Boca Systems

LEMUR-MF TICKET PRINTERS
Operator's Manual

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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-MF is a direct thermal ticket printer with integrated a multi-feed and cutting mechanism. This manual will provide the user with general information regarding printer set-up, configuration and troubleshooting. Please read the important safety information section before installation is conducted. Review the programming guide for additional details.

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) C power cord
> c) Sample Magnetic Encoder Cleaner Strip

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-MF printer was designed to be mounted either on a desktop or shelf in a counter.

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.

- 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.

- Press the TEST button press the center 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 C)

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


Above is a sample self-test ticket printout.

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5.0 Ticket Load Procedure

Turn the printer on and wait five seconds. The cutter knife will cycle during this time. The red CHECK PAPER led will be illuminated (if your printer has an optional LCD then it will display PAPER OUT). The below photo shows the feed direction and black timing marks must be facing down towards the floor.   Begin with PATH #1, load the ticket through the entrance slot with a smooth motion. The printer will atomically take the stock and properly position it. Do the same for the other paths you want to load.
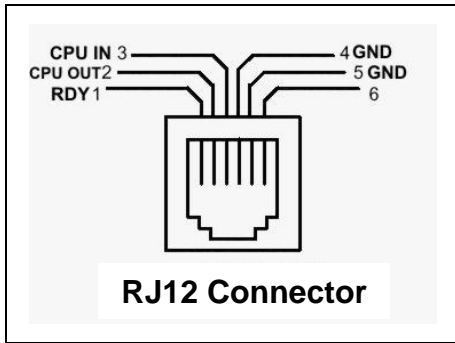
PATH # 1
Load ticket through
entrance slot

PATH # 2

PATH # 3

PATH # 4
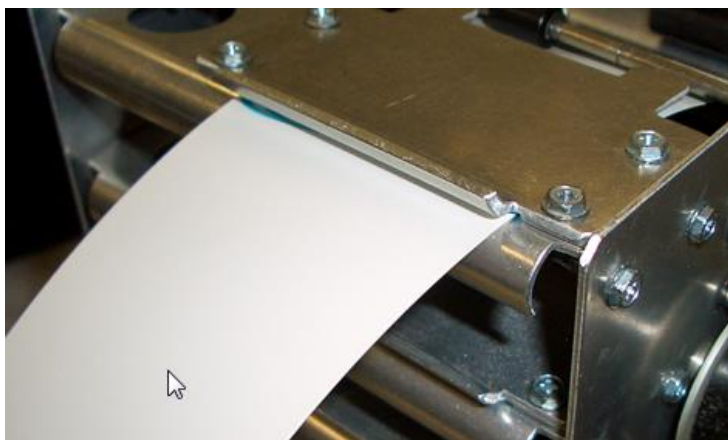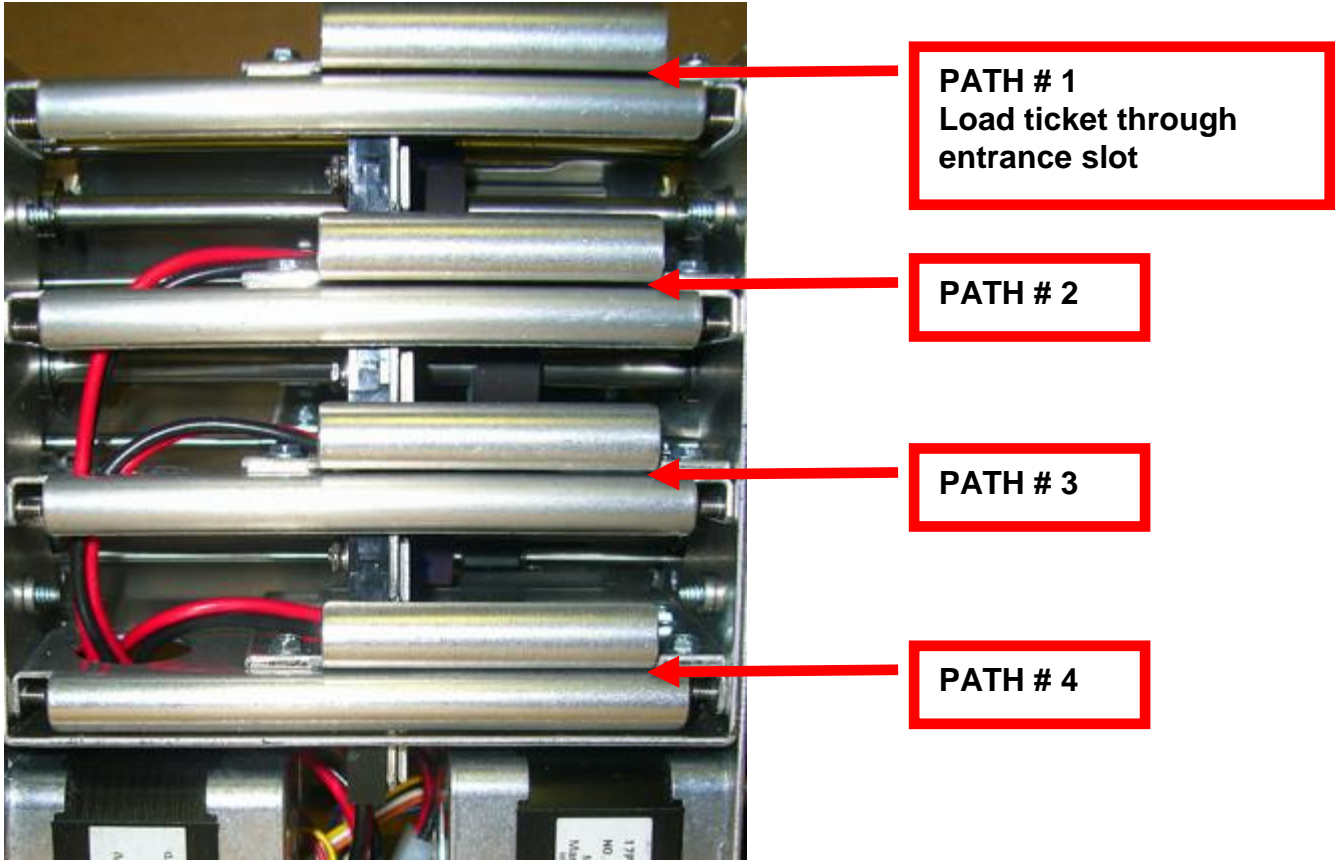
Black timing marks facing down towards the floor.

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6.0 Standard Interface Pinouts

RJ12 Serial Connection

RJ12 Connector

+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 is considered a full speed device (version 1.1) not a high speed device (version 2.0).

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

NOTE: The above pinouts may vary on certain printers due to special customer request.
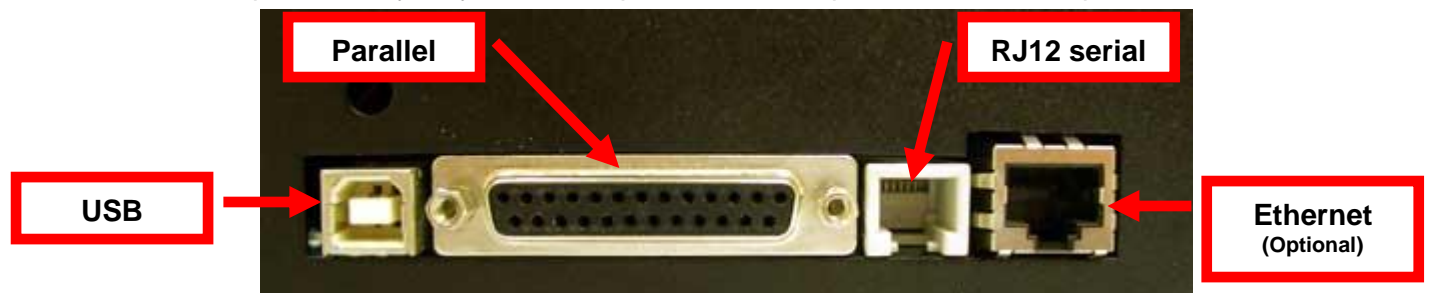
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7.0 Thermal Paper - Theory & Specification

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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8.0   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.

8.1 Printer Assemblies

The printer is made up of following basic modules or assembly. 1- Muti-feed module, 2- Print module and 3- cutter assembly.   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:
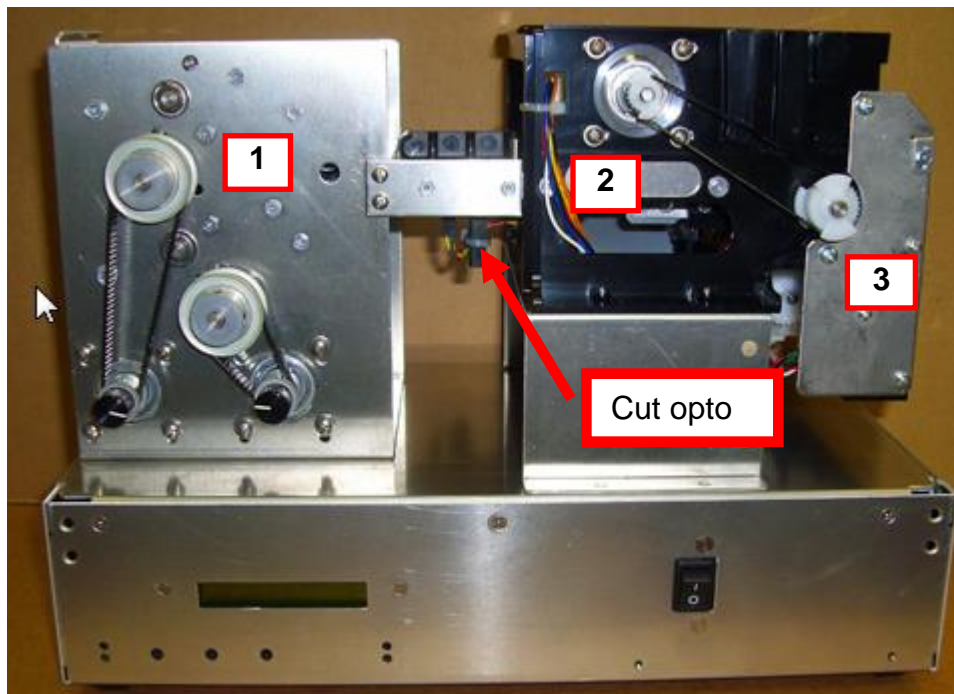
Cut opto

8.1.1 CUT OPTO

There is one optical sensor (opto) mounted on an adjustable plastic bracket. The opto controls the cut or tear position. Removal or adjustment of the opto should be done without removing the bracket from the paper guide. The opto position is factory set and adjustment should normally not be necessary.
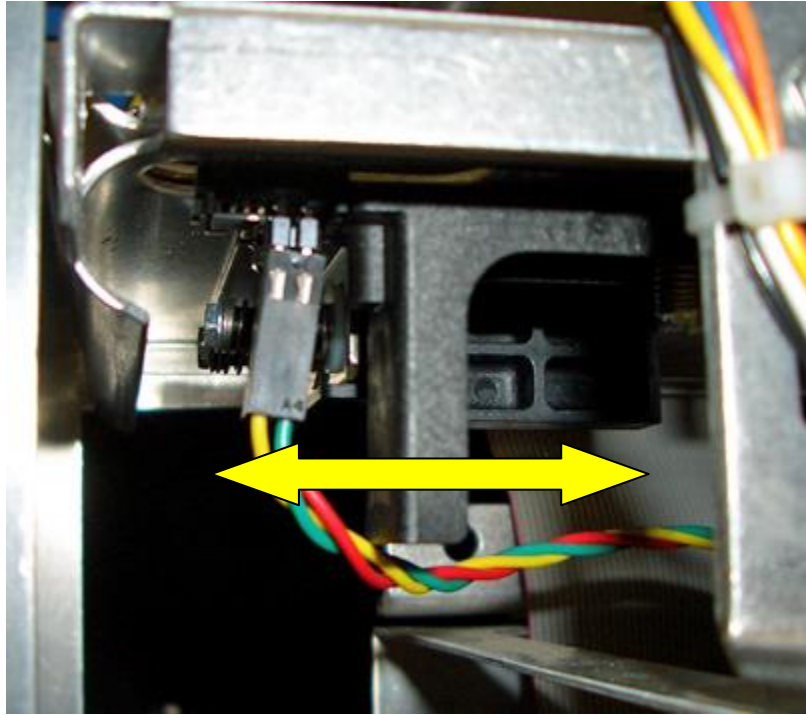

Note: Before making any opto adjustments make sure your ticket stock is being loaded the correct way (see 5.0 Ticket Load Procedure).

To adjust the cut or tear position, physically adjust the opto mounting bracket forward or backwards to achieve the desired cut or tear location. On a Lemur with auto cut the cut position should be a 1/16"-1/8" away from the ticket perforation. On a Lemur without auto cut the ticket perforation should line up with the edge of the cabinet or top plate.

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

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


OPTO EYE
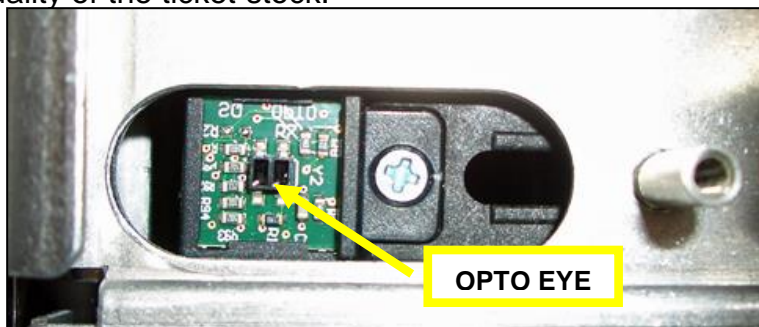
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8.1.2 THERMAL PRINT HEAD

The print head should be cleaned periodically to prevent debris from building up on the print element. The required cleaning interval varies greatly depending on the quality of the ticket stock and the amount of dust entering the print area. Excessive dirt 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 plate/ 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.

Cam Lock

Head mtg. Plate
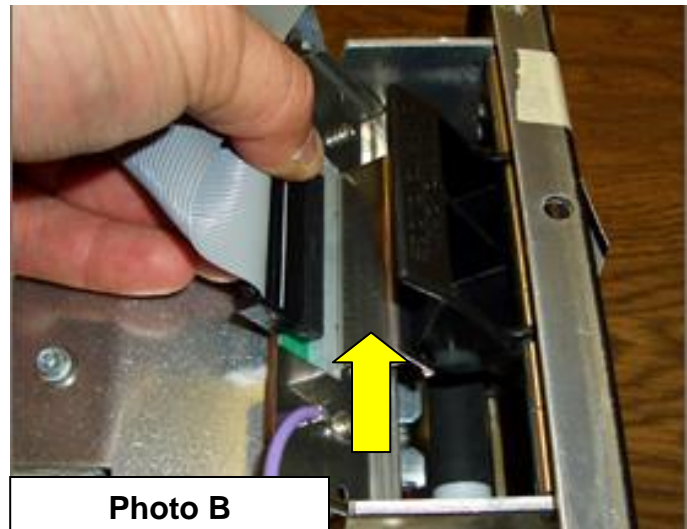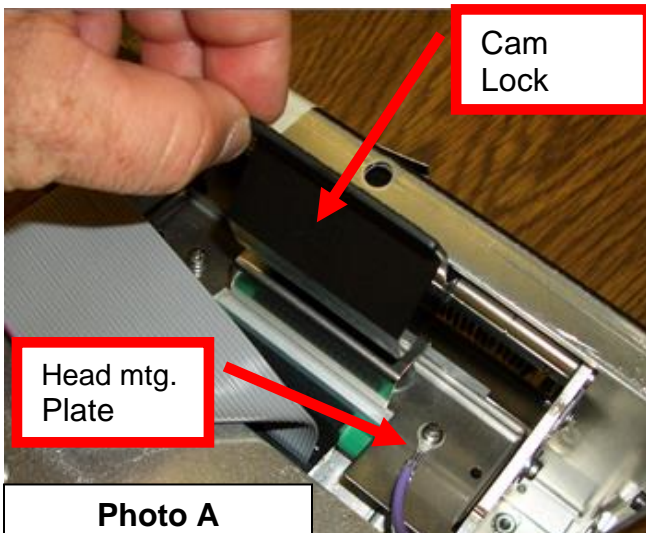
Photo A

Photo B

Cam Lock may vary from what is shown in photo.

Clean This Surface

BOCA 3003 1040₀ 32020-23409
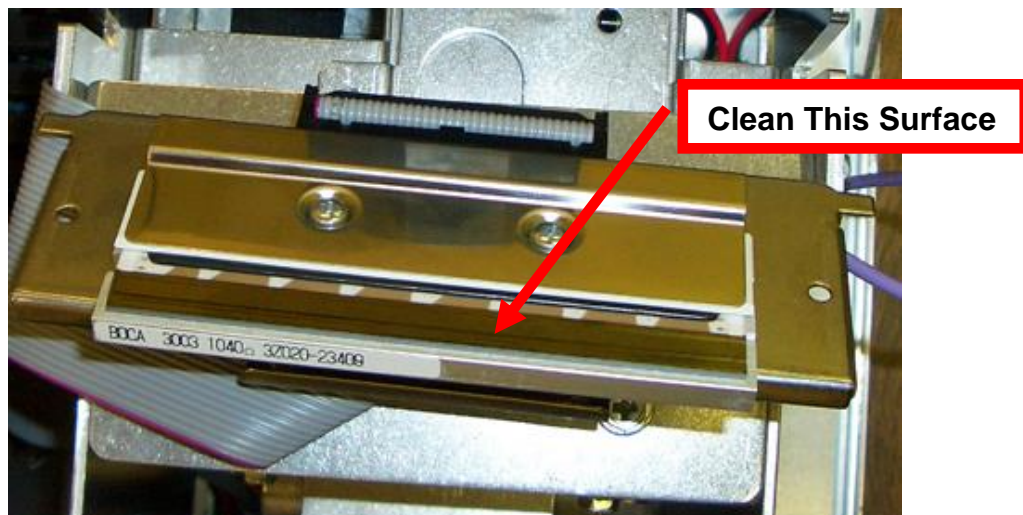
8.1.3 Platen (Rubber Driver Roller)

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

1. **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 8.1.2 Thermal Print Head)

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

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

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

6. Install the head mounting block/ plate and lock the cam lock lever back in place. The Printer is now ready for normal operation.
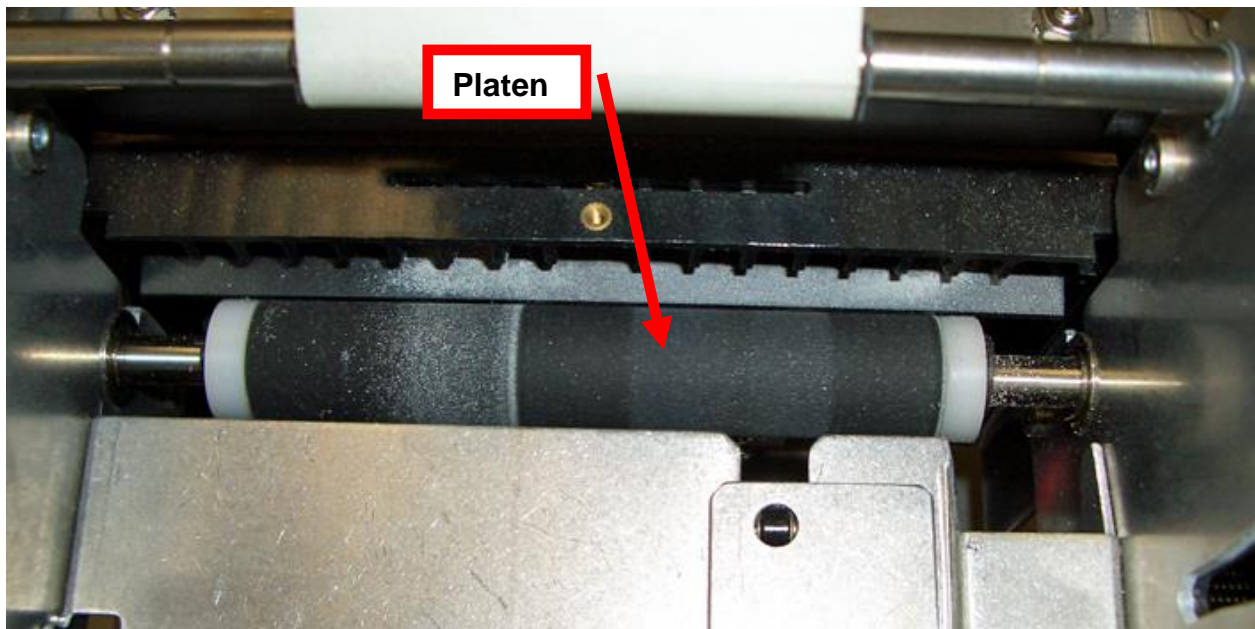
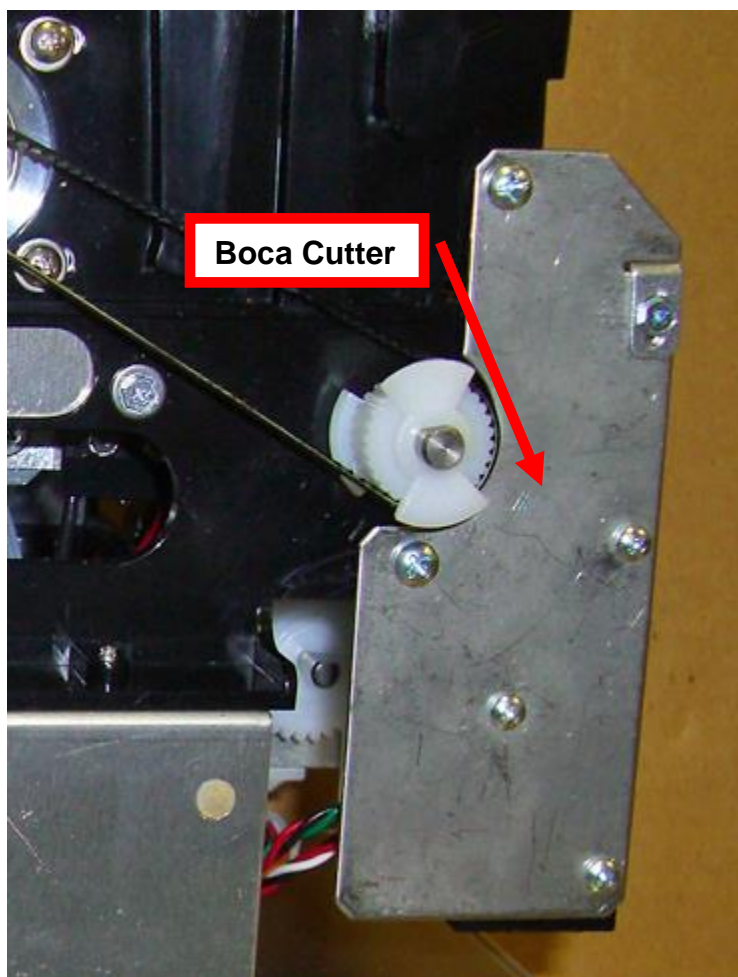Click here to return to > Table of Contents

8.2 Cutter Assembly

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

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

The cutter area should be blown out with air periodically to prevent debris from building up inside the cutter area. The required cleaning interval varies greatly depending on the quality of the ticket stock and the amount of paper dust entering the cutter area.

If the printer will be used with ticket stock that has a thickness greater than .008" then the cutter speed needs to be changed to SLOW. Please contact BOCA for documentation to make this change. If the cutter speed is not changed to SLOW, then the printer will not work reliably with said stock.


Boca Cutter

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8.3 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.
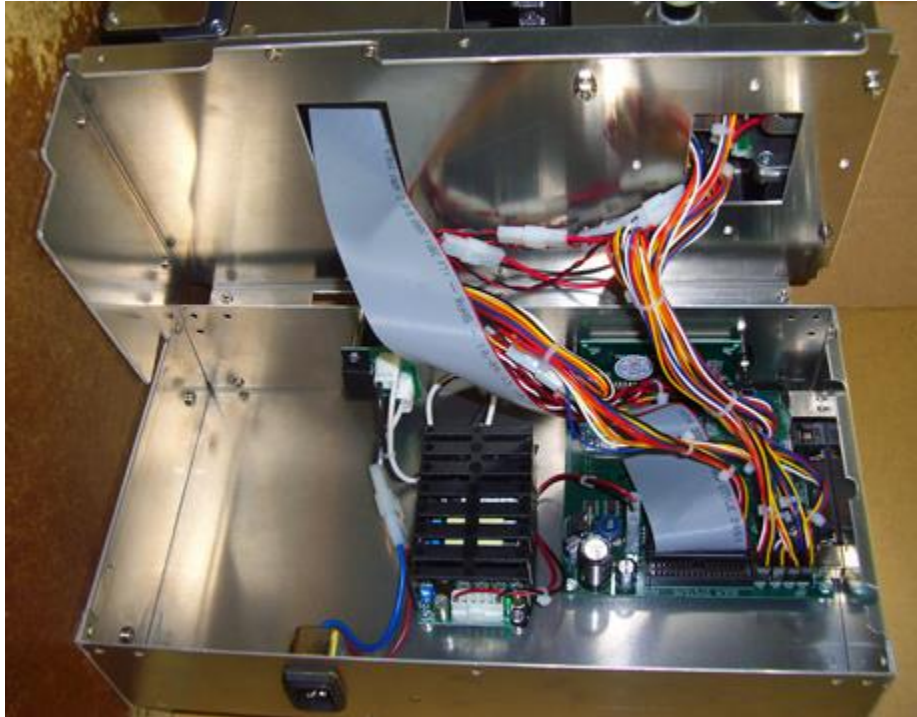
Above photo shows lower electrical box with access cover removed

8.3.1 Logic Board (Removal)

1. Gain access to the logic board. This is done by removing all the Philip head screws for the enclosure 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.

8.3.2 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.

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

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9.0 Spare Parts List

#	Part Number	Description
1	422590	Stepper Motor
2	P50-1003	Drive Belt, 102T (for 300dpi)
3	423760-L3B-1-300	Platen (RADJW, ADJ2 & ADJW) complete for 300dpi
4	423552-L	Cutter Assembly (BC4)
5	SQ OPTO	Opto Detector Assembly
6	P28-1020	Switch, Ticket Load
7	AC161A5	LCD Display
8	5316H	Control Panel Decal
9	423793	Energy Star Decal
10	P46M	Switch, Power for SPS
11	422557-25	Cable Ribbon, Thermal Head
12	423236P	Take Out Head Cam Lock
13	423496-5	Head Mounting Plate, plastic print cage ONLY
14	423789-SPS	AC Filter for SPS ONLY
15	423917	Switching Power Supply (SPS)
16*	FGLB46	Main Logic Board (Standard)
16	FGLB46-E	Main Logic Board (Ethernet option)
17	3003	Print Head 300dpi
18	423480Z	Upper Exit Deflector (only)
	423480Z-C	Upper Exit Deflector (complete with static brush)
19	422718W	Anti-Static Brush

* Customer dependent and not shown in photos
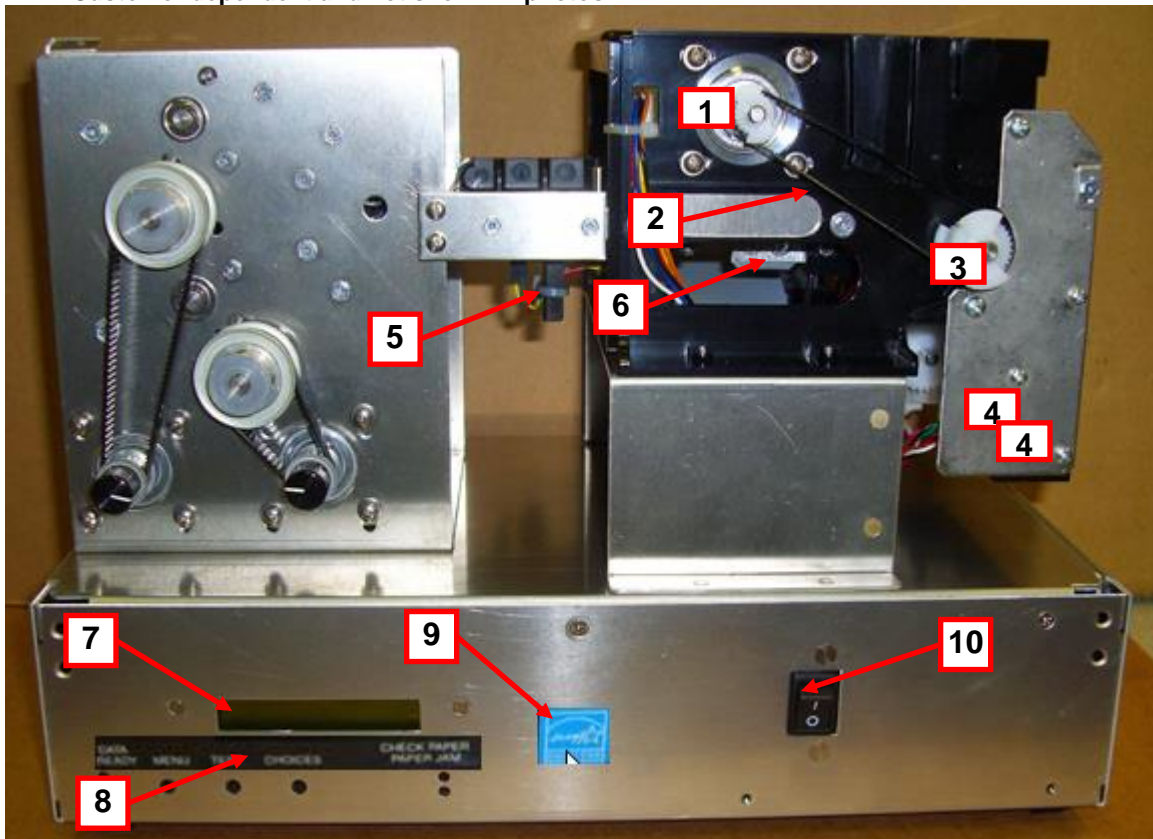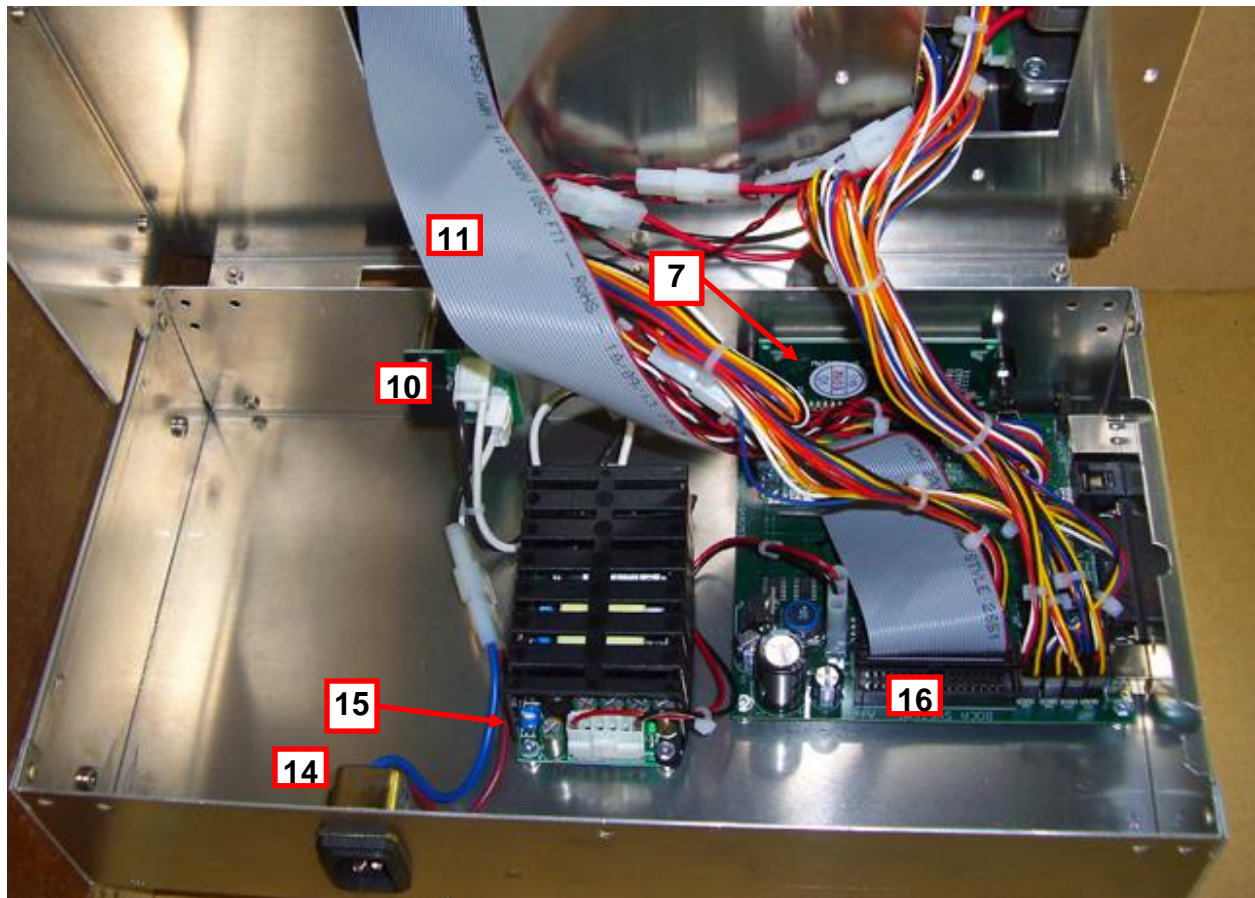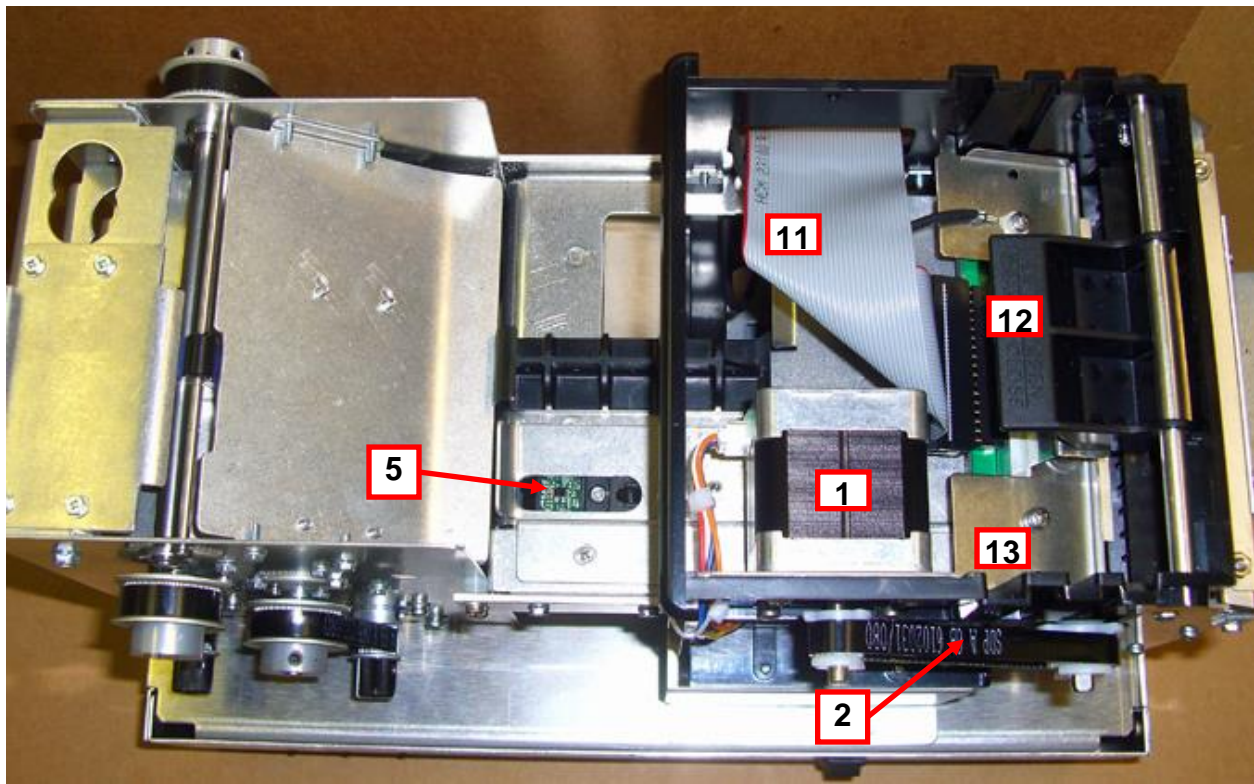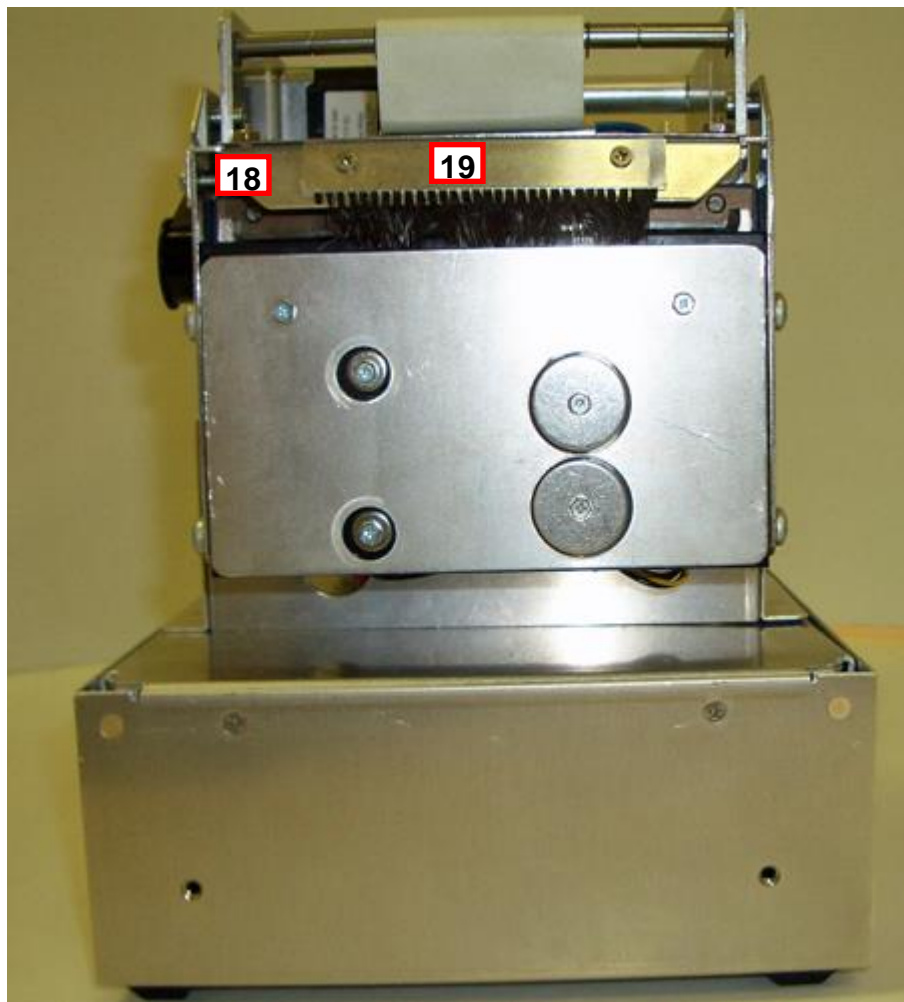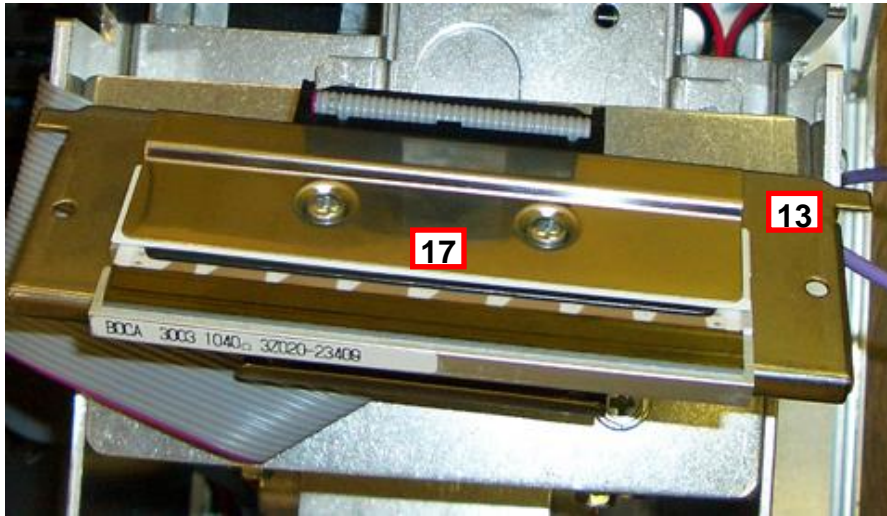
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10.0 Troubleshooting Guide

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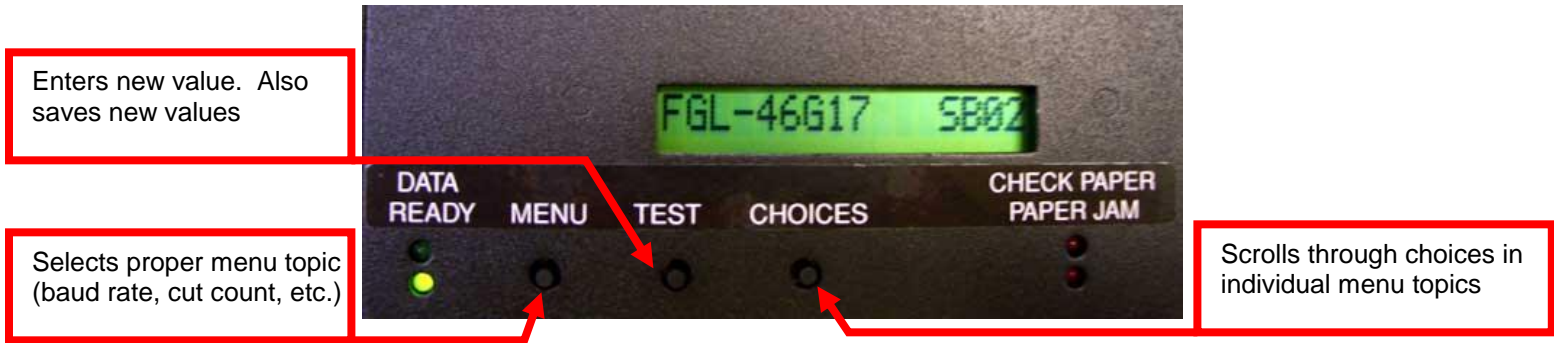www.bocasystems.com/onlinesupportform.html

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 CUT POSITION
   a. Clean off cut opto with air. Consult "CUT OPTO" section.
   c. Check that the platen is clean. Consult "Platen (Rubber Drive Roller)" section.
   d. 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. See # 4

6. 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. Replace thermal head.
   2. Contact your system provider or BOCA for further assistance.

7. 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.

8. 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.

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.

Enters new value. Also saves new values

Selects proper menu topic (baud rate, cut count, etc.)

Scrolls through choices in individual menu topics

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?
MINI/MICRO?
PRINT SPEED?
DIAGNOSTIC MODE?
TICKET TYPE?
STATUS ENABLED?
TRANSPARENT MODE?
PAPER MODE?
SPECIAL HEAD
CLEAR DOWNLOAD
INC CUT1 COUNT?
DEC CUT1 COUNT?
INC CUT2 COUNT?
DEC CUT1 COUNT?
PRINT MODE?
PRINT INTENSITY?
TEST TICKET?
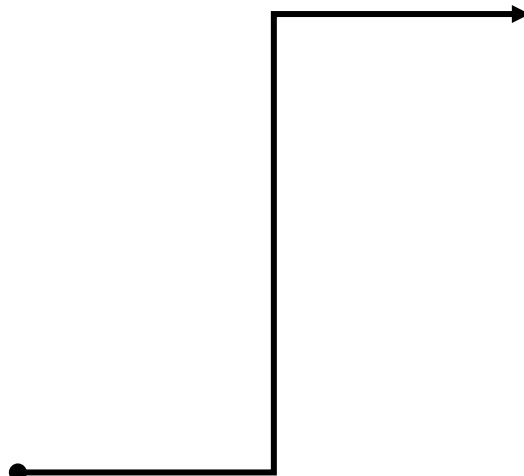
ETHERNET?
IP ADDRESS?
SUBNET MASK?
DEFAULT GATEWAY?
DNS SERVER?
SPEED/DUPLEX?
DEFAULT WEBPAGE?
REFRESH RATE?
TICKET REMAIN 1
TICKETS LOW1?
TICKET REMAIN 2
TICKETS LOW2?
EXIT AND SAVE?
JUST EXIT

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	

MINI/MICRO? Factory setting. Do not modify.

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

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

TICKET TYPE? Factory setting. Do not modify.

STATUS ENABLED? Sets status response protocols.

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

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

PAPER MODE? Factory setting. Do not modify.

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**.

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

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

PRINT MODE? Factory setting. Do not modify.

PRINT INTENSITY? Controls the darkness of ticket printout.
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

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.

DNS SERVER? Enables the operator to change the printer's Ethernet default DNS server value. (See Appendix B)
Programming Guide.

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

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

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**.

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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.

APPENDIX C – INTERFACE 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 33.

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.
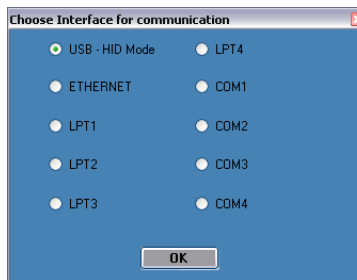

5. Once the program is running, click on the "Select A Printer" drop-down arrow and choose Printer Driver. You will want to choose the driver you are using for the BOCA printer. Once the driver is chosen click the OK button.
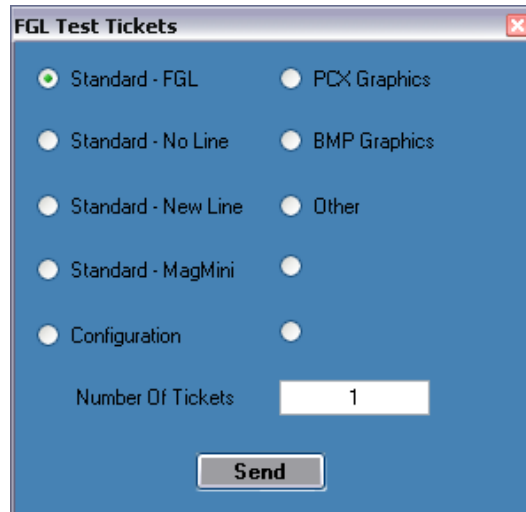

Your selection of drivers will vary from what is shown in above image

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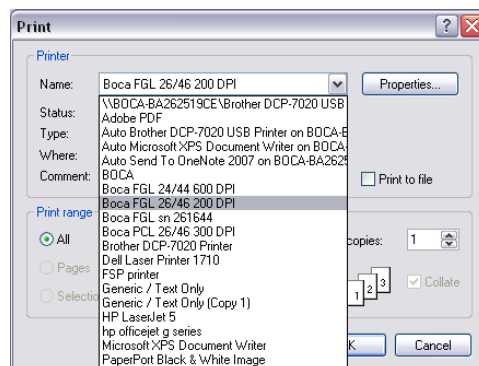
6. If your printer has FGL firmware then click on the yellow "FGL Test Ticket" button or if your printer has HP firmware then clicks on the yellow "PCL Test Ticket" button.
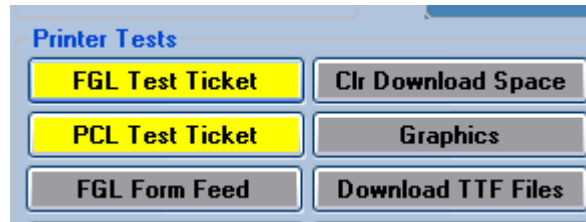
7. Once the Test Ticket selection box comes up choose "Standard-FGL", then click on the OK button to print out a ticket.

8. You may also print more than one ticket by repeating steps # 5 & 6 but this time change number of tickets you want printed.   Below is a typical printout.

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
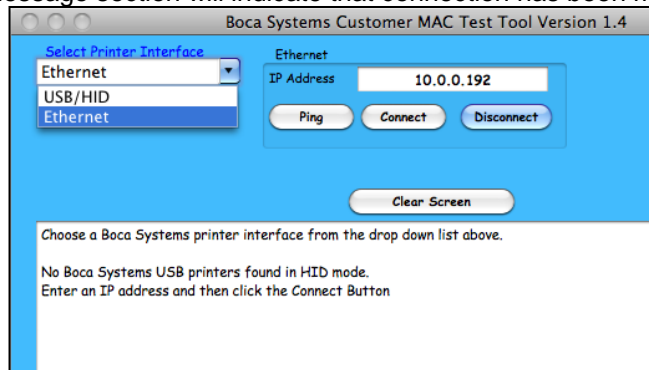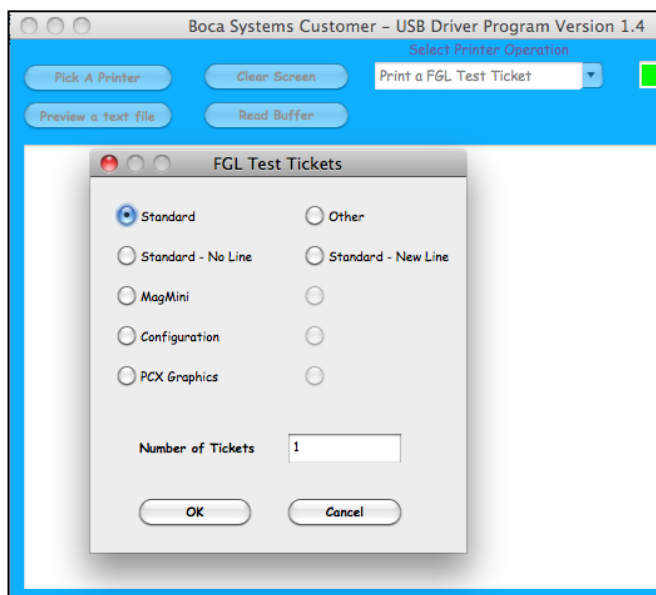

5. Once the Customer USB Drivers program is running, click on the "Pick A Printer" button. You will want to choose the driver you're using for the BOCA printer.
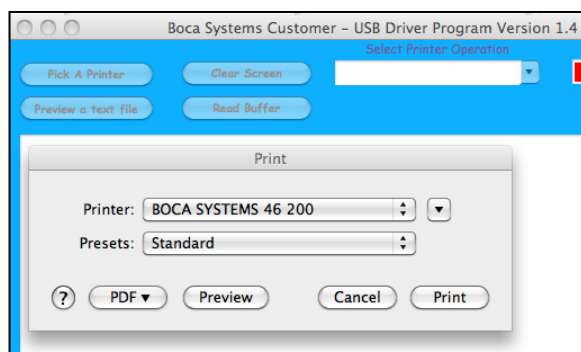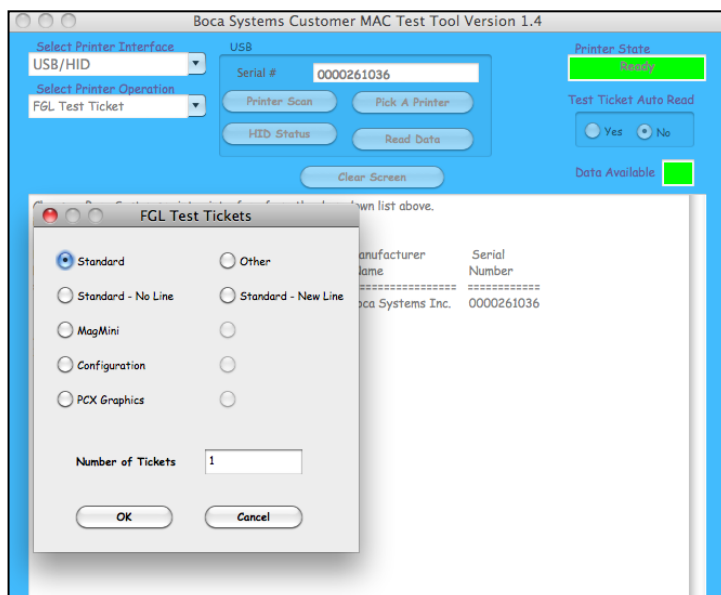

Your selection of drivers will vary from what is shown in above image

6. Now click on the "Select Printer Operation" drop-down arrow and chose "Print a FGL Test Ticket". Then click on the OK button.

Driver program   Without Driver program

7. You may also print more than one ticket by changing the number of tickets you want to printer. Below is a typical printout.

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APPENDIX D – 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 8 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 E – 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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