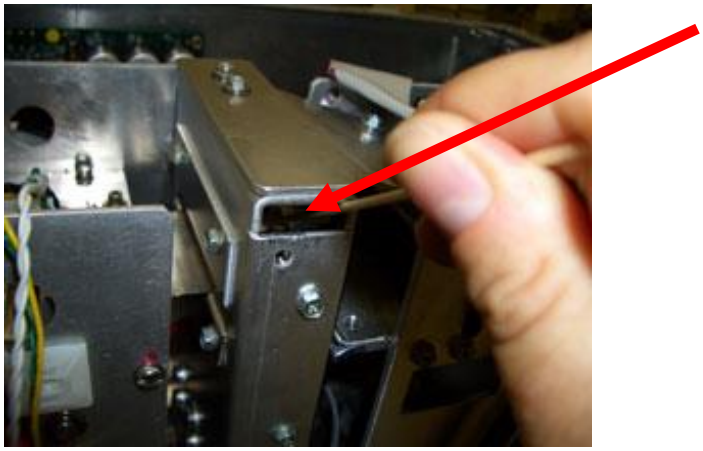
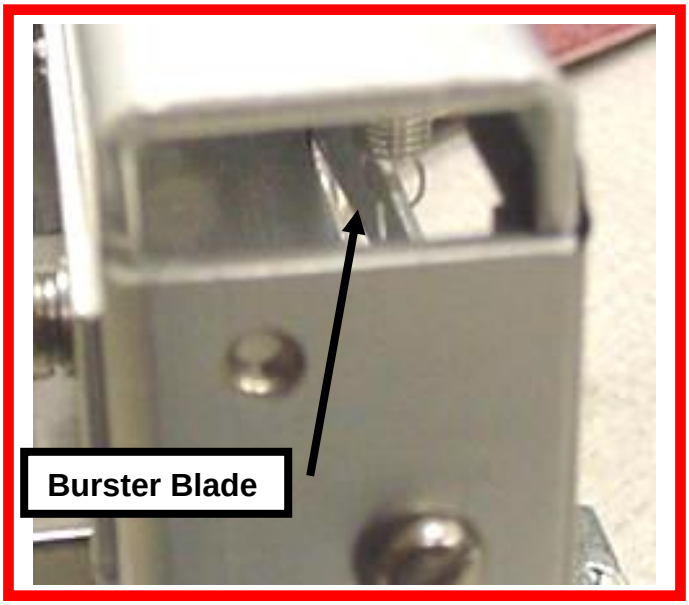
9.2 Burster Assembly

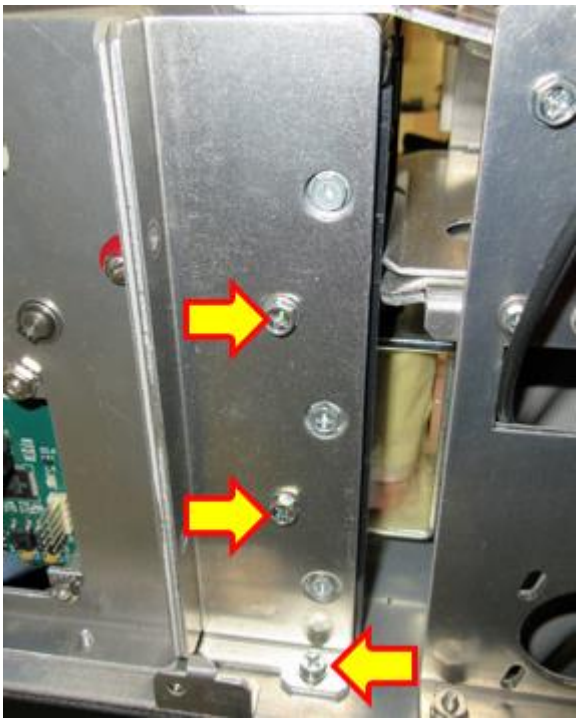
The burster assembly is a fully integrated burster blade mechanism powered by a solenoid. The burster requires no adjustments and is rated for approximately 400,000 bursts.

Inspect the burster blade once a year and clean if a buildup of material is seen on the blade. Material buildup will mostly be found on the backside of the blade that faces where the tickets are loaded into the printer. Using a 6” cotton tipped applicator and isopropyl alcohol, gently clean the burster blade.





On a new model Lemur-M printer you will need to remove the three ¼” nut Philip head that hold the burster stiffener plate in place. You will have accesses to the burst blade once the plate is removed.



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9.3 Magnetic or Non-Magnetic Module

The magnetic paper path should be cleaned periodically to prevent erratic printer operation. Cleaning is normally done when you note an increase in VOID tickets.

The cleaning procedure is as follows: (this is based upon the printer being on and stock loaded into the printer). You will also need to use part number P63-1000 BOCA Magnetic Encoder Cleaner Strip.

1. Depress both the **MENU** and **CHOICES** buttons unit **FACTORY MENU** appears in the LCD window or the display starts scrolling through different topics (normally within 6-8 seconds).

2. Using the **MENU** button scroll down to the **CLEAN MAGNETICS** topic.

3. Using the **CHOICE** button select **YES**. Once you have done this press the **TEST** button. The printer will eject ticket stock (if loaded) out of the printer. If needed pull the stock out of the printer.

   The front display will guide you through the rest of the operation.

4. **INSERT STRIP -** Insert the P/N P63-1000 BOCA Magnetic Encoder Cleaner Strip into the printer. Load the cleaner strip just like you would your ticket stock.

5. **PRESS TEST -** Press the TEST button at this time. The printer will shuffle the cleaner strip 6 times through the printer and then eject the strip out.

6. **REMOVE TICKET -** Remove the cleaning strip as indicated by the display.

7. **REVERSE STRIP –** Rotate the strip around to the unused side.

8. **INSERT STRIP –** Feed the strip back into the printer

9. **PRESS TEST -** Press the TEST button at this time. The printer will shuffle the cleaner strip 6 more times through the printer and then eject the strip out.

10. **PAPER OUT -** The printer is done running the cleaning routine and you normal ticket stock may be loaded back into the printer.

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9.4 Logic Board

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

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

Above photo shows lower electrical box with access cover removed

9.4.1 Logic Board (Removal)

1. Gain access to the logic board. This is done by removing the enclosure (Lemur-M) and electronics cover.
2. Note where all the cables plug into the logic board.
3. Unplug connectors connected to the main logic board.
4. Remove the four 3/16” head screws that secure the logic board onto the cabinet.
5. Lift board and remove.

9.4.2 Logic Board (Installation)

1. Install the logic board into the printer.
2. Install the four 3/16” head screws that hold the logic board onto the cabinet and tighten.
3. Attach connectors going to the main logic board.
4. Install the electronics cover and enclosure (Lemur-M).

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9.5 General Cleaning

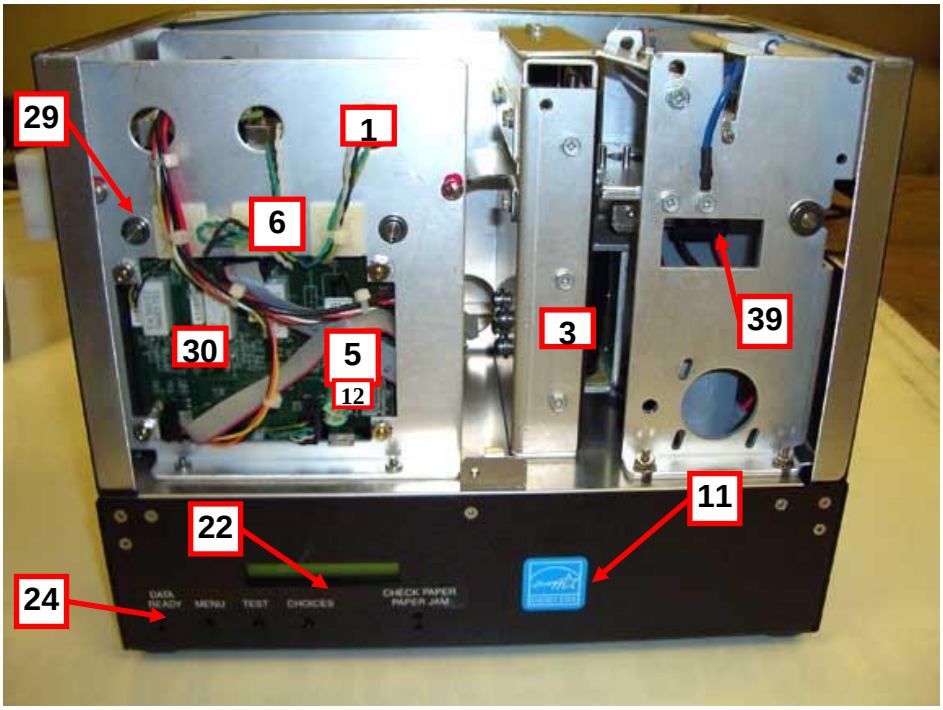
The interior of the printer should be cleaned whenever there is a visible accumulation of dust. Use a small vacuum for cleaning. Be careful not to jar any of the printer's parts loose.

10.0 Spare Parts List

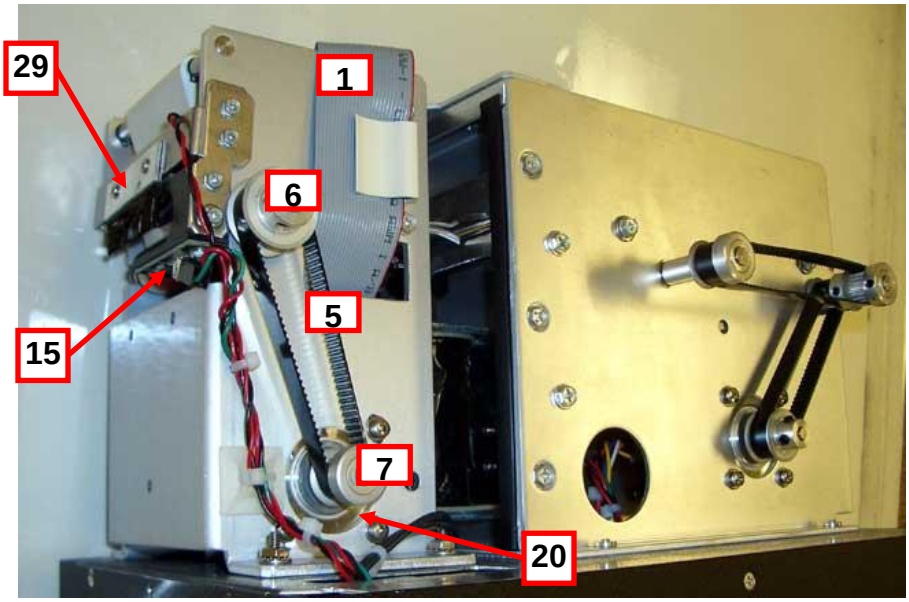
#	Part Number	Description
1	422557-25	Cable Ribbon, Thermal Head
2	420881Z-1	Cover Front, Lemur
3	422819	Burster Assembly
4	423759	Display Holder
5	P50-1003	Drive Belt, 102T (for 300dpi)
5*	P50-1017	Drive Belt, 98T (for 200dpi)
6	P51-1011	Drive Pulley, 30T (for 300dpi)
6*	P51-1007	Drive Pulley, 20T (for 200dpi)
7*	P51-1014	Drive Pulley, 20T (for 200dpi & 300dpi)
8	422996-MAG	Platen 2.125" (**printers built before June 2014**)
9	421359-5M2	Head Mtg. Block
10	423192	Ground Strap
11	423793	Energy Star Decal
12	422888-115L	Transformer (110VAC)
12*	422888-230L	Transformer (230VAC)
13*	FGLB46	Main Logic Board (Standard)
13	FGLB46-E	Main Logic Board (Ethernet option)
14	P46-110	Power board, 110VAC
14*	P46-220	Power board, 220VAC
15	423810	Head of Form Opto Assy. (see through)
15A	423810-SQ	Head of Form Opto Assy. (SQ-gap) **(after May-2016) s/n 365042 or higher**
16	422419NMAG	Bezel, Feed
17	423789	AC Filter
18	3002	Print Head 300dpi
18*	2002	Print Head 200dpi
19	423809	In-feed Guide Roller Assy.
20	422590	Stepper Motor
21	P28-1020	Switch, Ticket Load
22	AC161A5	LCD Display
23	423236-2	Take Out Head Cam Lock
24	5316H	Control Panel Decal
25*	421932-DSP	Fill-in Plate, Display (for printer without LCD display)
26	423559Z	RFI Cutter Shield
27	422521Z-MAG	Electronics Box, Lemur-M
28	420881Z-MAG-1	Enclosure, Lemur-M
29	423812	Anti Static Brush
30	MAG46	Magnetic, Main Board (Lo-Co)
30*	MAG46-HI	Magnetic, Main Board (Hi-Co
31	422113BCC	Hopper
32	423790	DC Out Cable, Power Board
32*	423790-B	DC Out Cable, Power Board
33	423791	AC Out Cable, Power Board
34	423767	UL Cover, Power Board
35	P45-1009	Bearing (Large)
36	423469	Magnetic, Write Head (Lo-Co)
36*	423469-HI	Magnetic, Write Head (Hi-Co)
37	423279	Magnetic, Read Head
38	423257	Switch, Load Magnetic Module
39	P28-1020	Switch, Ticket Load (print or non-magnetics module)
39A	P28-1020	Switch, Ticket Load (print or non-magnetics module)
40	423838	Switch, Load Encoder
41	423816	Idler Wheel Assembly
42	423940	Encoder, Magnetics
43	424006	Idler wheel assembly (including wheel)
44	423944	Idler wheel only
45	423917	Switching Power Supply (SPS) **As of July-2015 replaced by part number 424031**
45A	424031	Switching Power Supply (SPS) 85W
46	423886-SPS	UL Shield (SPS)
47	423791-SPS	AC Out Cable, SPS
47A	424034	AC Out Cable, 424031 power supply ONLY

48	P46M	Switch, Power for SPS
49	423789-SPS	AC Filter for SPS
50	423790-SPS	DC Out Cable, SPS
50A	423790-SPS-B	DC Out Cable, SPS (FGLB46 logic board or higher)
50B	424033	DC Out Cable, SPS (for FGLB46 logic boards & 424031 power supply ONLY)
51	423495-5	Head Mounting Plate **(printers built after May-2014) s/n 306677 & higher**
52	3003	Print Head 3.25" 300dpi **(printers built after May-2014) s/n 306677 & higher**
52*	2003	Print Head 3.25" 200dpi **(printers built after May-2014) s/n 306677 & higher**
53	423760-L3B-1-300	Platen complete 300dpi **(printers built after May-2014) s/n 306677 & higher**
53*	423760-L3B-1-200	Platen complete 200dpi **(printers built after May-2014) s/n 306677 & higher**
54	423236P	Cam Lock Lever
55	SQ opto-L	SQ load opto
*	420881Z-MAG-2	Cover, Cabinet
*	423765	Cable External, serial DB9 TO RJ12
*	423804	Cable, Cash Drawer internal
*	P19-1000	AC Cord (US)
*	P63-1000	MAGNETIC ENCODER CLEANER STRIP

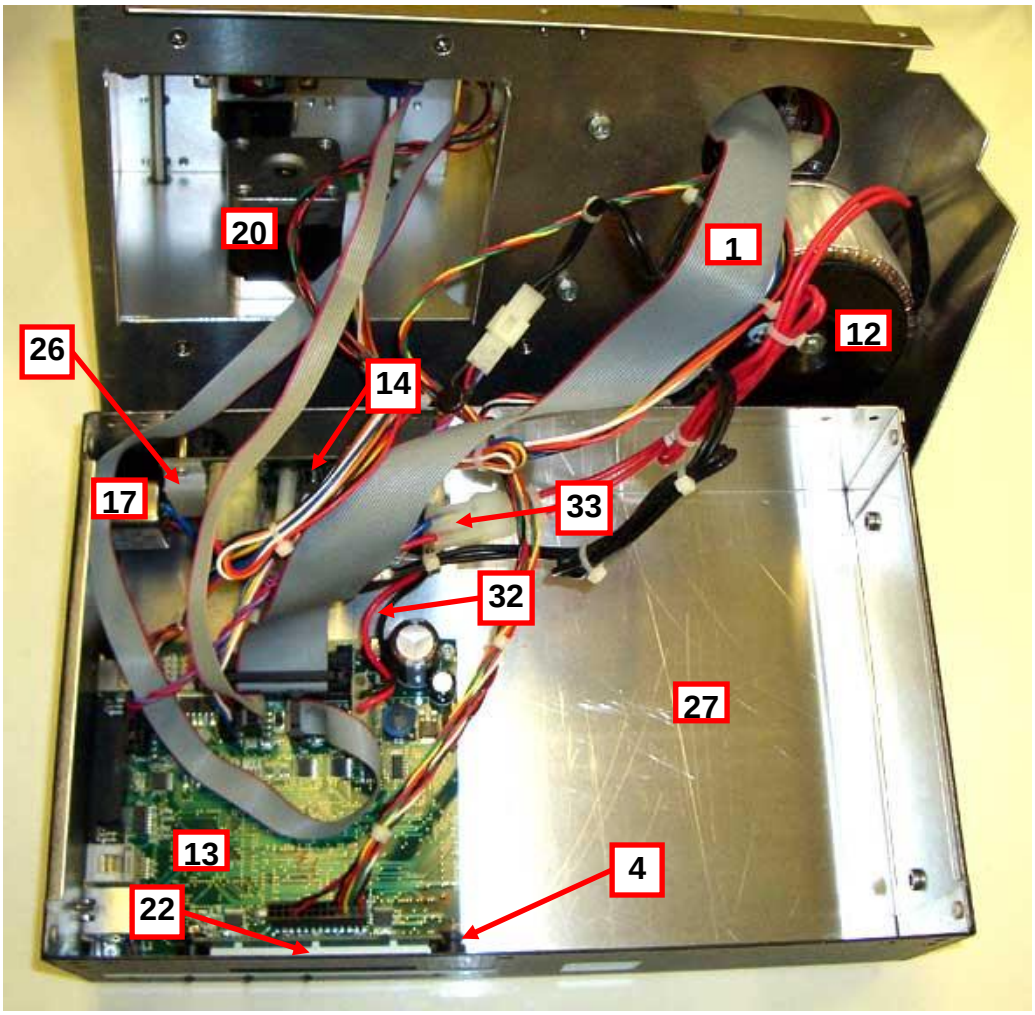
*** Customer dependent and not shown in photos**

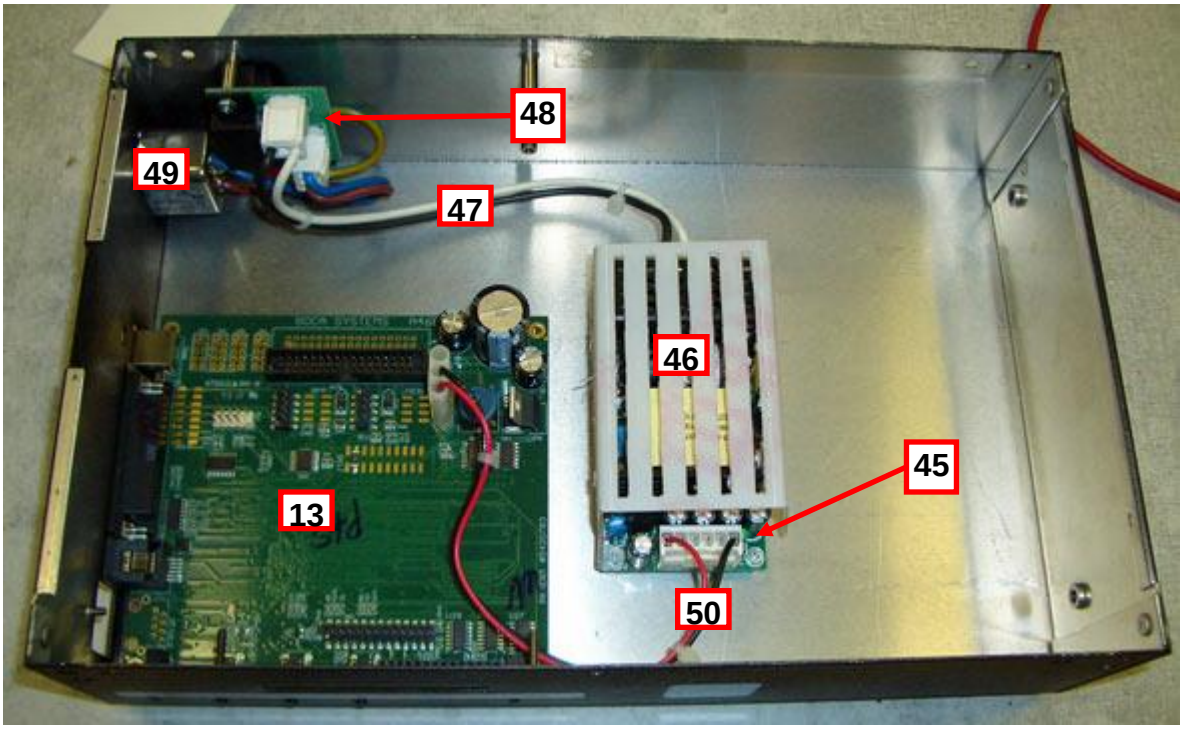


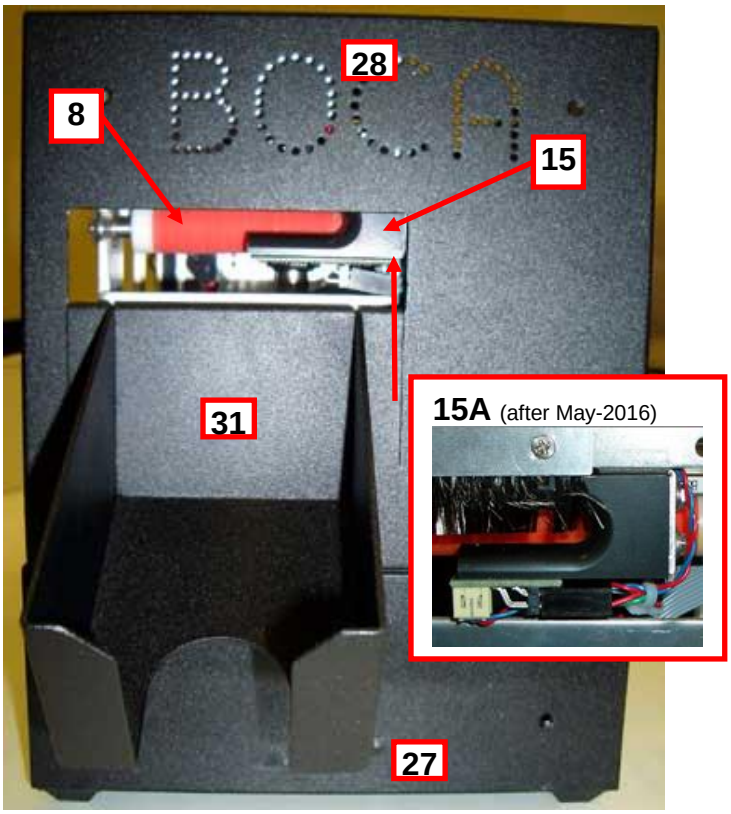
Above photo is of a Lemur-M with top encoding magnetic

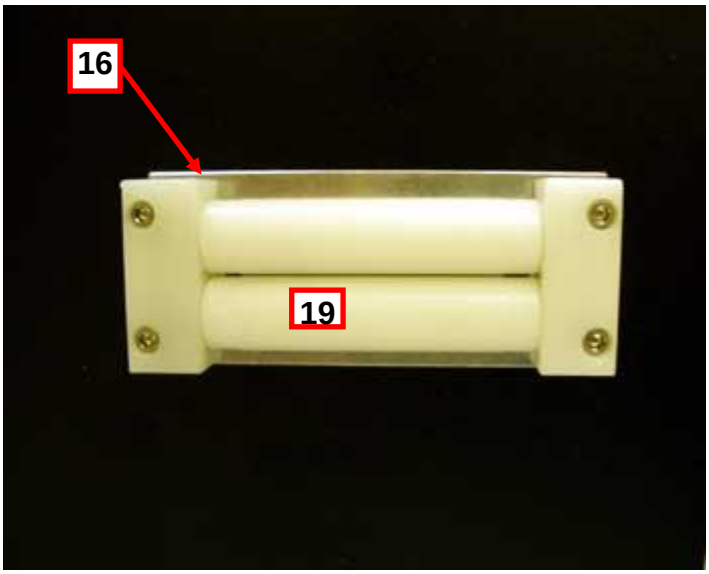


Above photo is of the Lemur-MK or a Lemur-M with its enclosure removed

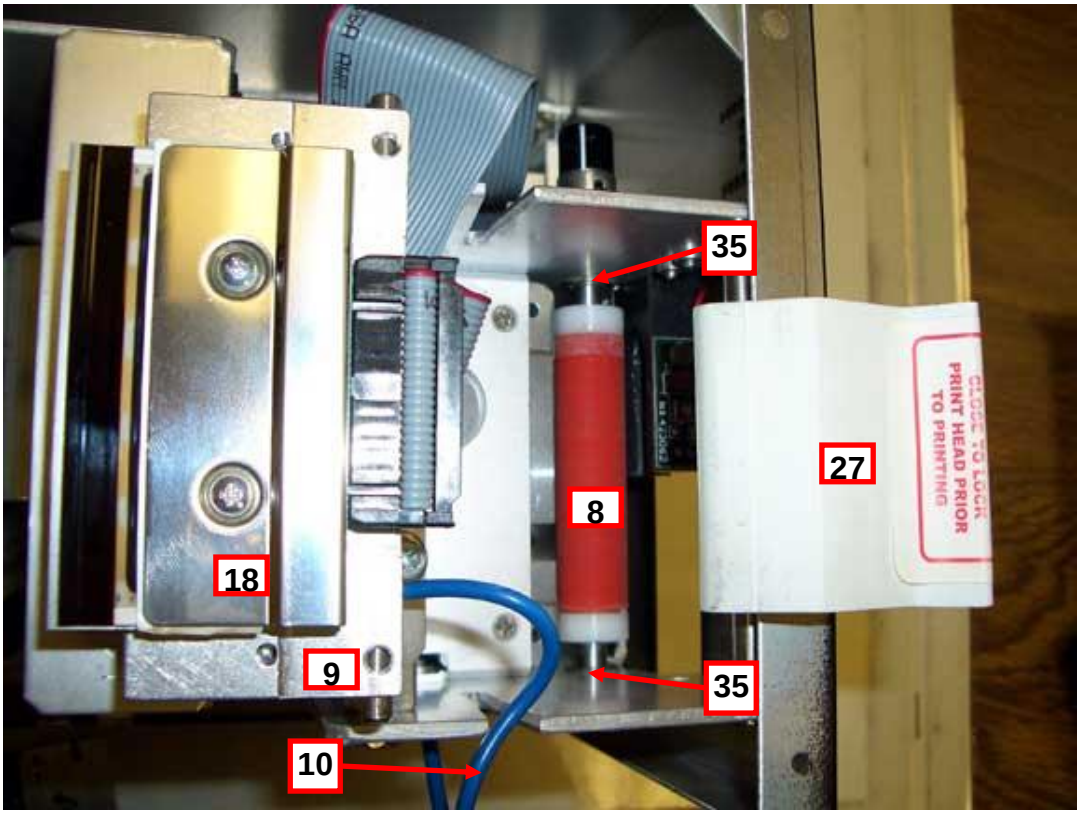




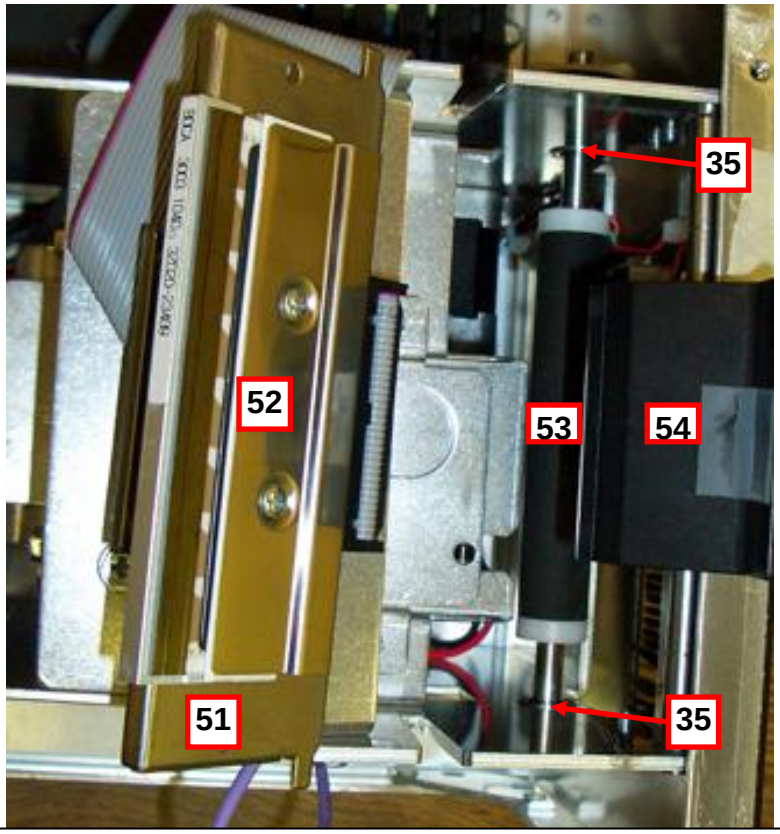




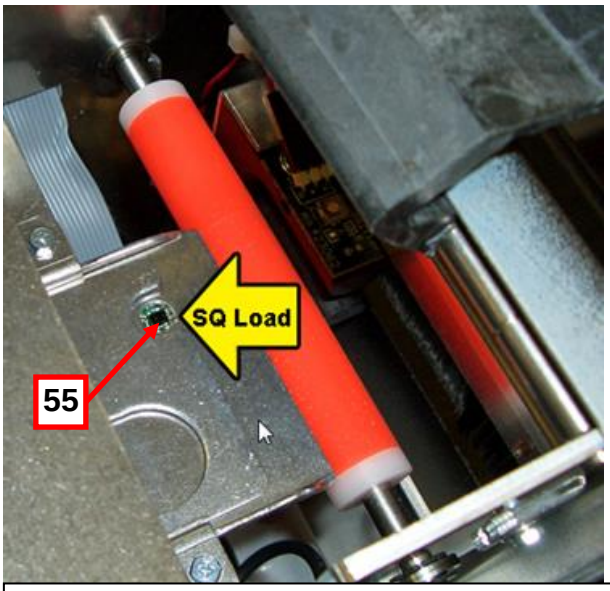
Ticket entrance of a Lemur-M with magnetic encoding



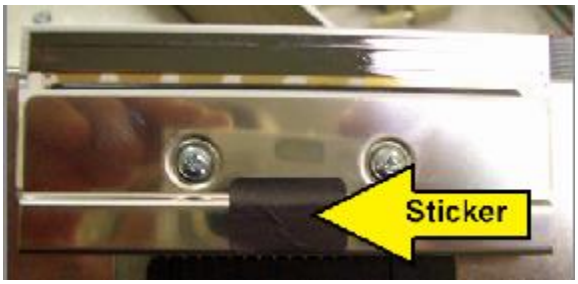
Above photo is of a Lemur-M built prior to June-2014

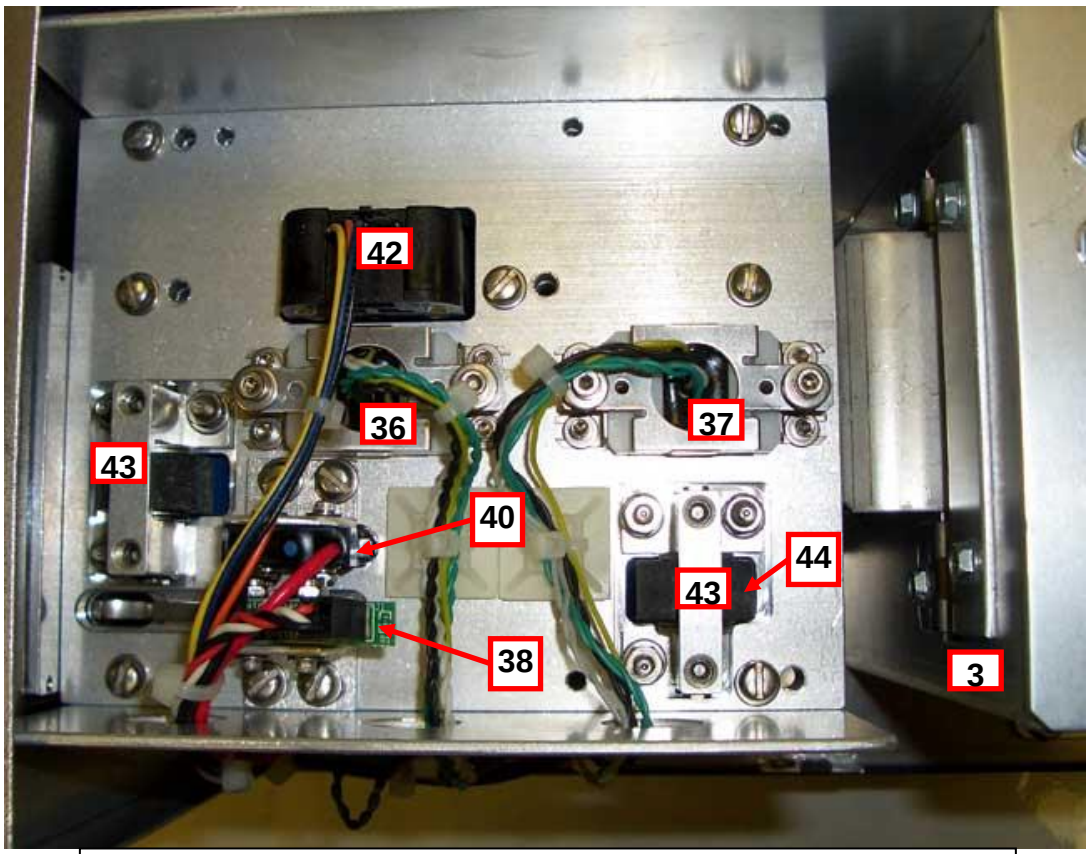


Above photo is of a Lemur-M built after May-2014. S/N 306677 & higher

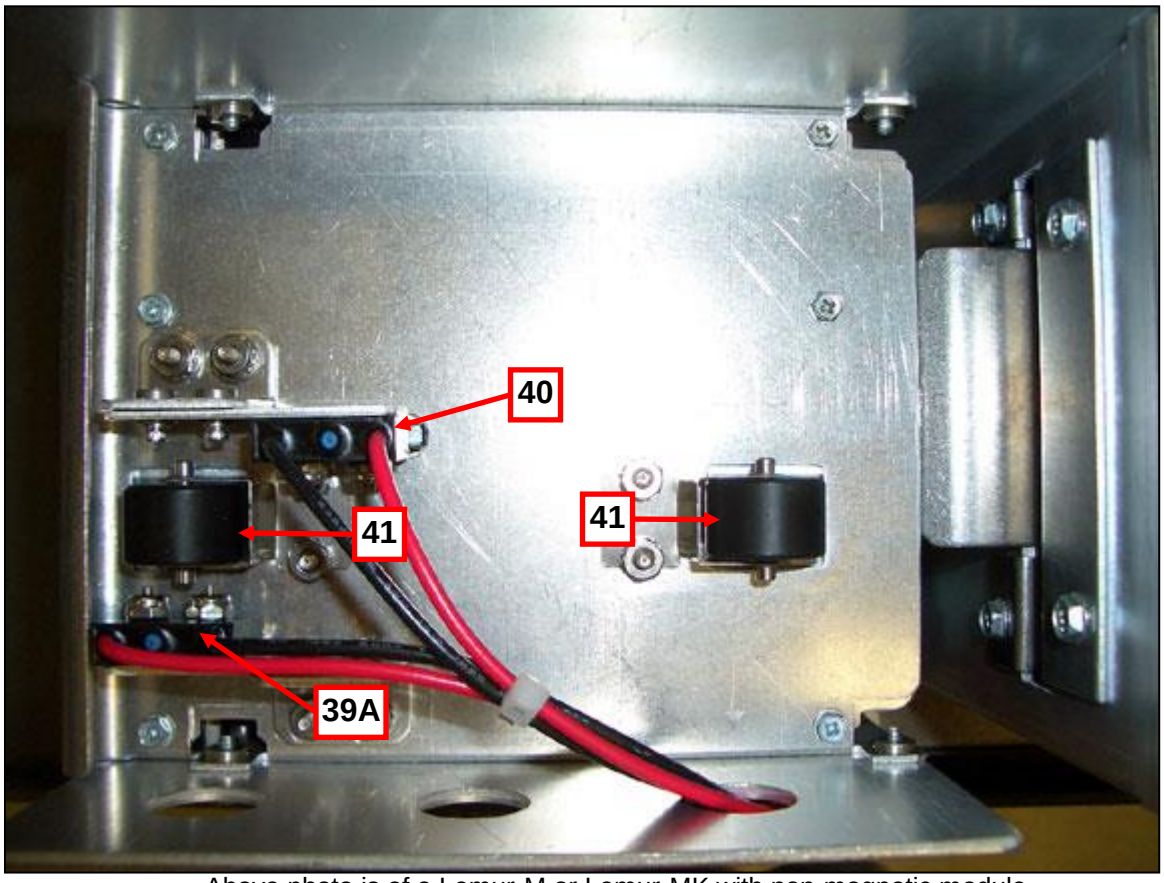


Above photo is of a Lemur-M built after February-2015 that has a SQ load opto. S/N 320833 & higher. This type of printer requires a black sticker to be on the bottom of the print out over the SQ opto location. See photo below.

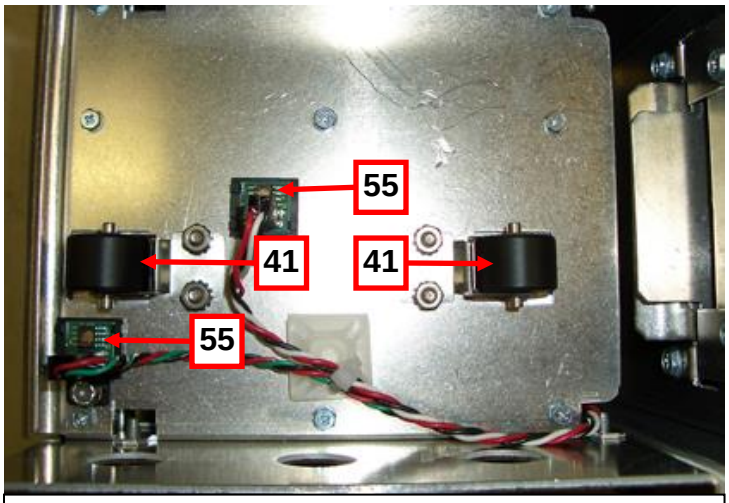




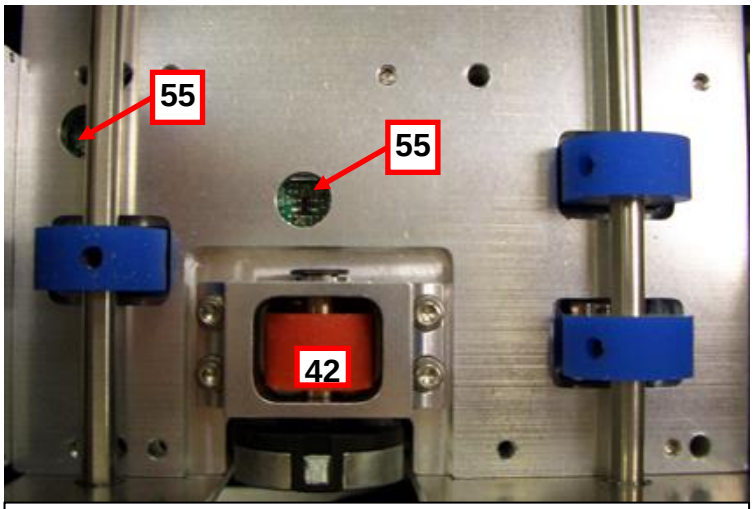
Above photo is of a Lemur-M or Lemur-MK with top encoding magnetic



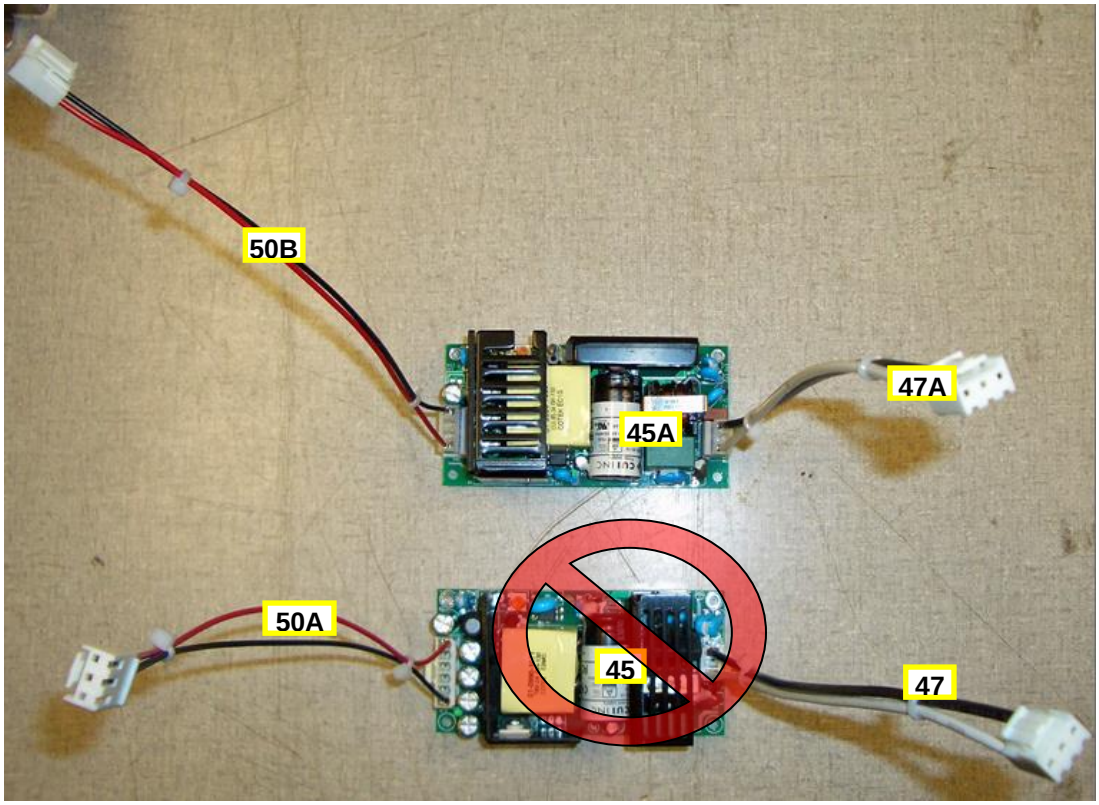
Above photo is of a Lemur-M or Lemur-MK with non-magnetic module



Above photo is of a Lemur-M or Lemur-MK with non-magnetic module. Printers S/N 349986 & higher.



Above photo is of a Lemur-M or Lemur-MK with bottom encoding magnetic module. Printers S/N 356291 & higher.



In the late part of June – 2015 part number 423917 (item #45) was phased out for 424031 (item #45A). If installing a 424031 power supply in place of a 423917 power supply you will need to order associated cables too.

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11.0 Troubleshooting Guide

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

1. NO OPERATION, LED'S DON'T LIGHT UP UPON POWER UP
   a. Power the printer off and wait 30 seconds then power it back on.
   b. Check the power cord for proper installation at both ends.
   c Check that there is power at the AC outlet.
   d. Contact your system provider or BOCA for further assistance.

2. POWER IS ON BUT NO OPERATION
   a. Check to make sure the ticket stock is properly loaded. Consult "Installation" section.
   b. With the printer powered off, unplug the thermal head and turn on the printer. If printer works then replace the thermal head.
   c. Contact your system provider or BOCA for further assistance.

3. POWER IS ON BUT TICKET WILL NOT LOAD
   a. See # 2
   b. Make sure the print head/cam lock assembly is fully locked in the closed position. Consult "Thermal Print Head" section.
   c. Check that the ticket stock is being loaded correctly. Consult "Installation" section.
   d. Contact your system provider or BOCA for further assistance.

4. ERRATIC BURST POSITION
   a. Clean off Head of Form Sensor with air. Consult "Head of Form Sensor" section.
   c. Check that the platen is clean. Consult "Platen (Rubber Drive Roller)" section.
   d. Clean off SQ load sensor with air. Consult "SQ Load Sensor section.
   e. Clean magnetic or non-magnetic module. Consult "Magnetic or Non-magnetic module" section.
   f. Contact your system provider or BOCA for further assistance.

5. ERRACTIC PRINT POSITION
   a. Make sure the print head/cam lock assembly is fully locked in the closed position. Consult "Thermal Print Head" section.
   b. Clean off Head of Form Sensor with air. Consult "Head of Form Sensor" section.
   c. Clean off SQ load sensor with air. Consult "SQ Load Sensor section.
   d. Check that the platen is clean. Consult "Platen (Rubber Drive Roller)" section.
   e. Contact your system provider or BOCA for further assistance.

6. BURSTER BLADE DOES NOT MOVE
   a. Check for blockage in the Burster area.
   b. Inspect the burster blade and clean if needed. Consult "Burster Assembly" section.
   c. Contact your system provider or BOCA for further assistance.

7. POOR PRINT OUT (light print out)

a. Try a different stack of ticket stock.
b. Make sure the print head/cam lock assembly if fully locked in the closed position.
c. Clean print head. Consult "Thermal Print Head" section.
d. Adjust print intensity setting via the control panel (if equipped). See Appendix A
e. Replace thermal head.
f. Contact your system provider or BOCA for further assistance.

8. POOR PRINT OUT (white voids in print out)
a. Clean print head. Consult "Thermal Print Head" section.
b. Replace thermal head.
c. Contact your system provider or BOCA for further assistance.

9. NO PRINT OUT
a. Try a different stack of ticket stock.
b. Check head cable for electrical connection at both ends
c. Check to make sure head cable is plugged in properly into the thermal head.
d. Replace the thermal head.
e. Contact your system provider or BOCA for further assistance.

10. TICKETS ARE NOT BURSTED ALL THE WAY THROUGH TICKET
a. Clean off Head of Form Sensor with air. Consult "Head of Form Sensor" section.
b. Check that the platen is clean. Consult "Platen (Rubber Drive Roller)" section.
c. Inspect the burster blade and clean if needed. Consult "Burster Assembly" section.
d. Make sure the burster blade in bursting the ticket directly on the perforation. The burst position may be adjusted via the control panel. See Appendix A.
e. Contact your system provider or BOCA for further assistance.

11. WI-FI WILL NOT CONNECT
a. Make sure you are connecting to Wi-Fi router that supports 802.11b devices. The router also needs to support 1 and 2 MBps data rates.
b On initial setup have the printer as close as possible to the Wi-Fi router.
b Check to make sure you have the correct security values for the Wi-Fi router you are trying to connect to.
b. If you have multiple routers change the channel setting to 1, 6 or 11. Multiple routers using the same channel will cause connection and drop single issues.

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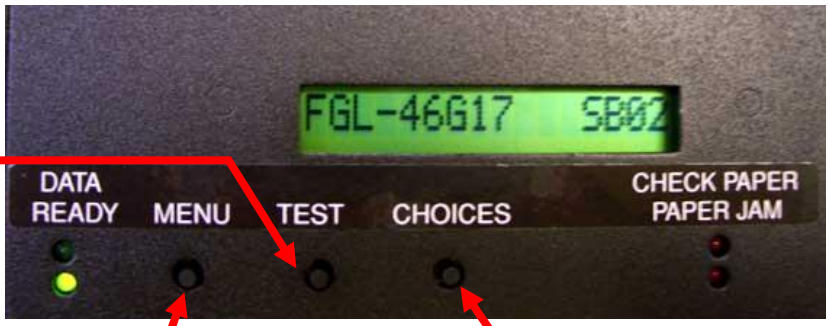
APPENDIX A - CONTROL PANEL

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



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

1. Ticket stock should be loaded into the printer. The LCD window displays **FGL46G# - SB#** (# - number value depends on revision level; G represents the software series level; B# is the font)
2. Press both **MENU** and **TEST** switches simultaneously for about 3 seconds. The LCD window displays **OPERATOR MENU. (**To access the factory menu, press **MENU and CHOICES** instead of **MENU** and **TEST**.) **WARNING: Improper use of the factory menu may disable your printer.**
3. To scroll through the menu topic, use **MENU** stopping on the topic you wish to change.
4. Press **CHOICES** to scroll through choices in the selected topic. **NOTE:** The printer displays a blinking cursor for the values presently stored in the printer.
5. Once you have found the new value you want, press **TEST**. The LCD window displays **EXIT AND SAVE?** If you wish to save the new value then press **TEST** again.
   6. If you do not wish to save the new value then press **MENU**. The LCD window displays **JUST EXIT?** Press **TEST** to exit the **OPERATOR MENU** without saving new values or press **MENU** to enter back into the **OPERATOR MENU**.

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

OPERATOR MENU
BAUD RATE?
PRINT SPEED?
DIAGNOSTIC MODE?
STATUS ENABLED?
PAPER MODE?
SPECIAL HEAD
CLEAR DOWNLOAD
PRINT INTENSITY?
TEST TICKET?
TICKET LENGTH?
INC BURST COUNT?
DEC BURST COUNT?

ETHERNET?
IP ADDRESS?
SUBNET MASK?
DEFAULT GATEWAY?
DNS SERVER?
SPEED/DUPLEX?
DEFAULT WEBPAGE?
REFRESH RATE?
TICKET REMAIN 1
TICKETS LOW1?
TICKET REMAIN 2
TICKETS LOW2?
EXIT AND SAVE?
JUST EXIT

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

BAUD RATE? Controls the serial interface baud rate, parity bit, data bits and stop bits.
Here are the following choices:

1200,N,8,1	4800,N,8,1	19200,N,8,1	38400,E,7,1
1200,E,7,1	4800,E,7,1	19200,E,7,1	57600,N,8,1
1200,O,7,1	4800,O,7,1	19200,0,7,1	57600,E,7,1
2400,N,8,1	9600,N,8,1	28800,N,8,1	115200,N,8,1
2400,E,7,1	9600,E,7,1	28800,E,7,1	115200,E,7,1
2400,O,7,1	9600,0,7,1	38400,N,8,1	

PRINT SPEED? Controls the speed the ticket travels at. Also effects the print quality.
The numbers range from **0 - FASTEST** to **7 - SLOWEST. 3 is factory default.**

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

STATUS ENABLED? Sets status response protocols.

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

SPECIAL HEAD? Factory setting. Do not modify.

CLEAR DOWNLOAD? Clears those items downloaded by the operator to Flash memory.
Your choices are **YES** or **NO**.

PRINT INTENSITY? Controls the darkness of ticket print out.
Here are the following choices:

LIGHT	
MED LIGHT	
NORMAL	**(factory default)**
MED DARK	
SHORT HEAD LIFE	

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

STANDARD	Normal self test ticket pattern **(factory default)**
CONFIGURATION 1	To print configuration settings if printing on a 1” wide ticket
CONFIGURATION 2	To print configuration settings if printing on a 2” wide ticket
CONFIGURATION 3	To print configuration settings if printing on a 3” wide ticket
CONFIGURATION 4	To print configuration settings if printing on a 4” wide ticket

TICKET LENGTH? Factory setting. Do not modify.

INC BURST COUNT? Enables the operator to move the burst position to the left (towards the ticket entrance area). Cut counts are increments of .003” for 300dpi and .005” for 200dpi. Depressing CHOICES changes the count value**.** The burst count value can be set within +/-75 of the ticket length.
This is set at the factory.

DEC BURST COUNT? Enables the operator to move the burst position to the right (towards the ticket exit area). Cut counts are decrements of .003” for 300dpi and .005” for 200dpi. Depressing CHOICES changes the count value**.** The burst count value can be set within +/-75 of the ticket length.
This is set at the factory.

ETHERNET? Only used for printer with Ethernet interface connector.

NO	Ethernet not enabled.
YES	Uses the IP address that has been set in the printer by the customer.

Diagonstics	This feature should not be used.
Valid Packets	This feature should not be used.
DHCP Enabled	Automatically attempts to get an IP address from Local Server
DHCP/SUB/GATE	Automatically attempts to get an IP address/Subnet Mask/Gateway from Local Server
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
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 ADDRESS? Enables the operator to change the printer's Ethernet IP Address. (See Appendix B)

SUBNET MASK? Enables the operator to change the printer's Ethernet Subnet Mask value. (See Appendix B)

DEFAULT GATEWAY? Enables the operator to change the printer's Ethernet default Gateway value. (See Appendix B) Programming Guide.

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

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

EXIT AND SAVE ! Will save any changes made to the above menu options.
If you wish to save the new value then press **TEST**, if not press **MENU.**

JUST EXIT? Will exit the menu options without saving any changes.
If you with to exit without saving the new value then press **TEST**, if not press **MENU**.

Click here to return to > Table of Contents

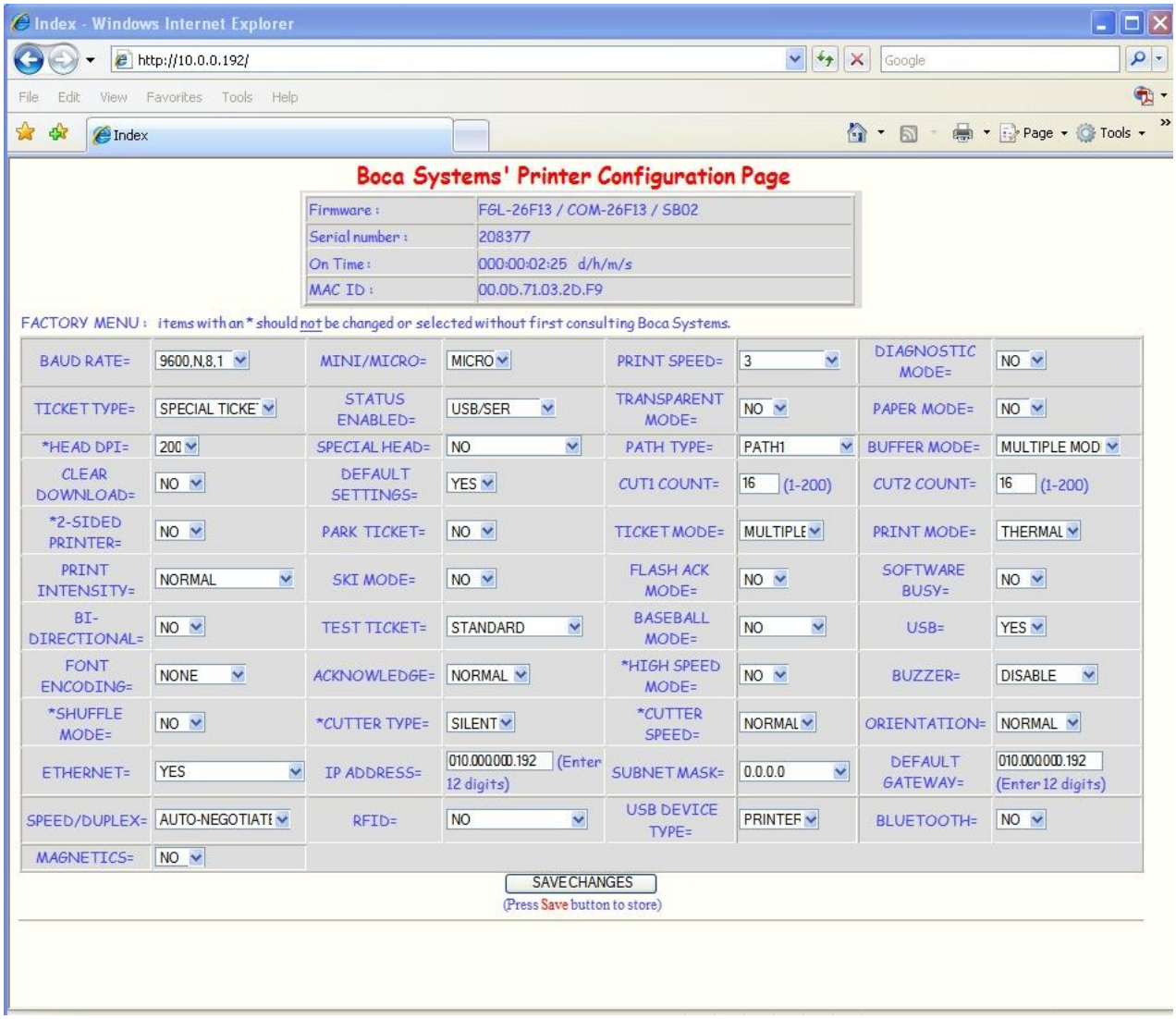
APPENDIX B –ETHERNET PARAMETERS

General

Each Boca Ethernet Printer is assigned a unique MAC address based in part on the printer's serial number. All Boca printers are factory configured in DHCP enabled mode. (Exceptions may be made by special request.) If the printer is unable to get a dynamic IP address from the customer's network in the allotted time period (about one minute), it will default to the 10.0.0.192 address. You can select a different fixed IP address either via a Web Browser (see below) or the printer's control panel if your printer has an optional LCD display.

ETHERNET – Quick Installation Guide

- Connect the printer to your network (the IP address will be automatically assigned by your DHCP server)
- Load tickets into the printer
- Wait one minute to allow assignment of IP address
- Print a test ticket to identify the printer's IP address
- Ping the printer
- Open your web browser and type the printer's IP address to review its configuration page (see below image).
- If you are going to set a static IP address then you will need to change the ETHERNET setting to YES.
- If you experience any problems, please refer to the Ethernet section of our FGL programming guide. (www.bocasystems.com/documents/fgl46.doc)



Changing IP Address if your printer has a LCD display

CHANGING 'ETHERNET' SETTING

1. Please follow these steps to change the ETHERNET setting on your Ethernet printer.
2. Depress both the **MENU** and **CHOICES** buttons while turning on the printer. Keep both buttons depressed unit **FACTORY MENU** appears in the LCD window or the display starts scrolling through different topics.
3. Using the **MENU** button scroll down to the **ETHERNET?**
4. Using the **CHOICE** button select **YES**.
5. Press the **TEST** button to enter that setting.
6. Now the display will show **EXIT AND SAVE**. Press the **TEST** button to save the setting entered.
   Note: if you selected 'YES' then you can use the default IP of 10.0.0.192

CHANGING 'IP ADDRESS'

1. Please follow these steps to change the fixed IP address on your Ethernet printer. Note: if using a fixed IP address make sure the 'ETHERNET' setting is set to 'YES' (see above).
2. Depress both the **MENU** and **CHOICES** buttons while turning on the printer. Keep both buttons depressed until **FACTORY MENU** appears in the LCD window or the display starts scrolling through different topics.
3. Using the **MENU** button scroll down to the **IP ADDRESS?** and press the **CHOICE** button.
4. The blinking cursor indicates the current IP numeric value selected. Every time you press the **CHOICE** button the numeric value will change.
5. Using the **TEST** button will move you over to the next numeric value.
6. Continue steps 4 & 5 to program the desired IP address value.
7. At the end the display will show **EXIT AND SAVE**. Press the **TEST** button to save the IP address you just entered.

CHANGING 'DEFAULT GATEWAY' ADDRESS

Follow same procedure as 'Changing IP address' above but in step 3 scrolls down to the **DEFAULT GATEWAY** topic.

CHANGING 'SUBNET MASK' SETTING

1. Depress both the **MENU** and **CHOICES** buttons while turning on the printer. Keep both buttons depressed until **FACTORY MENU** appears in the LCD window or the display starts scrolling through different topics.
2. Using the **MENU** button scroll down to the **Subnet Mask?** and press the **CHOICE** button.
3. Each time you press the **CHOICE** button a different mask value will be displayed.
4. Once you have the mask value you want, press the **TEST** button. The display will show **EXIT AND SAVE**. Press the **TEST** button a second time to save the address value.

Click here to return to > Table of Contents

APPENDIX C – WINDOWS PRINT DRIVER INSTALLATION GUIDE

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

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

These print drivers are intended to be installed on Windows PC platforms X86, AMD64 or IA64. This includes Windows 7, 8.1, 10 and Server 2012 R2.

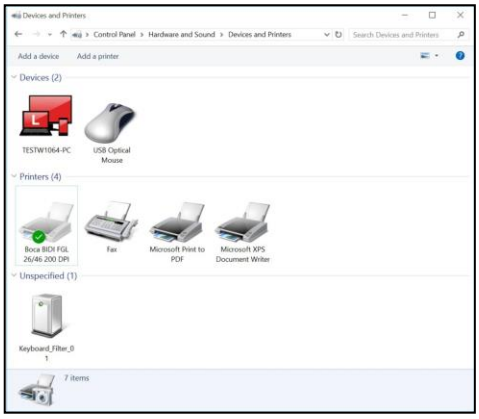
To properly install the Boca Systems printer drivers, version 4.0.0.0, follow the steps outlined below. If you currently have another version of a BOCA print driver installed, start at step #1 to uninstall it first. If this is the first time installing the BOCA driver onto the host computer then start at step #4.

On the host computer you are installing the drivers on you will want to make sure you have the following:

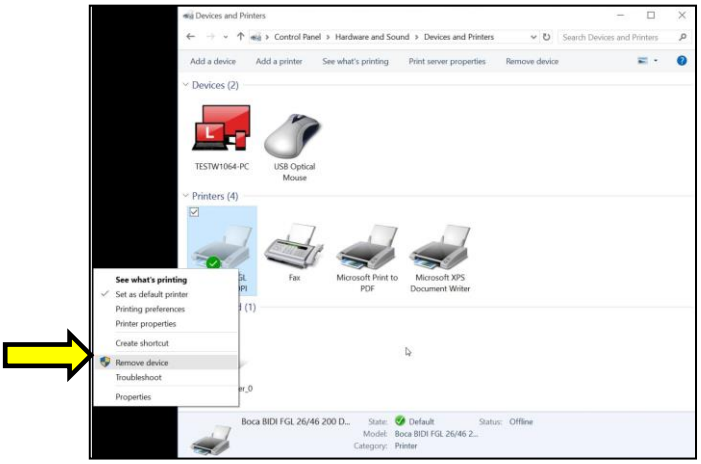
- Administrate privileges as most Windows systems require this do download drivers.
- Access to the internet as the host computer will need to gain access to the Microsoft website to download the necessary drivers.

1. Turn off the BOCA printer.

2. Go to the Devices and Printers window. In the below image there is one BOCA driver currently installed via its default name.



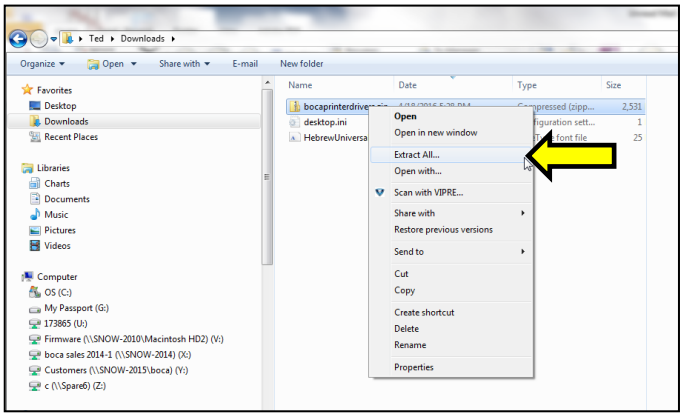
3. Right click on the driver icon and then click on "Remove Devices". You will be prompted with "Are You Sure", select Yes. If there is more than one BOCA print driver icon then repeat this step until all are removed.



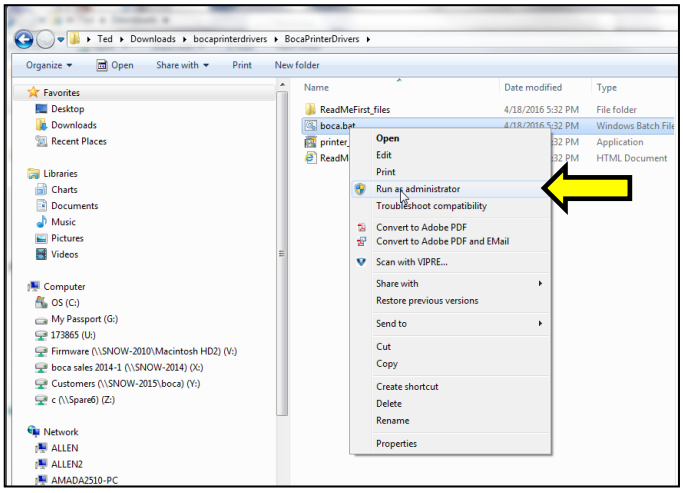
4. Click on the link below to download the zip file to your host computer. You will be prompted if you want to Open, Save or Save as. Click on **Save as** and save the file to your hard drive. You will need to denote what file folder you saved

the file to.
www.bocasystems.com/bocaprinterdrivers.zip

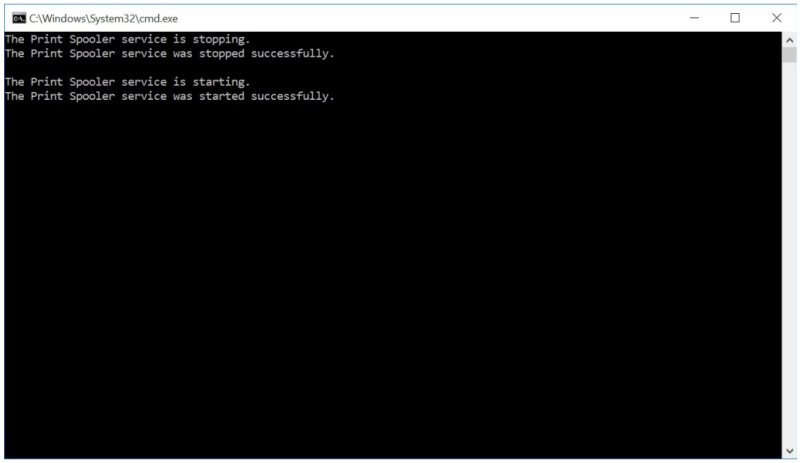
5. Go to the file folder you saved the zip file to and right click on bocaprinterdrivers.zip. Click on Extract All… It will ask you to select a Destination and Extract Files, click on the Extract button.



6. The file folder that was extracted will automatically pop up. Double click on the BocaPrintDrivers folder to open it up. Right click on boca.bat and click on Run as administrator.

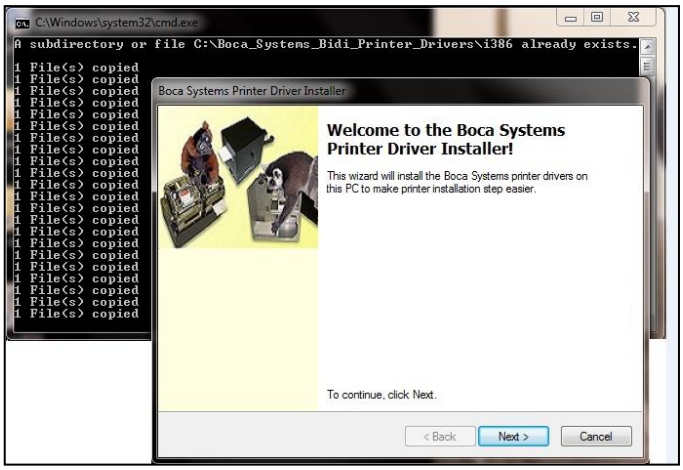


7. You will see two DOS command windows open. The first will be looking for an older version of ddkfglmon.dll file to delete so it may be replaced with new ones once the complete install process is done. The spooler will be stopped while the file is being deleted and will restart. If the PC does not have this file, a message will be displayed “File not found”. This is nothing to worry about as said file did not reside on the PC.



8. The second DOS command window will open to install the printer files as shown below. Notice the message “Driver Package added successfully”. This is how it is displayed on a 64 bit Windows PC. Press “Enter” key to close DOS command windows.

On a 32 bit Windows PC it will look more like the below. Click the “Next” button and “Finish” button when prompted to complete the install of the driver package onto the PC.

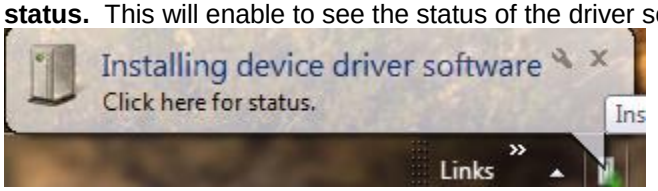


NOTE: IF INSTALLING ON WINDOWS 8 OR 10 GO TO PAGE 41.

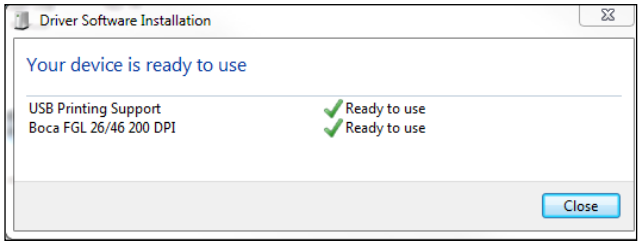
The below steps are for Windows 7 operating system only.

1. Connect the USB cable to the host computer and power on the printer. If you are connecting to the printer via Ethernet or Wi-Fi then skip to step # 4.

2. Depending on your system, a notice box similar to the following picture should appear. Click on the **Click here for status.** This will enable to see the status of the driver software installation.



3. The correct USB Printing Support and drivers will automatically install. The image below is of a 200dpi driver being installed on a Windows 7 system. The driver name will vary due to the printer’s DPI and logic board level. Go to Page 39.

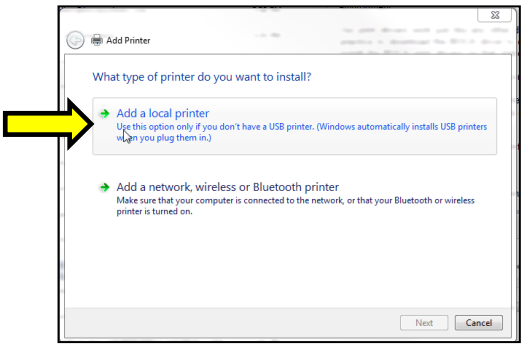


STEPS 4 THROUGH 15 ARE FOR ETHERNET OR WI-FI CONNECTION ONLY

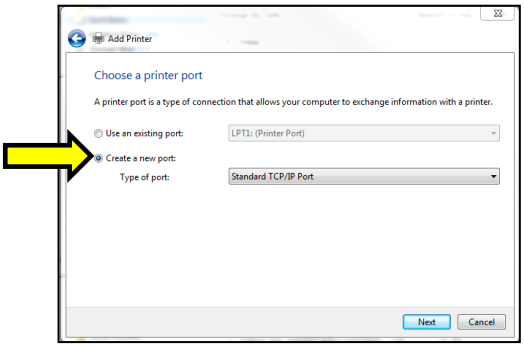
4. The self-test ticket that is printed when the printer's TEST button pressed will show the IP address that the printer has.

5. Open up the "Devices and Printer" Menu.

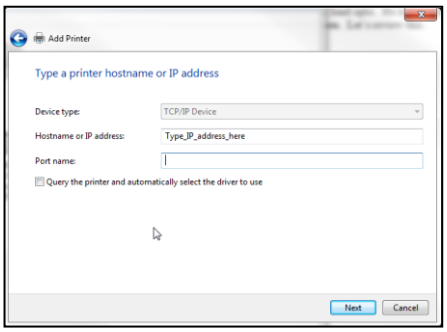
6. Click on "Add a Printer". When Add Printer Wizard show up, click on the Next button. Click on "Add a local printer".



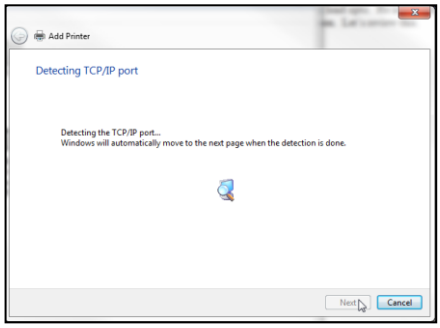
7. When the printer port menu comes up. Click on "Create a new port:" choose "Standard TCP/IP Port". Click on the Next button.



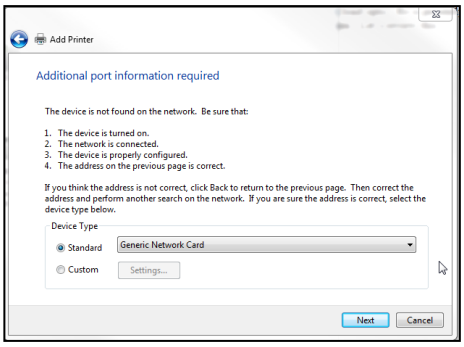
8. Type in the IP address that is shown on the self-test ticket in the "Hostname or IP address:" field. When typing in the address don't include the leading zeroes (If IP=189.010.000.002 then type in 189.10.0.2). You also have the option of typing in a specific Port name or leave as the IP address. Click on the Next button.



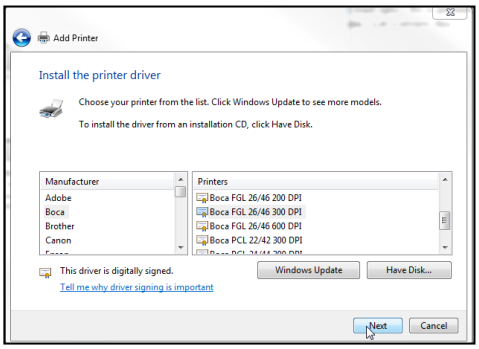
The below screen may be seen (no action is needed). It may take a few minutes for the system to move on to the next screen. This will vary depending on system and Network speeds.



9. When the Additional Port information menu comes up click on the Next button.



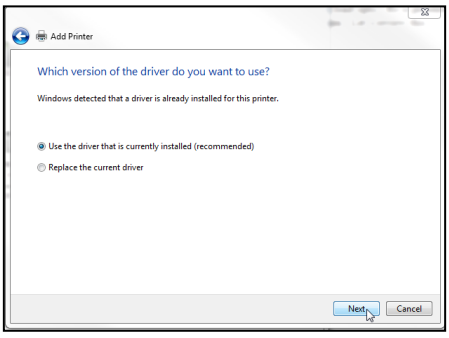
10. When the Install print driver menu comes up: Under Manufacturer select “Boca”. Under Printers select the driver that matches your printer’s protocol (FGL or PCL) and DPI. Click on the Next button.



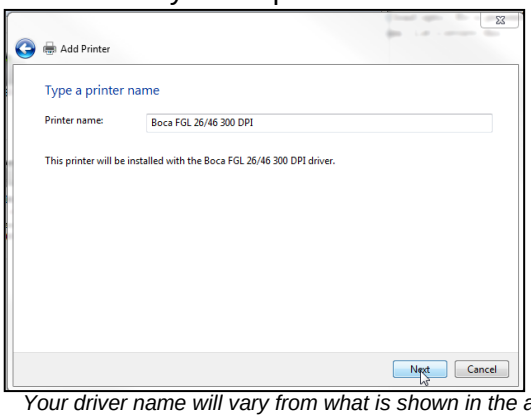
Taking a look at the printer’s serial number tag the below chart should aid in determining the correct driver to select.

Driver	DPI	Firmware	PCL listed
Boca BIDI FGL 22/42 200 DPI	200	22 or 42	NO
Boca BIDI FGL 24/44 200 DPI	200	24 or 44	NO
Boca BIDI FGL 26/46 200 DPI	200, 2C, 2L	26 or 46	NO
Boca BIDI FGL 22/42 300 DPI	300	22 or 42	NO
Boca BIDI FGL 24/44 300 DPI	300	24 or 44	NO
Boca BIDI FGL 26/46 300 DPI	300, 3L	26 or 46	NO
Boca PCL 22/42 300 DPI	300	22 or 42	YES
Boca PCL 24/44 300 DPI	300	24 or 44	YES
Boca PCL 26/46 300 DPI	300, 3L	26 or 46	YES

11. When the version driver menu comes up click on the Next button.

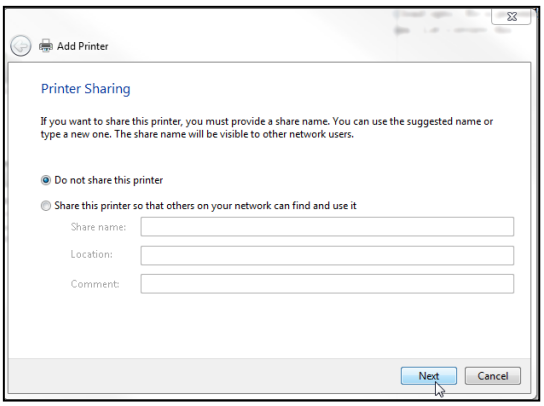


12. When the printer name menu comes up you may keep the default name or type in a different name. We recommend you keep the default name. Click on the Next button.

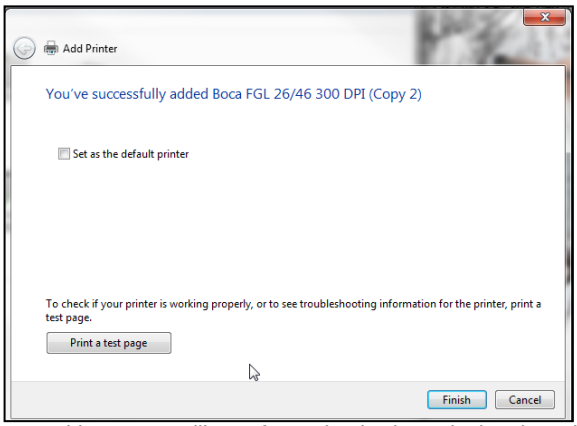


Your driver name will vary from what is shown in the above image

13. When the Printer Sharing menu comes up you may choose to share this printer or not. Click on the Next button.



14. On the last menu you have the option to choose if you want to make the BOCA your default printer. **Do not click on Print a test page.** Click on the Finish button.



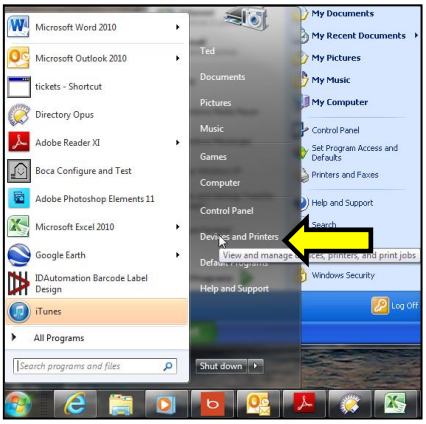
Your driver name will vary from what is shown in the above image

15. The next page reviews how to print a windows test page to confirm the driver is communicating with the printer.

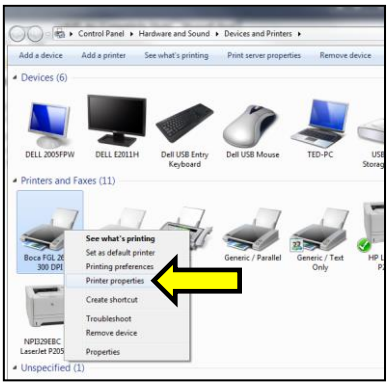
Windows 7 Test Page

The following will guide you through doing a Windows test page to confirm the driver is communicating with the printer. You will want to make sure the printer has stock loaded and is able to print a self-test ticket when the TEST button is pressed. The printing of this ticket confirms that the printer is working properly mechanically. If the printer is not able to print a self-test ticket, then consult the "4.0 Installation section of the user manual (www.bocasystems.com/documents/lemur_manual.pdf).

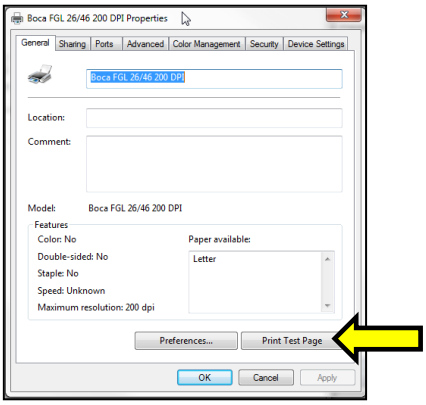
1. Go to the **Devices and Printers** page.



2. When the Devices and Printers page comes up, right-click on the BOCA driver that is being used. When the drop down window pops up, left click on **Printer properties**. *Your selection of driver will vary from what is shown in the below images.*

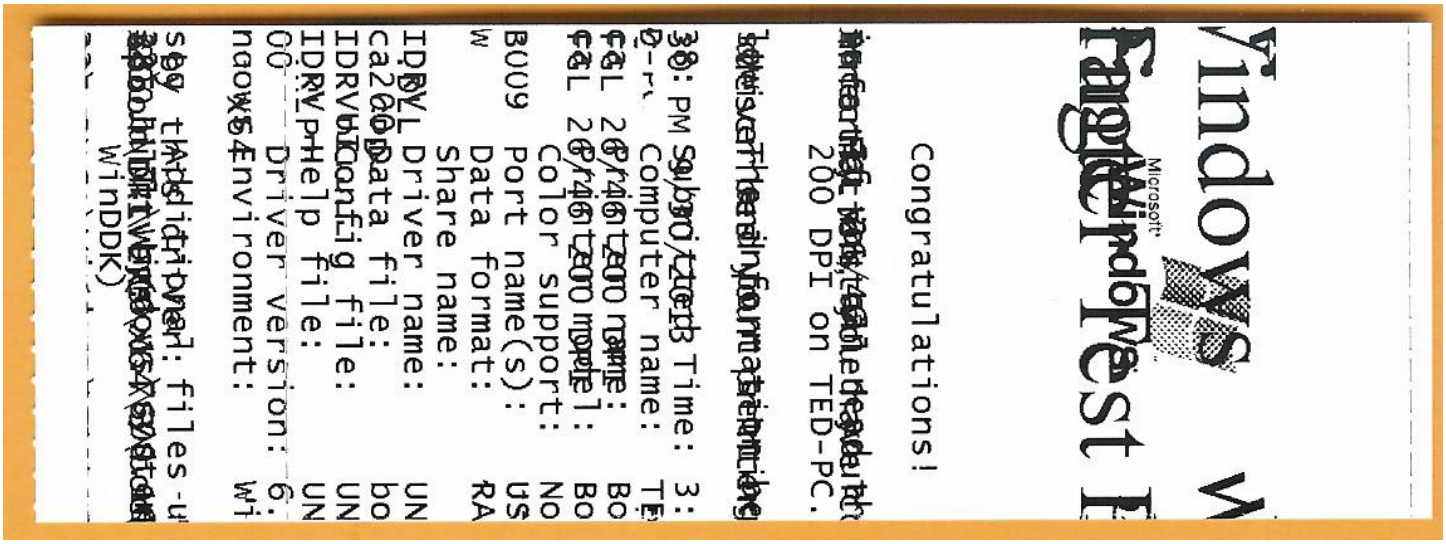


3. Once the driver's properties menu comes up click on the **Print Test Page** button. *Your drive properties will vary from what is shown in the below.*

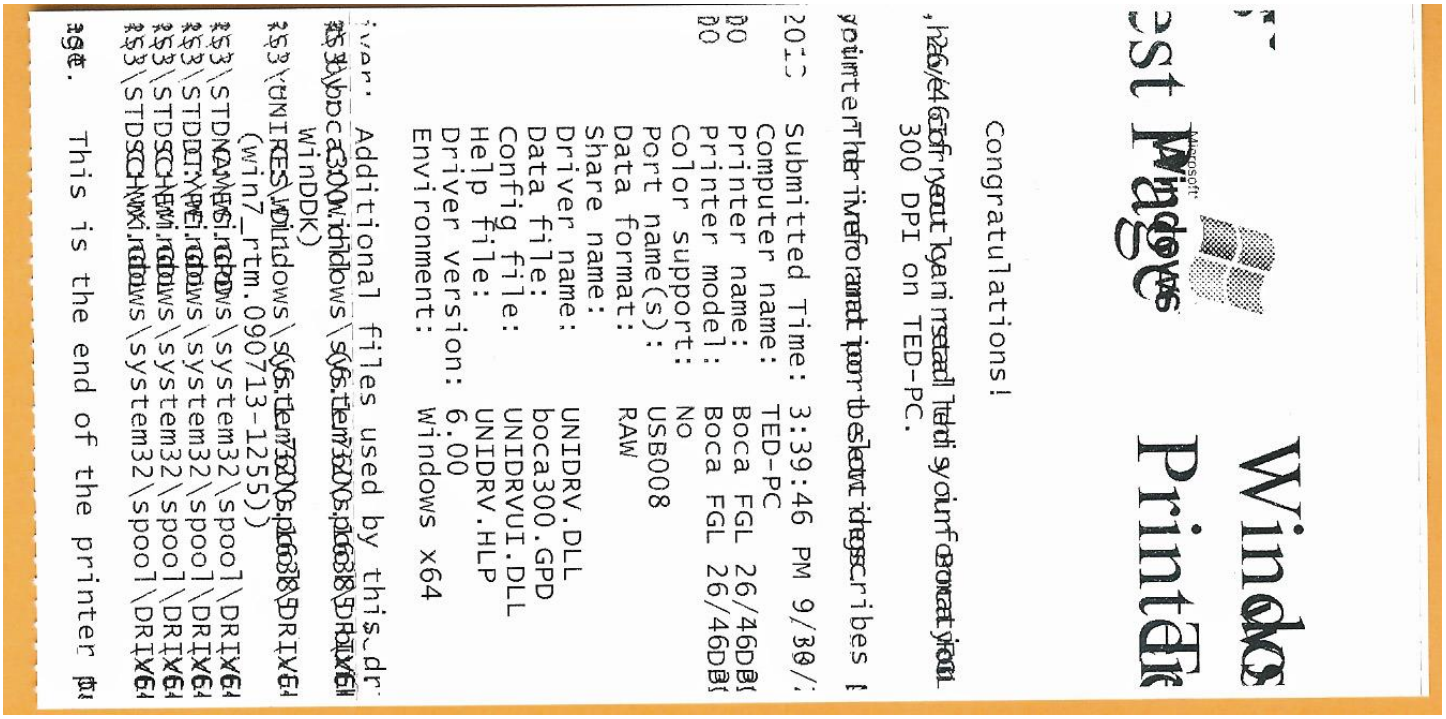


4. The printer should proceed with printing out a Windows Test page. The printing of this ticket confirms the print driver is communicating with the printer.

Below are some samples printouts for reference only and your test page may look different.



Above is from a 200DPI FGL printer with 2” x 5.5” stock



Above is from a 300DPI FGL printer with 3.25” x 6.5” stock

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

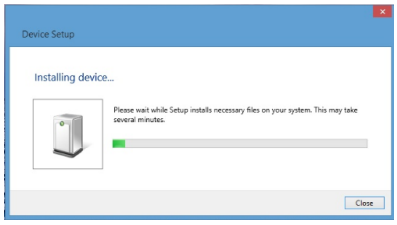
Windows 8 and 10 Install Guide

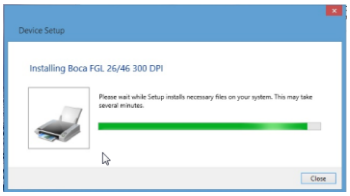
Do not connect the printer to your computer's USB port until advised to.

1. Connect the USB cable to the host computer and power on the printer. If you are connecting to the printer via Ethernet or Wi-Fi then skip to step # 4.

2. Depending on your system, a notice box similar to the below picture may appear. Click on the **Click here for status** (for Windows 7) or the icon (for Windows 8 or 10)**.** This will enable to see the status of the driver software installation.

3. The correct USB Printing Support and drivers will automatically install. The image below is of a 300dpi driver being installed. The driver name may vary due to the printer's DPI and logic board level. Go to page 13 to print a Windows test page.

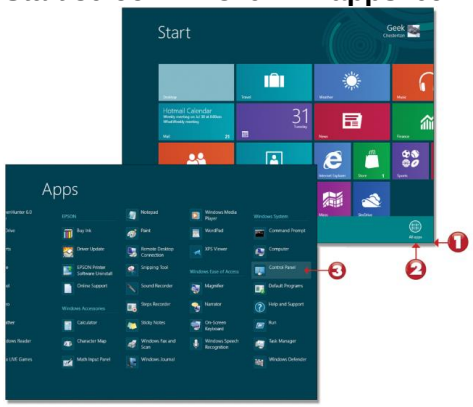




STEPS 4 THROUGH 13 ARE FOR ETHRENT OR WI-FI CONNECTION ONLY.

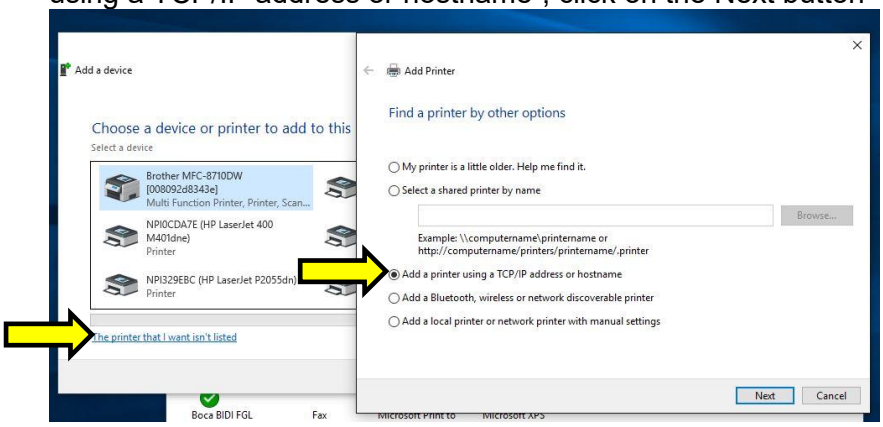
4. The self-test ticket that is printed when the printer's TEST button is pressed will show the IP address that the printer has.

5. Below is one of many ways to get to the devices and printers menu. **1**- Right-click the bottom corner of the Start screen. **2**- Click **All apps** icon. **3** – Click **Control Panel**.

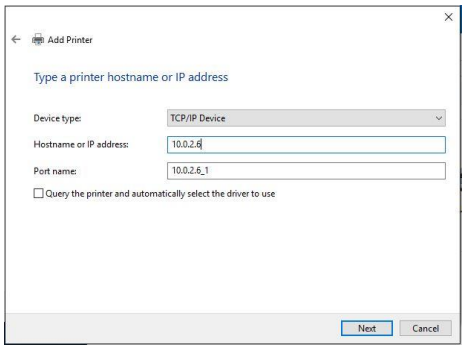


6. When the Control Panel menu comes up, click on **View devices and printers** located under Hardware and Sound.

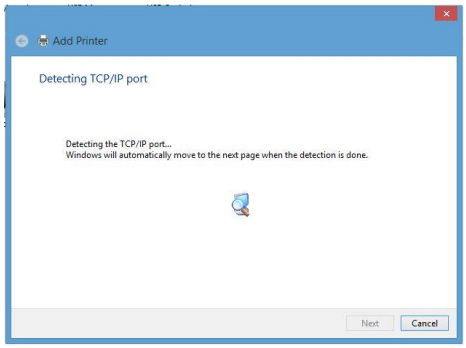
7. Open up the “Devices and Printer” Menu. Click on “Add a Printer” to run the install wizard. Click on “The Printer I want isn’t listed”. When the find a printer by other option menu comes up. Click on “Add a printer using a TCP/IP address or hostname”, click on the Next button



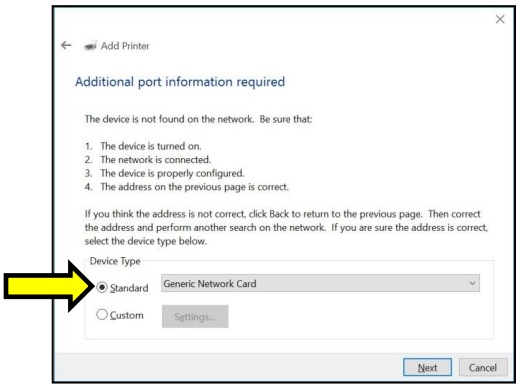
8. Type in the IP address that is shown on the self-test ticket in the “Hostname or IP address:” field. When typing in the address don’t include the leading zeroes (If IP=189.010.000.002 then type in 189.10.0.2). You also have the option of typing in a specific Port name or leave as the IP address. Uncheck the “Query the printer and…….” Box, click on the Next button.



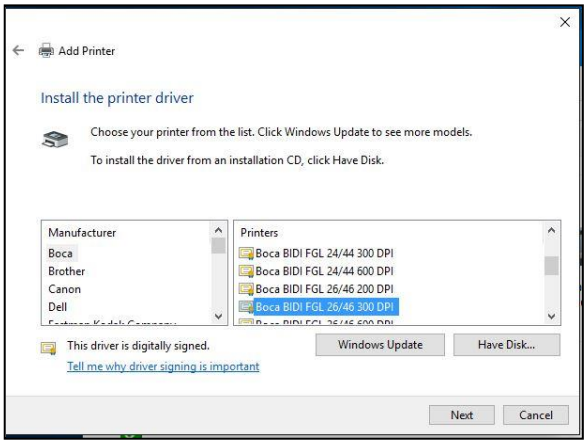
9. The below screen will be displayed (no action is needed). It may take a few minutes for the system to move on to the next screen. This will vary depending on system and Network speeds.



10. The host computer will move forward with detecting the IP address. Once detected the below menu will come up. Select standard network card and click next.



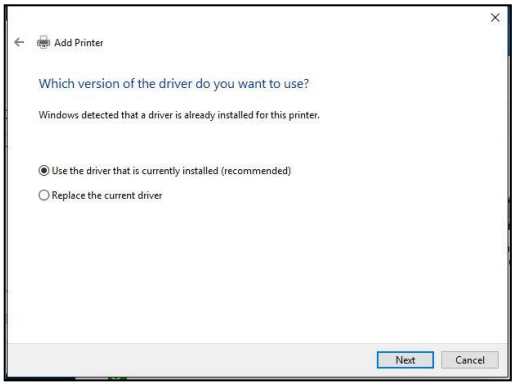
11. When the Install the print driver menu comes up select “Boca” under and the appropriate driver for your printer. Once done click on the next button.



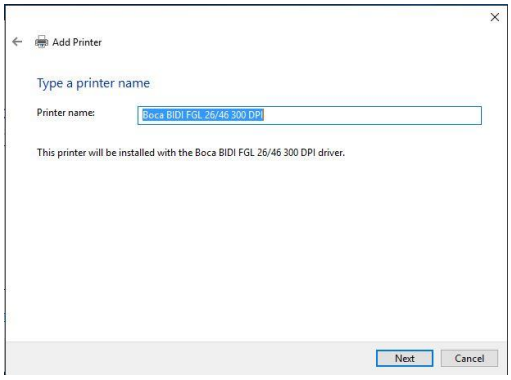
Taking a look at the printer’s serial number tag the below chart should aid in determining the correct driver to select.

Driver	DPI	Firmware	PCL listed
Boca BIDI FGL 22/42 200 DPI	200	22 or 42	NO
Boca BIDI FGL 24/44 200 DPI	200	24 or 44	NO
Boca BIDI FGL 26/46 200 DPI	200, 2C, 2L	26 or 46	NO
Boca BIDI FGL 22/42 300 DPI	300	22 or 42	NO
Boca BIDI FGL 24/44 300 DPI	300	24 or 44	NO
Boca BIDI FGL 26/46 300 DPI	300, 3L	26 or 46	NO
Boca PCL 22/42 300 DPI	300	22 or 42	YES
Boca PCL 24/44 300 DPI	300	24 or 44	YES
Boca PCL 26/46 300 DPI	300, 3L	26 or 46	YES

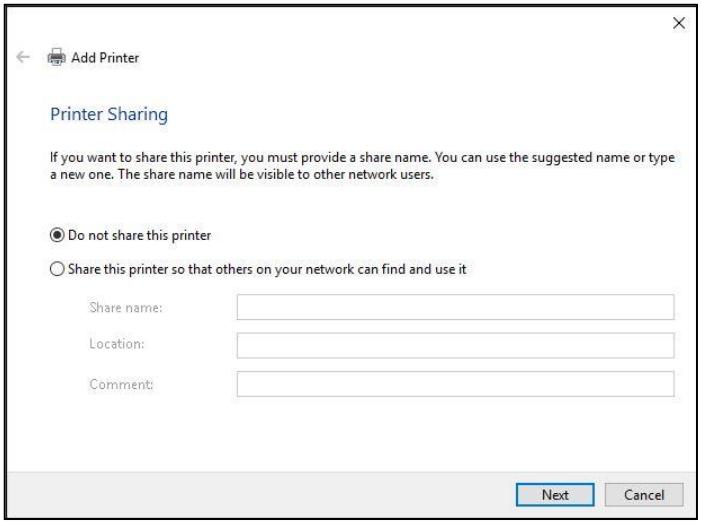
12. When the below menu comes up click on next.



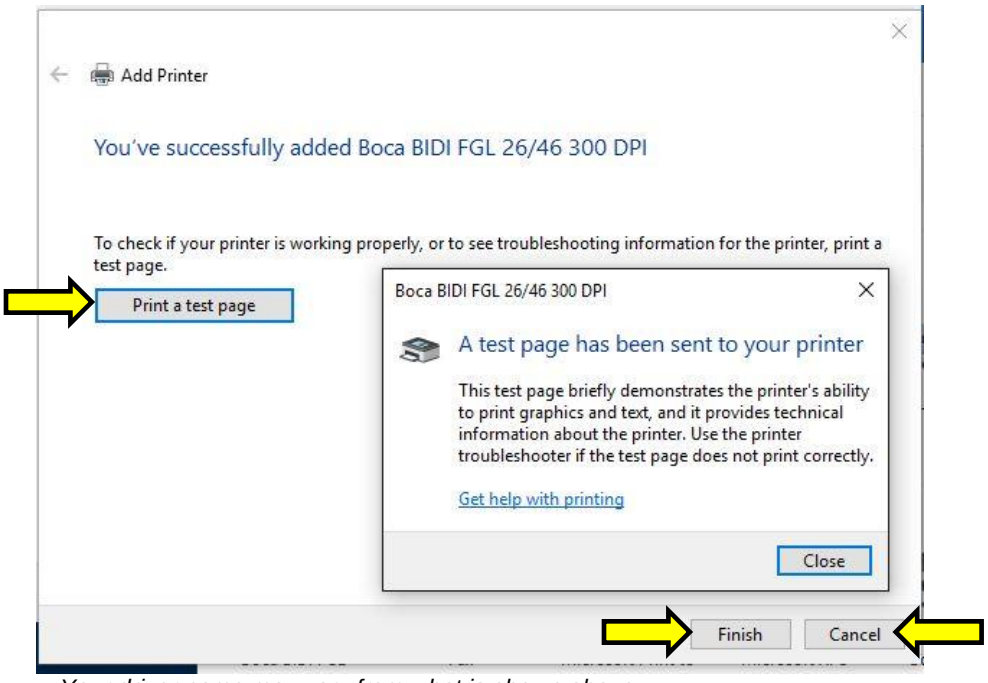
13. When the below menu comes up click on next. *Your name may vary from what is shown below.*



14. At this menu screen you have the option to share or not share the printer. Click on the next button.



13. On the last page click on the “Print a test page” button and a windows test page should be printed by the printer. This indicates the driver is communicating with the printer. Click on the Close button and then the Finish button. Page 46 shows typical printout.

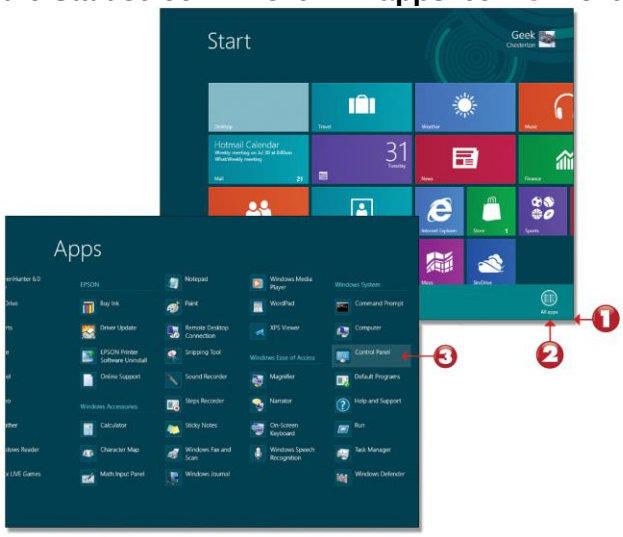


Your driver name may vary from what is shown above

Windows 8 or 10 Test Page

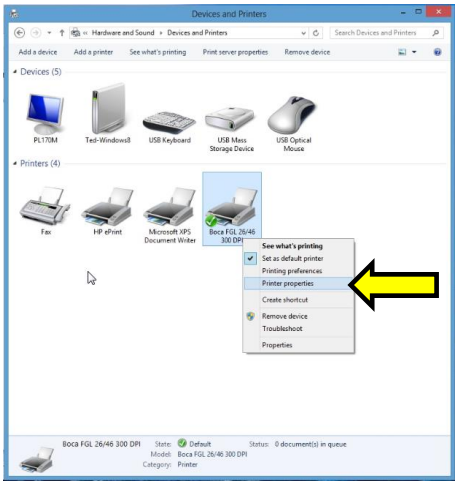
The following will guide you through doing a Windows test page to confirm the driver is communicating with the printer. You will want to make sure the printer has stock loaded and is able to print a self-test ticket when the TEST button is pressed. The printing of this ticket confirms that the printer is working properly mechanically. If the printer is not able to print a self-test ticket, then consult the "4.0 Installation section of the user manual (www.bocasystems.com/documents/lemur_manual.pdf).

14. Below is one of many ways to get to the devices and printers menu. **1**- Right-click the bottom corner of the Start screen. **2**- Click **All apps** icon. **3** – Click **Control Panel**.

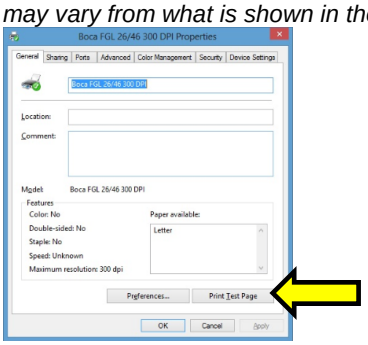


15. When the Control Panel menu comes up, click on **View devices and printers** located under Hardware and Sound.

16. When the Devices and Printers page comes up, right-click on the BOCA driver that is being used. When the drop down window pops up, click on **Printer properties**. *Your selection of driver will vary from what is shown in the below images.*

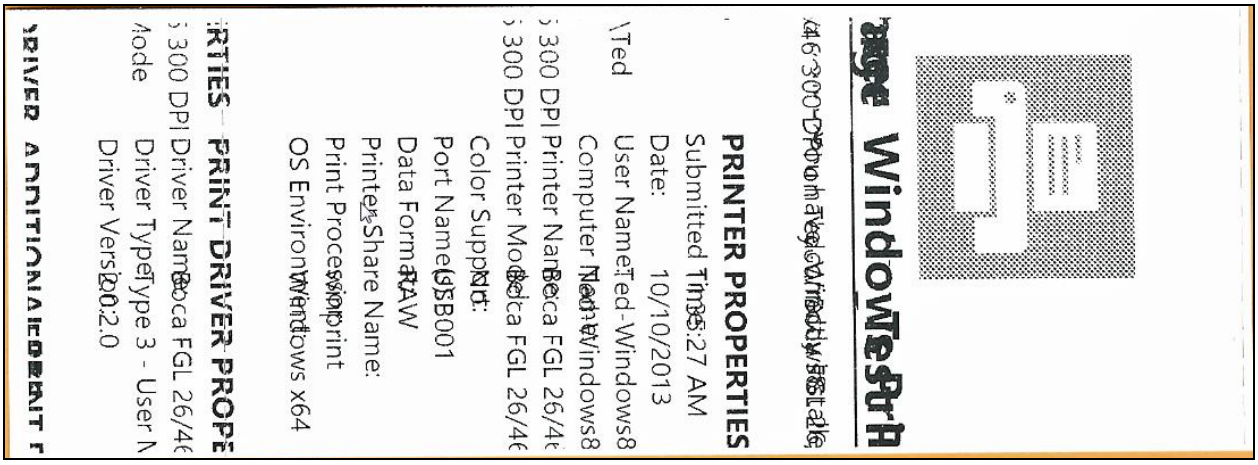


17. Once the driver's properties menu comes up click on the **Print Test Page** button. *Your drive properties may vary from what is shown in the below images.*

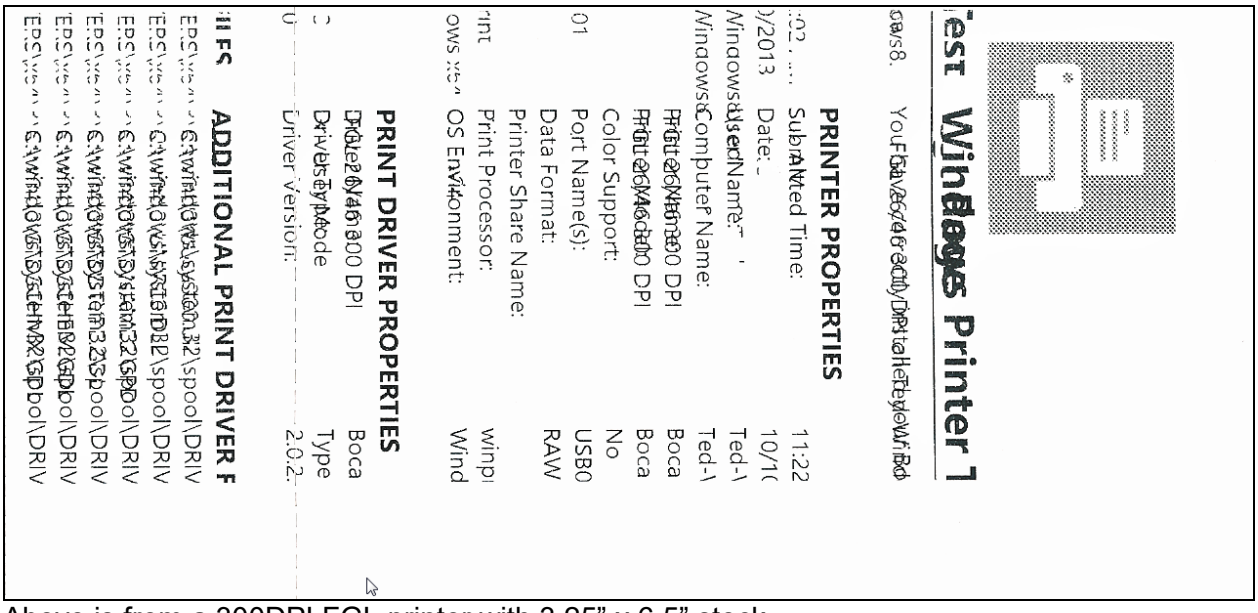


18. The printer should proceed with printing out a Windows Test page. The printing of this ticket confirms the print driver is communicating with the printer.

Below are some samples printouts for reference only and your test page may look different.



Above is from a 200DPI FGL printer with 2" x 5.5" stock



Above is from a 300DPI FGL printer with 3.25" x 6.5" stock

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

APPENDIX D – MAC PRINT DRIVER INSTALLATION GUIDE

Do not connect the printer to your computer's USB port until step #13

Please contact your software provider to confirm if the use of our driver is required for their ticketing software. We recommend that the print driver is installed by either your system administrator or IT support staff. If you previously connected the printer or tried to install the print driver, take a screenshot of the "printers and drivers" dialog and attach it to the support form located at www.bocasystems.com/onlinesupportform.html.

NOTE: You must have full Administrative Privileges in order to download and install drivers.

1. The BOCA MAC print drivers are designed only for FGL protocol printers. They will not work with PCL protocol printers. The self-test ticket that is printed when the TEST button is pressed will indicate the printer's protocol. **FGL** = FGL protocol and **HP** = PCL protocol

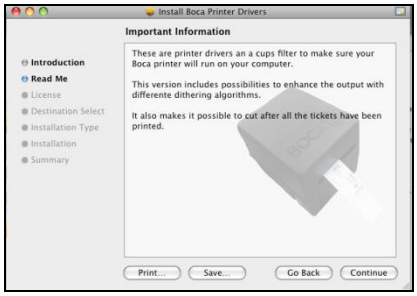
2. Click on the driver link that matches you system.

boca driver (mountain lion compatible)
boca driver (maverick , yosemite & el capitan compatible)

3. Click on the below ICON when it shows up on your taskbar. Then click on **boca_mountainlion.pkg** (is mountain lion link was chosen or **Boca Printer Drivers Signed.pkg** (if mavericks link was chosen).

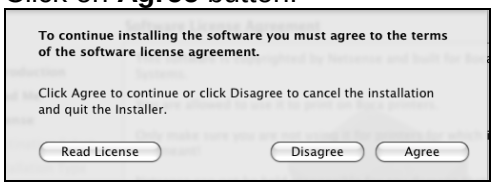
4. Click on the **Continue** button.

5. Click on the **Continue** button.

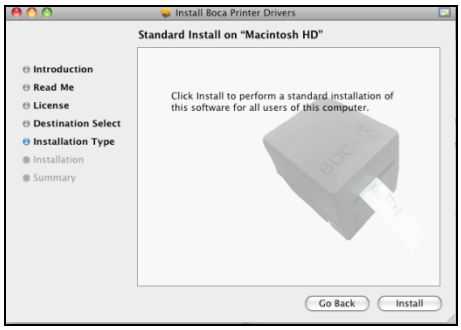


6. Click on **Continue** button.

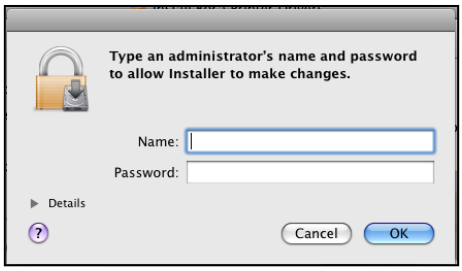
7. Click on **Agree** button.



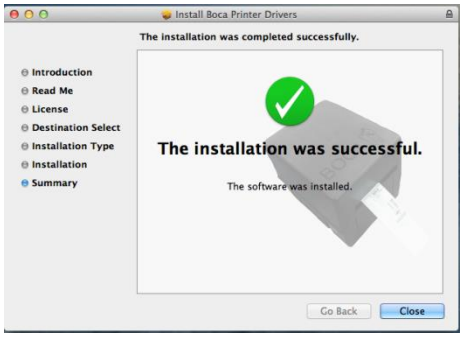
8. Click on **Install** button.



9. If your system is administrator password protected then the below dialog box will appear. Enter in the appropriate Name and Password, click on **OK** button.

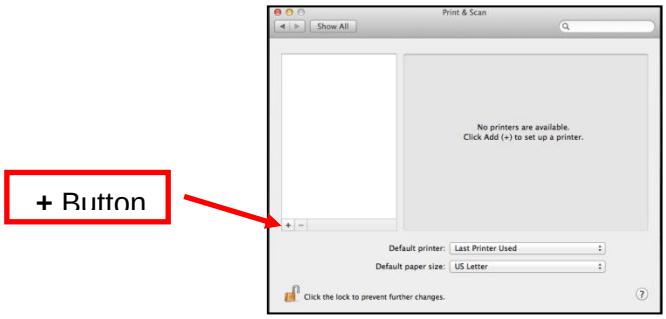


10. Click on the **Close** button.



11. Click on the **System Preferences** icon that is located on your taskbar.

12. Click on **Print & Scan** icon.



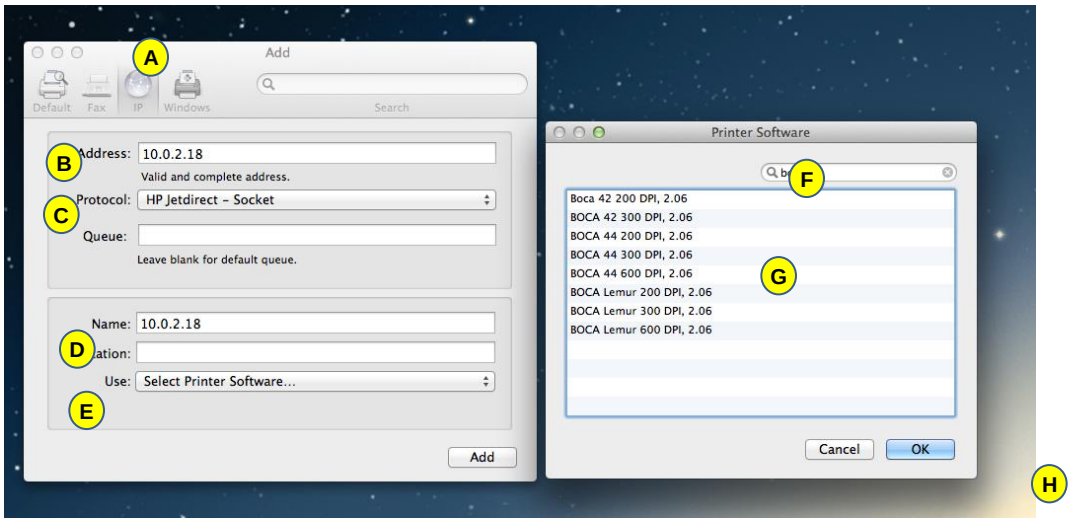
Your Print & Scan may vary from what is shown in above image

13. Connect the USB cable to the host computer; power on the printer; and go to step 20. If you are not connecting to the printer via a USB cable but via an IP address (Ethernet or Wi-Fi), go to the next step.

14. The IP address of the printer is found on the self-test ticket that is printed when the TEST button is pressed.

15. Click on the **+** button in the Printer & Scan menu that was shown in step #11 to manually add a printer.

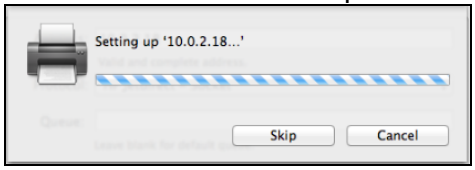
16. When the add printer menu comes up, do the following.
    a. Click on the **IP** icon.
    b. **Address:** type in the IP address that is shown on the self-test ticket.
    c. **Protocol:** choose **HP Jetdirect-Socket**
    d. **Name:** you may keep the default name or change it.
    e. **Use:** choose **Select Printer Software….**
    f. In the Printer Software menu type **boca** in the search area.
    g. Choose the driver that matches your printer. The serial number tag will indicate Software (42, 44 or 46) and DPI (200, 300 or 600).
    h. Click on the **OK** button



Your IP address and software version may be different than what is show in the above image.

17. Click on **Add** icon.

18. The below box will show up while the driver is being installed, no action is needed.

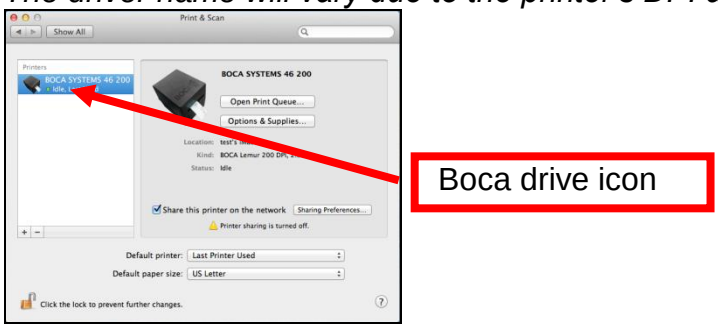


Your IP address will be different than what is show in the above image.

19. Under **Output Quality:** choose **Supercell**. Click on the **OK** button.
The driver will finish installing, Go to step 20.

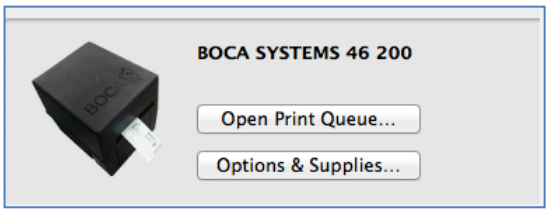
Your IP address will be different than what is show in the above image.

20. The correct print driver would have automatically installed if connected via a USB cable. If manually installed, the name entered in step 16 will show up. The image below is of a 200dpi driver.
The driver name will vary due to the printer's DPI and software level.

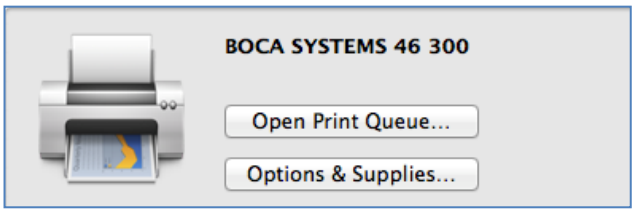


Your selection of drivers may vary from what is shown in above image

You should see an image of a small BOCA printer when the driver is properly installed. If you see a different image then this means the driver did not properly install. If this is the case the go to page 52.



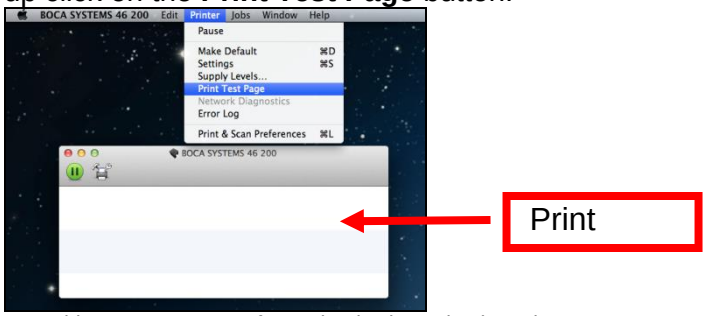
Above is the correct printer image.



Above is incorrect printer image, go to page 52

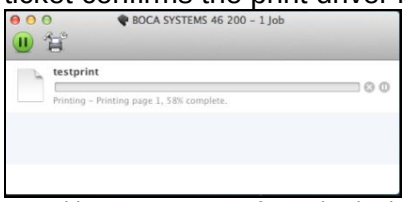
The following will guide you through doing a Windows test page to confirm the driver is communicating with the printer. You will want to make sure the printer has stock loaded and is able to print a self-test ticket when the TEST button is pressed. The printing of this ticket confirms that the printer is working properly mechanically. If the printer is not able to print a self-test ticket, then consult the "4.0 Installation section of the user manual (www.bocasystems.com/documents/lemur_manual.pdf).

21. Double Click on the BOCA print driver icon to open up the print queue. On the very top of the desktop screen clink on the **Printer** and then click on **Print Test Page**. Once the driver's properties menu comes up click on the **Print Test Page** button.



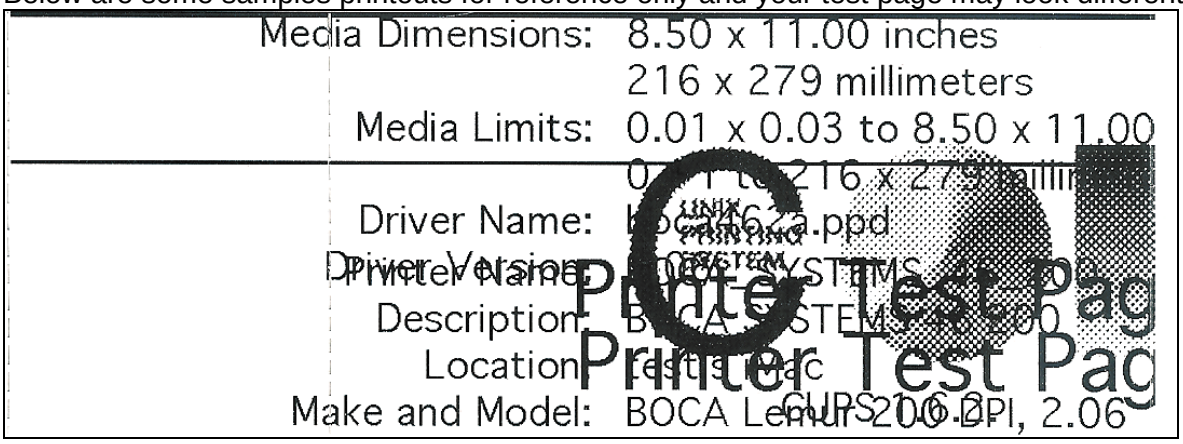
Your driver type may vary from what is shown in above image

22. The below box may show up on your screen prior to the printing of the Test page. The printing of this ticket confirms the print driver is communicating with the printer.

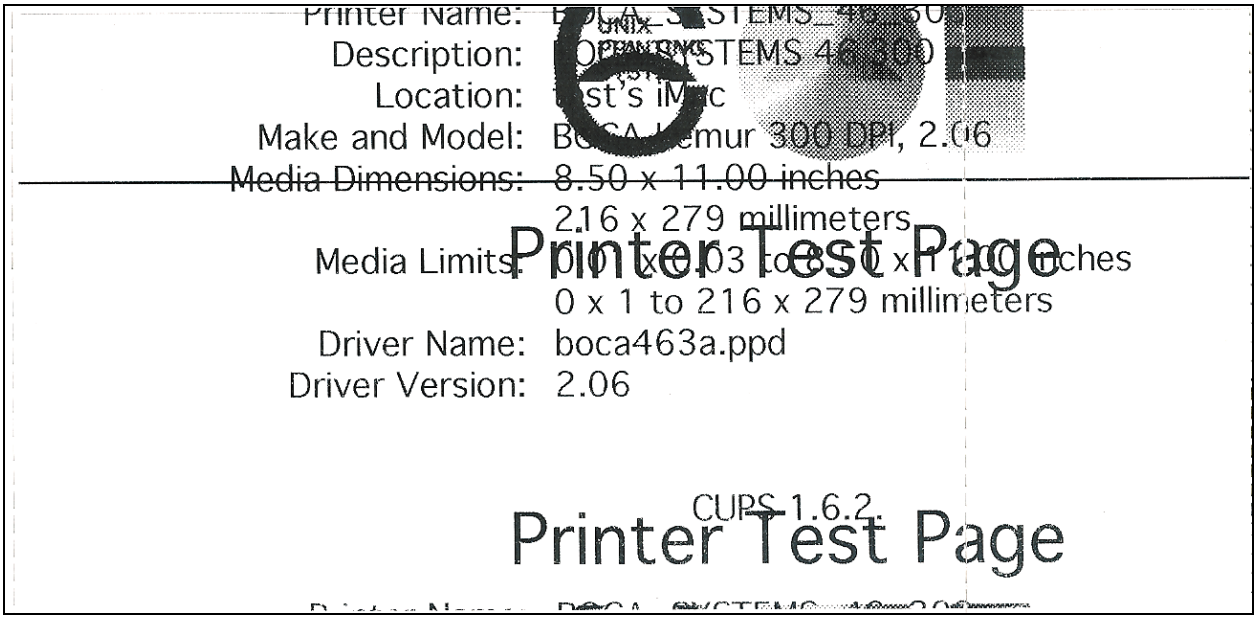


Your driver type may vary from what is shown in above image

Below are some samples printouts for reference only and your test page may look different.



Above is from a 200DPI FGL printer with 2” x 5.5” stock



Above is from a 300DPI FGL printer with 3.25” x 6.5” stock

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

Download/ Install issue

If you are seeing a printer image instead of a printer image for your BOCA print driver then that indicates the driver was not properly installed.

This issue is due to not having Administrative Privileges or Rights to download/ install drivers. We recommend that your IT support staff or network administrator confirm you have the correct privileges. You may also contact Apple support for assistance concerning Administrative Privileges for your version of OS X system.

We are aware of a customer who had several damaged permissions and had to "Repair Disk Permissions". You may contact Apple support for assistance in how to run this utility.

OPTIONS

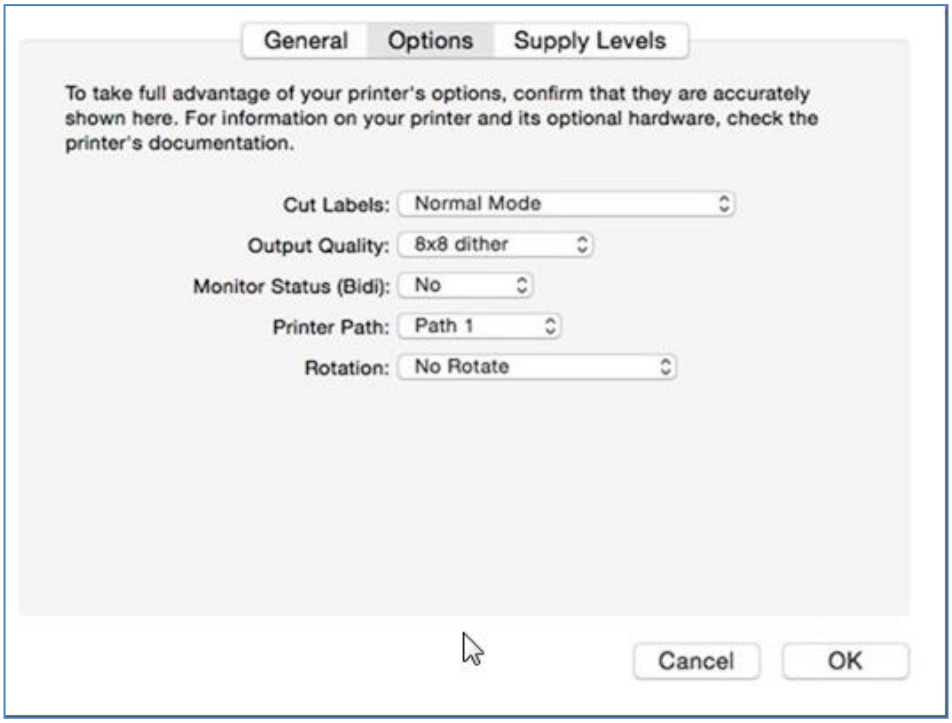
1. Cut options are Normal (Cut each ticket), Disable (No cut) and Cut last ticket of job only.

2. Graphic output quality include 8x8 dither, 6x6 dither, Super Cell dither, No dither and Line Art.

3. The ability to turn On/Off the printer monitor for status returned. For return status upon program Read (as shown in example Xcode project), turn On. For faster printing with no return status, turn Off.

4. Select Printer Path 1 or 2, for dual path Lemur-2, Lemur-2K or Lemur-2P printers.

5. To rotate ticket in any of four positions, select No , Clockwise, Counter Clockwise and Upside Down rotation



APPENDIX E – TESTING A LEMUR

Boca Systems, Inc. has developed a Windows based program that allows customers to communicate from a host computer to the printer over any interface (parallel, serial, USB, Ethernet) and print drivers too. The below program link is found on our website under the "TECH SUPPORT/ REPAIRS" section. For Apple/ Mac based systems see page 55.

WINDOWS BASED SYSTEM

www.bocasystems.com/documents/configure_boca.exe

To use this program you will need to download the executable file to your Windows based host computer and run it. If your system doesn't already have Microsoft .NET Framework 4 installed then allow it to be installed when prompted. Follow the instructions on the pop up windows to install the program.

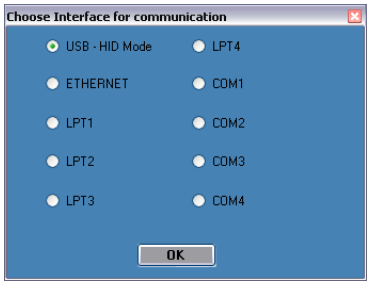
The following steps will guide you through using this program once it has been installed on your host computer.

1. Hook the BOCA printer to the host computer that you have the Configure program loaded onto. Make sure that the printer has stock loaded and it ready to go. A printer is ready to print when it is able to print out a self test ticket by depressing the TEST button. If you are not able to get a self test ticket then see section Installation to make sure you have the printer properly setup.

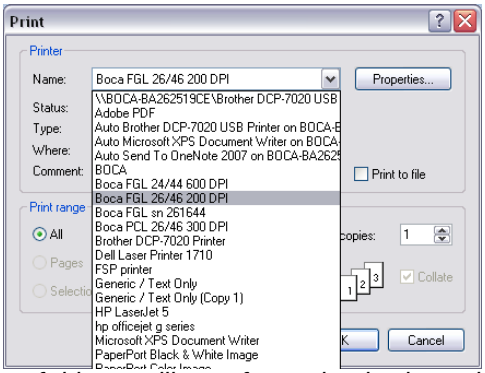
2. On your Window's desktop click on the START icon and then click on PROGRAMS to see all your computer's programs.

3. Find "Boca Systems" and click on Boca Configure and Test. Once the program is running, click on the "Select A Printer" drop-down arrow and you have to choices.
   Printer Interface - if your connecting through a Parallel, Serial, Ethernet or USB-HID mode (go to step# 4)
   Print Driver - if you're connecting via a print driver (go to step # 5).

4. Once the program is running, click on the "Select A Printer" drop-down arrow and choose "Printer Interface". You will want to choose the interface connection that you have the BOCA printer hooked up to then click the OK button. Go to step #6.
   If you are connecting via the Ethernet port then in the IP Address box type in the printer's current IP address. The printer's current IP address is printed on the self-test ticket (when the test button is pressed). When tying in the address don't include the leading zeros (If IP=189.010.000.002 then type in 189.10.0.2). Click on the Connect button.

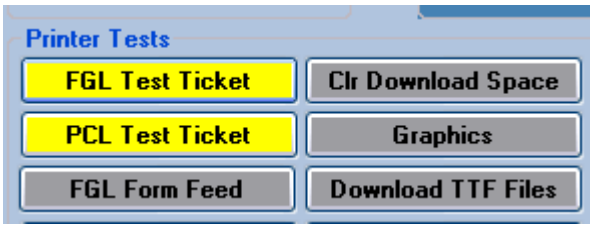


5. Once the program is running, click on the "Select A Printer" drop-down arrow and choose Printer Driver. You will want to choose the driver you are using for the BOCA printer. Once the driver is chosen click the OK button.

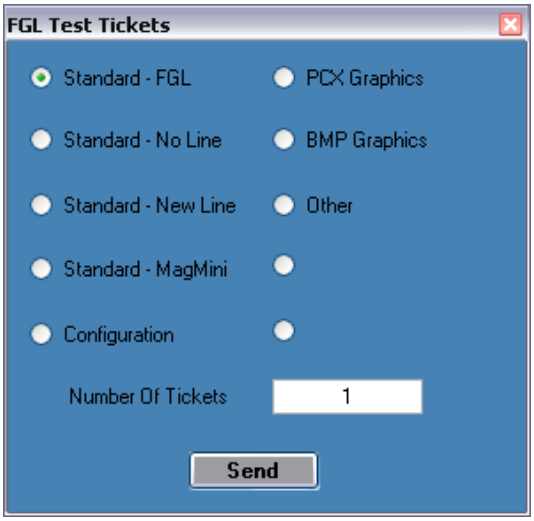


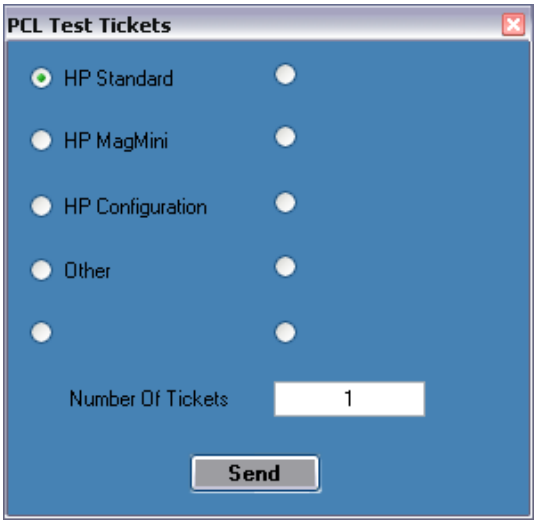
Your selection of drivers will vary from what is shown in above image

6. If your printer has FGL firmware then click on the yellow “FGL Test Ticket” button or if your printer has HP firmware then clicks on the yellow “PCL Test Ticket” button.



7. Once the Test Ticket selection box comes up choose “Standard-MagMini” for FGL or “HP MagMini for PCL, then click on the OK button to print out a ticket.





8. You may also print more than one ticket by repeating steps # 5 & 6 but this time change number of tickets you want printed. See page 56 for sample printouts.

APPLE/ MAC BASED SYSTEM

Boca Systems, Inc. has developed two programs that allow customer to the printer. One operates over USB/HID & Ethernet interfaces and the other if a print driver is used. The below programs are found on our website under the "TECH SUPPORT/ REPAIRS" section.

For Mac use without printer driver (www.bocasystems.com/documents/boca_customer_mac.zip) customer program is used with **USB/HID & Ethernet interfaces**.
For Mac use with printer drivers (www.bocasystems.com/documents/boca_customer_driver_mac.zip) customer program is used with **print drivers or USB connection**.

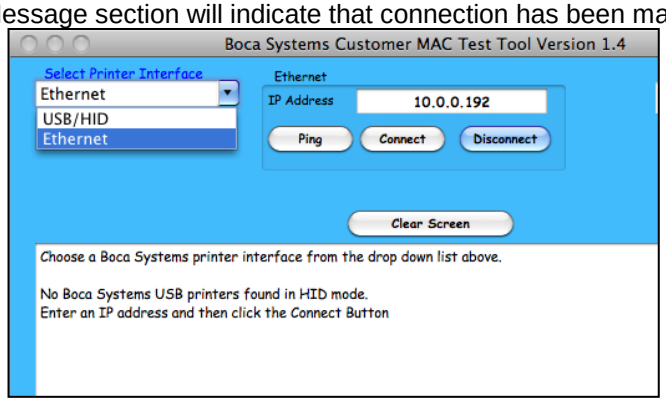
You may download load the program that fits your needs. To use these programs you will need to download the zip file to your Apple/Mac based host computer. The following steps will guide you through using these programs once they have been installed on your host computer.

1. Hook the BOCA printer to the host computer that you have the Customer program loaded onto. Make sure that the printer has stock loaded and it ready to go. A printer is ready to print when it is able to print out a self test ticket by depressing the TEST button. If you are not able to get a self test ticket, refer to the user's manual to make sure you have the printer properly setup.

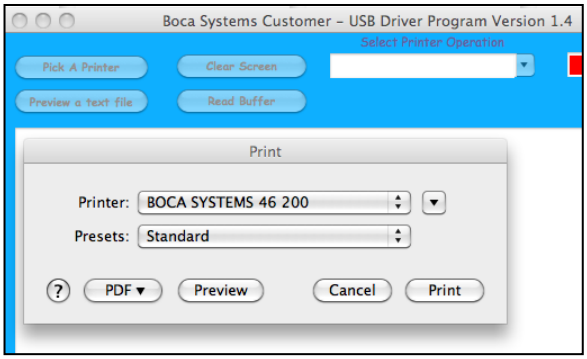
2. Go to your download folder and you will see the customer program you chose. Click on this folder to expand it to see all the files.

3. You will need to click on the appropriate application file to run the program.
   customer_mac for the USB/HID & Ethernet based program.
   cust_driver_mac for the print driver based . Proceed to step #5

4. Once the Customer MAC Test Tool is running, click on the "Select Printer Interface" drop-down arrow. You will want to choose the interface connection that you have the BOCA printer hooked up to then go to step #6.
   If you are connecting via the Ethernet port then in the IP Address box type in the printer's current IP address. The printer's current IP address is printed on the self-test ticket (when the test button is pressed). When tying in the address don't include the leading zeros (If IP=189.010.000.002 then type in 189.10.0.2). Click on the Connect button. The Message section will indicate that connection has been made. Go to step #6

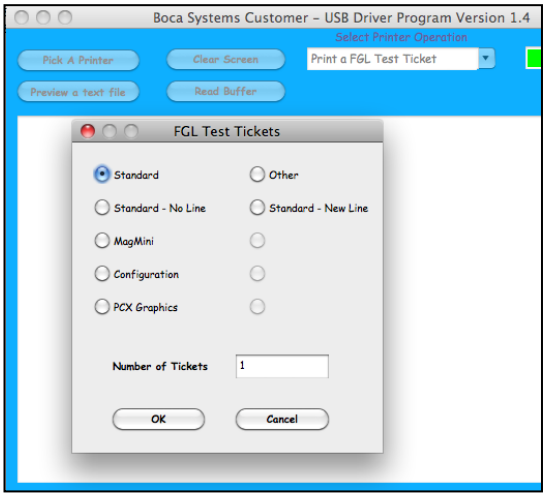


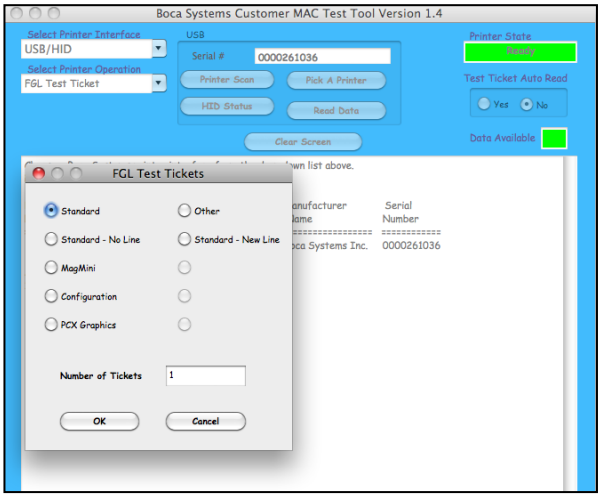
5. Once the Customer USB Drivers program is running, click on the "Pick A Printer" button. You will want to choose the driver you're using for the BOCA printer.



Your selection of drivers will vary from what is shown in above image

6. Now click on the “Select Printer Operation” drop-down arrow and chose “Print a FGL Test Ticket”. Click on the MagMini. If your printer had HP firmware then chooses “PCL Test Ticket”. Click on MagMini.

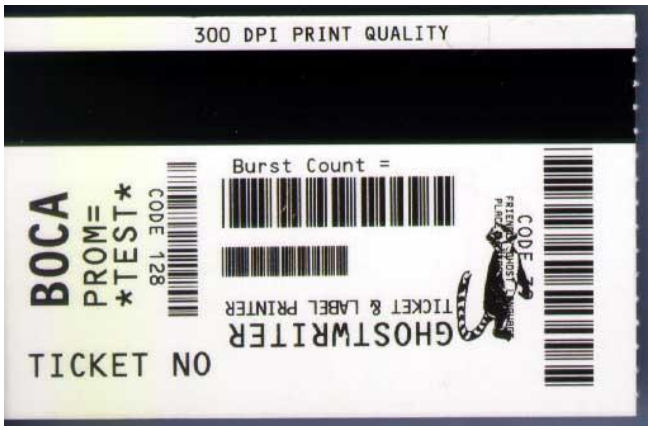




Driver program Without Driver program

7. You may also print more than one ticket by changing the number of tickets you want to printer. See next page for sample printouts.

Above sample FGL Standard ticket was printed on 2.125” x 3.375” non-magnetic stock using a 300dpi non-magnetic Lemur-M or Lemur-MK.



Above sample FGL MagMini ticket was printed on 2.125” x 3.375” ½” mag strip stock using a 300dpi TCC 3 track Lemur-M or Lemur-MK.

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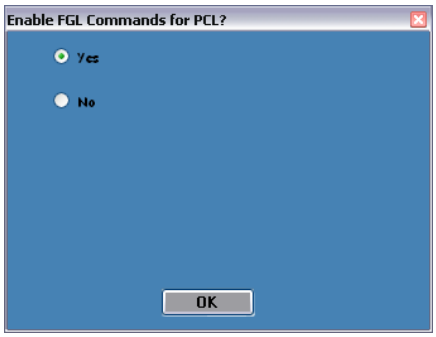
APPENDIX F – DOWNLOADING SOFTWARE COMMANDS

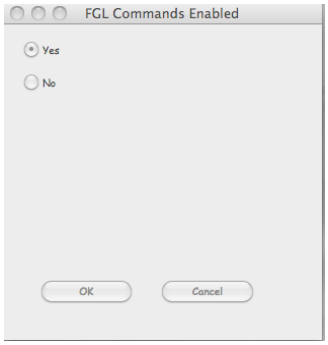
For those Lemurs model printers without LCD display the menu setting changes may be done by utilizing the software commands listed below. This is best done using our configure and test program for Windows (see Appendix E) or *our customer program for MAC (see page 55)*.

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

Once you have your interface or driver selected then clicks on the "Enable FGL for PCL" button. *For the MAC customer program under the Select Printer Operation choose "Enable FGL Commands (HP)".* Click on the Yes Click the Yes button and then the OK button.

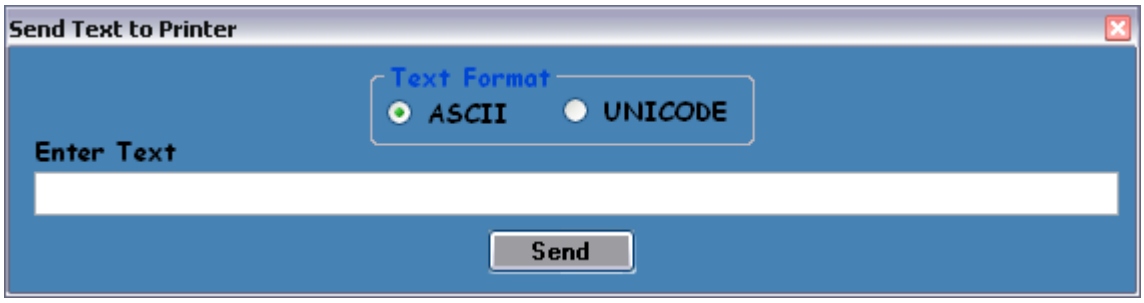


Window



MAC

Click on the "Send Text" button. *For the MAC customer program under the Select Printer Operation choose "Send Text Commands".* Once the Text Data box comes up you type the text command in the Data input box. Then click on the OK button and the text data will be sent to the printer.



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

The CONFIGURATION TEST TICKET SUPPLEMENT section of the FGL programming guide shows all of the commands necessary to access the operator control panel functions.

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APPENDIX G – 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.

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

To initially configure the wireless settings it will be necessary to connect to the printer via the Parallel, RJ12, USB or Ethernet (if so equipped) interface using a Windows or MAC based system.

This may be done using our Configure and Test program for Windows or Customer program for MAC (see Appendix E). The printing of a ticket via this program will confirm it is communicating with the printer.

To use the wireless capabilities in FGL and PCL 26/46 model printers equipped with a wireless interface, it will first be necessary to setup the printer with information and security settings that match the wireless settings of the local wireless server/router. To configure the printer with the correct security settings, it is necessary to acquire these settings directly from the wireless server/router or see your network administrator. Also to initially configure the wireless settings it will be required to temporarily connect a cable between the printer and the host computer.

We recommend that the Wi-Fi be configured by either your system administrator or IT support staff.

The below steps walk you through the Wi-Fi setup in the Infrastructure mode. **The Wi-Fi router must be configured to support an IEEE 802.11b Wi-Fi device**. **Printers manufactured after April 2014 are able to support an IEEE 802.11g Wi-Fi device.**

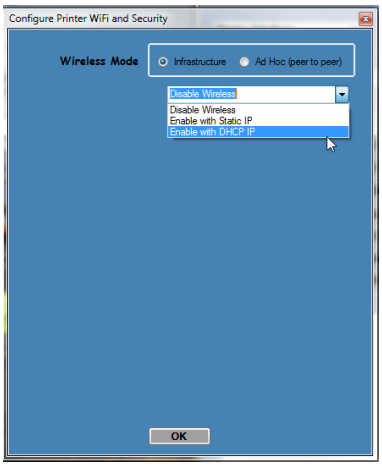
1. The printer will need to be connected to the host computer via a cable (parallel, serial, USB or optional Ethernet if your printer has it. For initial install the printer must be as close as possible to the Wi-Fi router itself. This will ensure maximum single strength. Once you have confirmed the Wi-Fi is operational, the printer may be moved to its desired location.

2. You will want to confirm you are able to print a ticket using our Configure and Test program for Windows or Customer program for MAC (see Appendix E). The printing of a ticket via this program will confirm it is communicating with the printer.

3. Click on the Setup **Wi-Fi** button.

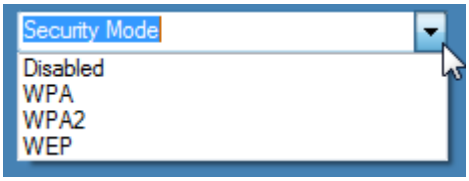
4. When the Configure Printer Wi-Fi and Security menu comes up you have a few choices.
    a. **Wireless Mode** – Infrastructure (using a Wi-Fi network router) or Ad Hoc (peer to peer).

    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).

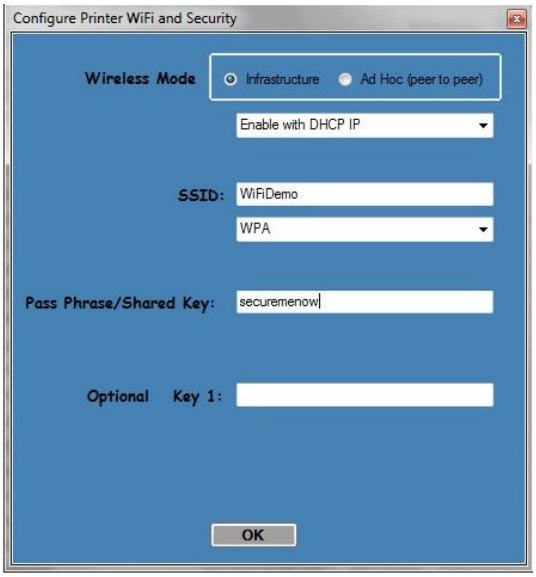


5. You will need to enter the **SSID value**. The Service Set Identifier is a 1 to 32 byte string. This normally would be the name of the Wi-Fi router you are connection to.

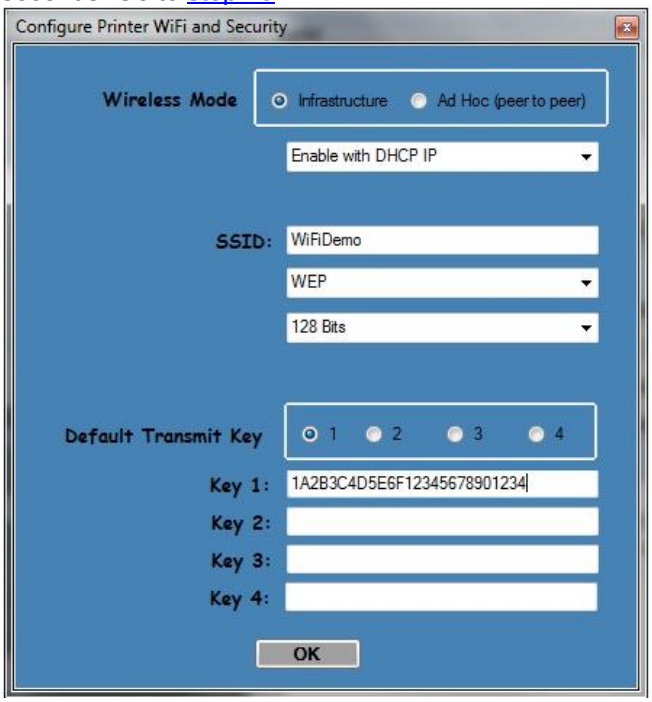
6. Security Mode: you will need to choose the security mode that is appropriate for your WiFi router.
Disable – Allows the user to communicate through the wireless network without any security encryption involved.
WPA – Go to Step 7
WPA2 – Go to Step 7
WEP – Go to Step 8



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. 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 "Pass Phrase" for the local wireless network. 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. Messages will be displayed on the LCD display when the printer is connecting. When it is connected the display will show a series of up to 5 pound signs (#####) representing signal strength (see image below).

If it fails and displays IDLE then there is a problem. See item #11 on the Troubleshooting Guide.

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.

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

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

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APPENDIX H – SERVICE PLANS

For enhanced warranty coverage or out of warranty printer, we offer two types of service plans.

GOLD SERVICE

- Printer repair at BOCA facility (3 business day turnaround)
- Replace defective parts (ship within one business day) – customer must return defective parts
- Free printer and parts return via UPS ground service (other delivery options to be billed to the customer)

PLATINUM SERVICE

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

The following items are not covered by the service plans:

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

Please visit the link below for the latest pricing on our service plans.
www.bocasystems.com/serviceplans.html

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APPENDIX I – TECHNICAL SUPPORT

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

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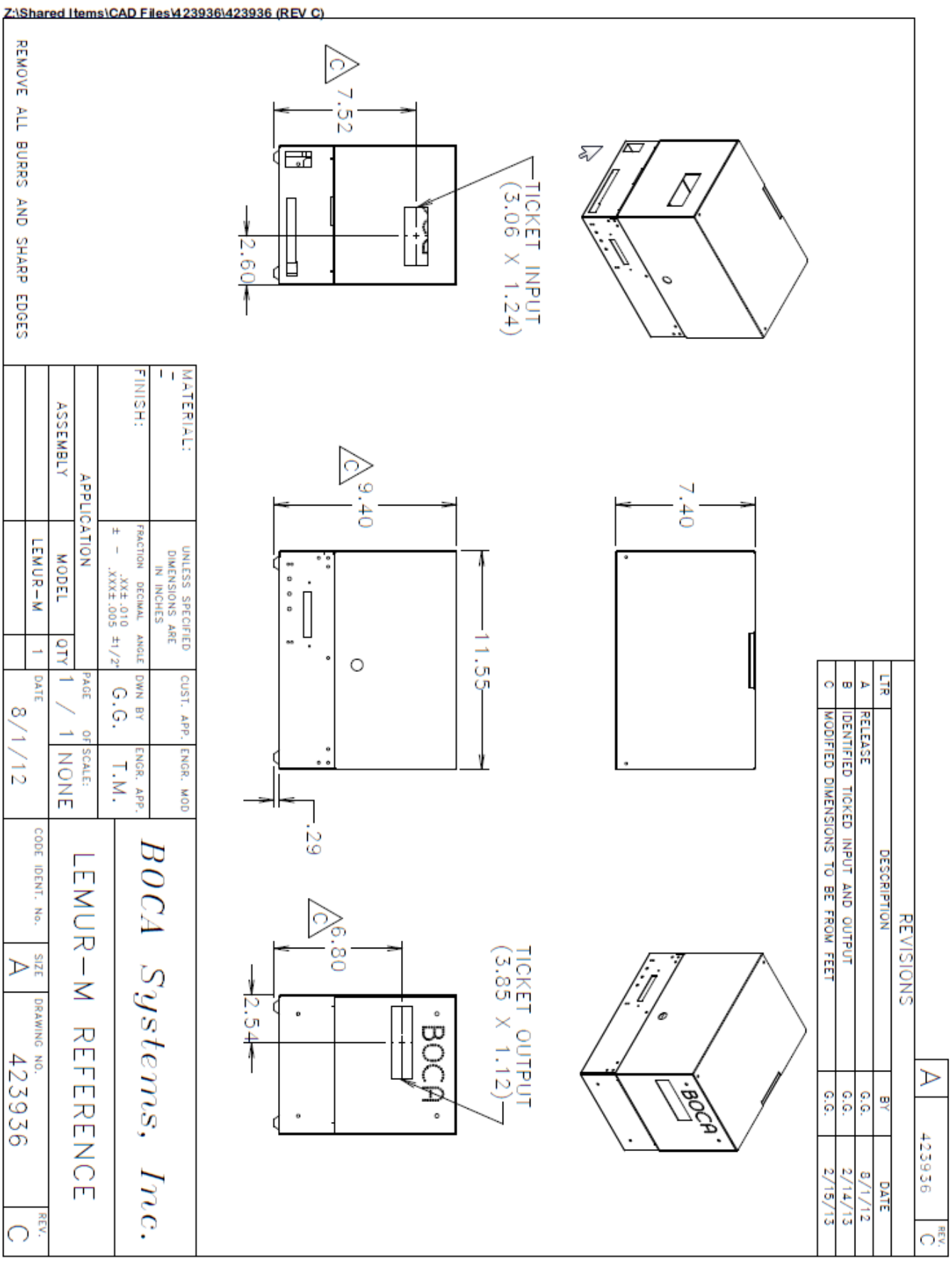
APPENDIX J – REFERENCE DRAWING