

MODELS 326M / 426M
DIRECT THERMAL PRINTERS
USER'S GUIDE

PART NUMBER 880024-0107

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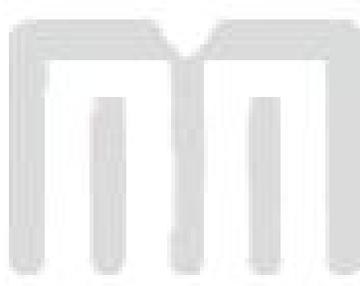
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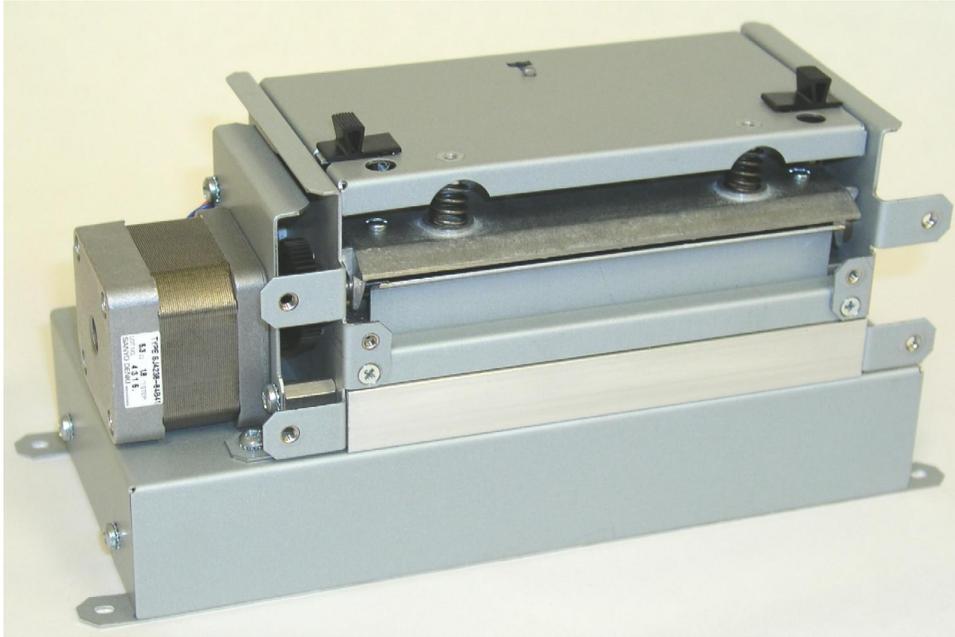


Figure 1 Front Angled View (426M)

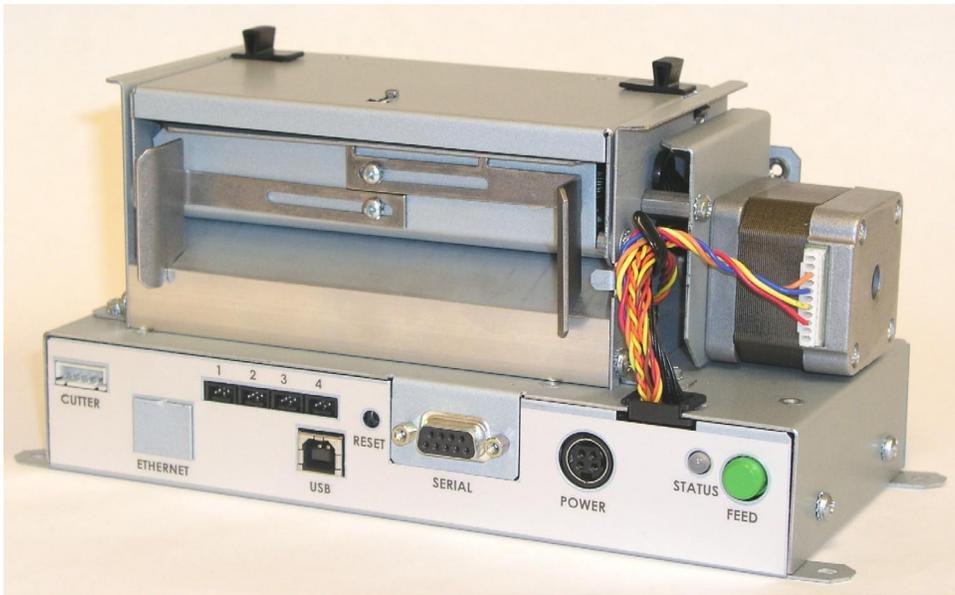


Figure 2 Rear Angled View (426M)

Introduction

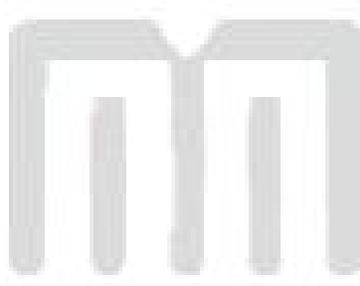
The Models 326M and 426M are high performance, Direct Thermal open frame printers specifically designed for kiosk, OEM, and specialty applications. With an Industrial quality design and steel construction, these printers provide continuous reliable printing at true high volume throughput. Economically priced and loaded with features, Models 326M and 426M reach print speeds up to 6 inches per second using a 32-bit microprocessor. Maintenance downtime is minimized with the use of a high lift, easy to clean, or replace print head. Both printers are able to be mounted into custom enclosures using front or bottom mounting.

This manual provides information needed to operate and maintain the 326M and 426M on a daily basis. The resident Label Design Software II (LDSII) is a powerful and easy-to-use control language that allows the creation of custom label formats. The software is AS text based and can be interfaced to PC's, mini-computers, main frames, and other special purpose machines. The LDSII language uses inches as the default unit of measure but may be set to use millimeters. All commands and parameters, unless noted otherwise, should be entered using the selected unit of measure. The conversion values for the printer, using the standard 203 dpi print head, are 8 dots per millimeter, 203 dots per inch, or 0.0049" per dot. Refer to the LDSII Programming Guide (part# 880019-0100) for additional information regarding LDSII programming instructions.

Among many other features, LDSII supports downloadable graphics and fonts, serial numbering, flexible character spacing, reverse video, resident fonts, and many of the most popular bar code symbologies. Bitmapped fonts and bar codes may be multiplied in size in both the X and Y directions while being printed in 0, 90, 180, and 270 degree rotations. Graphic images and custom designed label formats may also be stored in the printer's flash memory for high-speed access to achieve greater throughput performance.

The printers are capable of printing on most types of labels, pre-printed tickets, fax papers, and tag stocks or varying thickness. The 326M and 426M are also capable of detecting registration marks that enable it to print on media that contains die-cut, blow-hole, black-line sense marks, and continuous media. The printers also provide three different cutter types; full guillotine, full/partial guillotine, and rotary cutter. These cutter options provide a means of cutting media of varying thickness to handle even the most demanding applications.

Many printer applications use the same label format, but change the data on every label. This is not a problem for the 326M and 426M printers, data may be changed without downloading the same fixed format or fixed data field. This, along with the available serial communication speeds, increases data access time and productivity. Providing the user with high performance desired for a low cost.



Chapter 1: Printer Specifications

1.1 General Specifications

Width *	9.25" (235mm)
Height *	4.25" (108mm)
Depth *	4" (102mm)
Weight *	4.18 lbs. (1.9 kg)
Electrical	Auto-sensing 90-264 VAC ; 50-60 Hz
Minimum Current	4.2 Amps
Temperature	40° F – 104° F (5° C – 40° C) Operating
Humidity	10% – 85%, non-condensing
SRAM Memory	32MB
Flash Memory	8MB
Agency Approvals	Designed to meet CUL, CE, and to comply with FCC Class A.
Interface Communications:	
RS-232 Serial	Network Connectivity
RS-232, 9 pin D-Sub connector (DCE)	10BASE-T
Flow Control: XON, XOFF, and CTS	Hosts: Windows [®] NT, 95, 98, and 2000
Parity: Odd, Even, and None	Protocols: TCP/IP
Data Bits: 7 or 8	
USB (Universal Serial Bus)	
Version 1.1 supported	

Table 1 General Specifications

1.2 Printing Specifications

Print Type	Direct Thermal
Print Resolution	203 DPI (8 dots/mm) 300 DPI (11.808 dots/mm) - optional
Maximum Print Speed	6"/sec. (152mm/sec.) 4"/sec. (102mm/sec.) with 300 DPI option
Maximum Print Width	326M = 3.15 inches (80mm) 326M = 3.189 inches (81mm) with 300 DPI 426M = 4.094 inches (104mm) 426M = 4.252 inches (108mm) with 300 DPI
Print Length	50" (1270mm) using standard memory 25" (635mm) with 300 DPI option

Table 2 Printing Specifications

** NOTE: Listed specifications are based on a standard print mechanism and may vary based on final configuration.*

1.3 Media Specifications

Media Types	Continuous, die-cut, preprinted and tag stock either rolled (up to 8" in diameter) or fanfold.
Maximum Media Thickness	.010" (.25mm) * <i>see note below.</i>
Maximum Media Width	326M = 3.5" (90mm) ** <i>see note below.</i> 426M = 4.5" (115mm) *** <i>see note below.</i>

Table 3 Media Specifications

The printers may be optimally configured with a fixed media guides to assist in the installation of media.

*NOTE: The printers may print on thicker media types depending on the pliability of the material; however, this requires testing and evaluation. Contact your authorized Microcom Corporation representative for additional information regarding testing and evaluation of thicker or rigid media types.

**NOTE: The 326M printer's media path has a maximum width of 3.5" while the actual printable width is 3.15" for the 203 DPI and 3.189" for the 300 DPI print head.

***NOTE: The 426M printer's media path has a maximum width of 4.5" while the actual printable width is 4.094" for the 203 DPI and 4.252" for the 300 DPI print head.

Chapter 2: Features and Options

2.1 Fonts

- 19 smooth bitmapped alphanumeric fonts from 6pt to 28pt including OCR-A and OCR-B.
- Downloadable font support.
- Bitmapped fonts expandable in height and width.
- Reverse image printing.
- Rotated: 0 °, 90 °, 180 °, and 270 °.

2.2 Graphics

- Lines and boxes.
- Direct Monochrome BMP image support.
- Store fonts, scripts and/or graphics.
- Rotated: 0 °, 90 °, 180 °, and 270 °.

2.3 Bar codes

- *One-dimensional*: Code 39, Interleaved 2 of 5, Code 128 (A, B, C and Auto), Code 93, Codabar, Modified Plessey, UPC-A, UPC-E, EAN 8, EAN 13, UCC/EAN 128, and Postnet.
- *Two-dimensional*: PDF-417 and Data Matrix
- Rotated: 0 °, 90 °, 180 °, and 270 °.

2.4 Special Features

- Durable steel chassis that protects your investment, even in harsh environments.
- Rotating head mechanism for easy print head cleaning.

- Adjustable media guides for easy label centering or fixed media bracket.
- Software controlled contrast adjustment.
- Downloadable monochrome BMP image support.
- Internal statistical counters for inches and labels printed.
- Remote printer interrogation.
- Ethernet capability.
- Standard USB version 1.1 capability.
- Detects label gap, blackline, and blowhole using reflective and transmissive sensors.
- Field incrementing, decrementing and serialization.
- Powerful Label Design Software (LDSII) that is easy to master.
- User storable Flash memory.
- On-site Flash memory updates.

2.5 Options

- Full or partial cutter available in 3" or 4" versions.
- Rotary cutter available in 3" or 4" versions.
- Label Present Sensor (LPS).
- Configurable sensor (Input 1) that may be customized for different functions including a Low Stock indicator.
- 300 DPI (11.808 dots/mm) resolution print head.
- Custom Media Handling
- +24VDC 100 W Power Supply
- Cleaning kit.

Chapter 3: Getting Started

3.1 Unpacking and Inspection

The printers have been packaged in protective foam to help reduce the damage that may occur during the shipment of product.

Inspect the shipping container(s) for signs of damage. If damage is evident, contact the shipping company immediately to file a damage claim.

After the printer is removed from the container(s), verify that all the components ordered are present and in good condition (see Figure 3 for an example). Additional items ordered may be included in the foam accessory tray.

The protective foam and shipping container(s) should be kept and used if the printer is to be shipped. Additional shipping materials may be ordered by contacting the Microcom Corporation Service Department.



Figure 3 Printer Accessories (326M)

3.2 Connecting the Printer

Refer to Figure 4 and 5 for information regarding the proper printer connections.

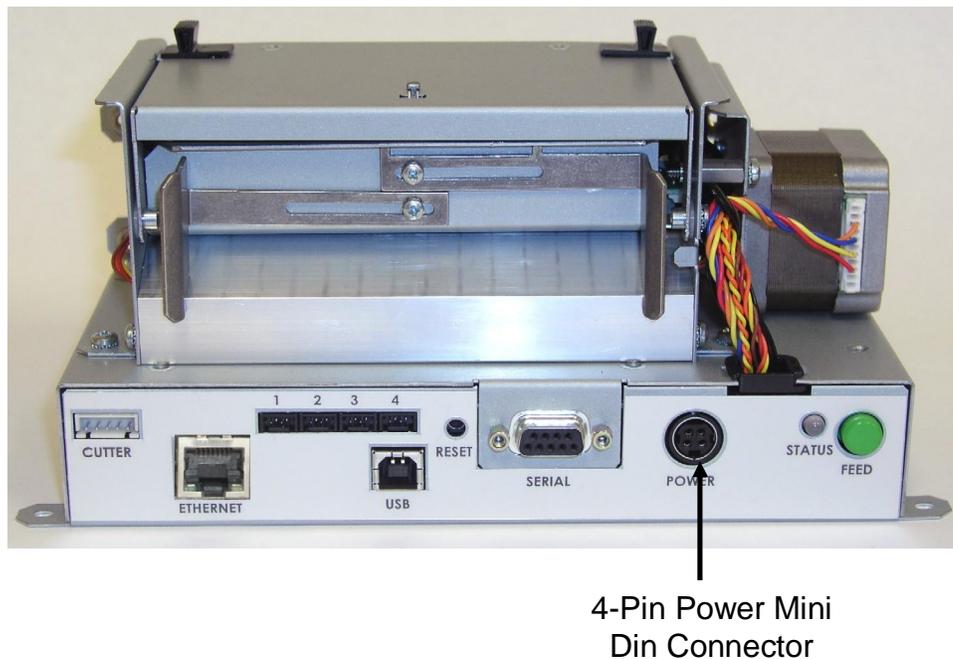
3.2.1 Printer Power

Microcom Corporation offers a “desk type” universal power adapter as an option for the 326M and 426M printers. Any power adapter that conforms to the necessary specifications, listed below, may be used. The printer requires a universal +24VDC 100 Watt power supply that operates in the 90-264 VAC; 50-60 Hertz range; 4.2 Amps at a minimum. The power supply should operate in an “output foldback mode” during an overload situation rather than a shutdown and restart attempt (sometimes referred to as “Hiccup” mode). Contact your Microcom Corporation representative for any questions regarding power adapter requirements and/or specifications.

AC Input:	90-264 VAC, 50/60HZ
DC Output:	+24Vdc, 4.2 Amps
Power Rating:	100 Watts
Overload Mode:	Output Foldback Mode
Printer Power Connector:	4 Pin Power mini-DIN Connector

Table 4 Minimum Power Supply Specifications

Note: Verify that the power supply jack is plugged into the printer before plugging the power cord into an electrical outlet



4-Pin Power Mini
Din Connector

Figure 4 Connecting the Power Adapter (426M)

3.2.2 Communication Interface

The printers may be interfaced to PC's, mini-computers, main frames, and special purpose machines. The 326M and 426M printers offer a standard RS-232 serial port, USB (version 1.1), and 10BASE-TX Ethernet as standard communication interface.

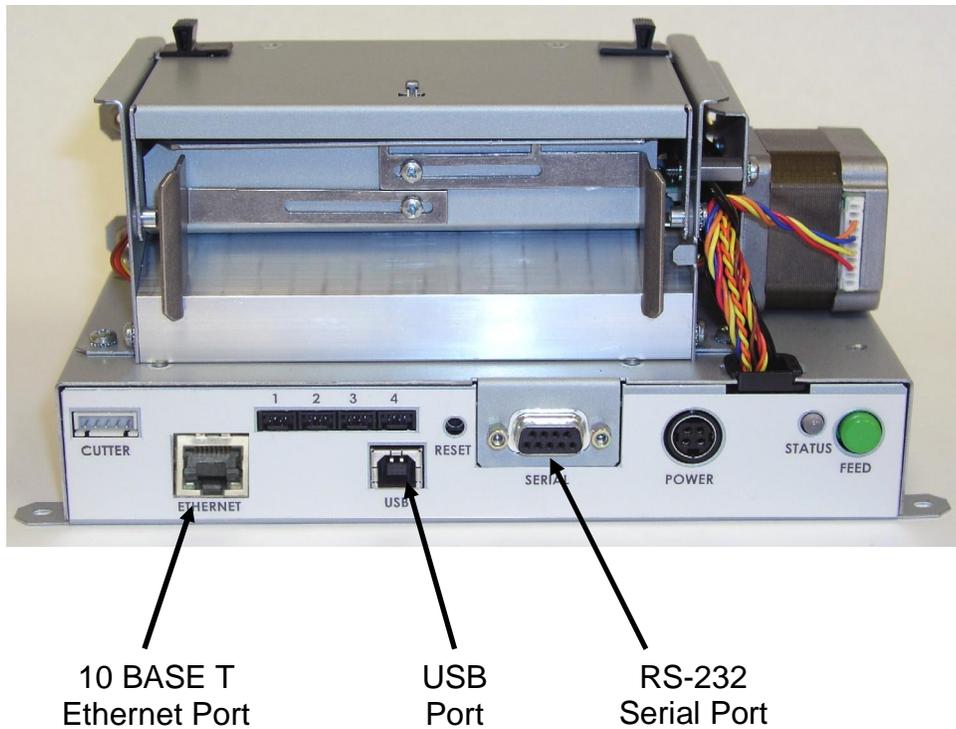


Figure 5 Communication Connections (426M)

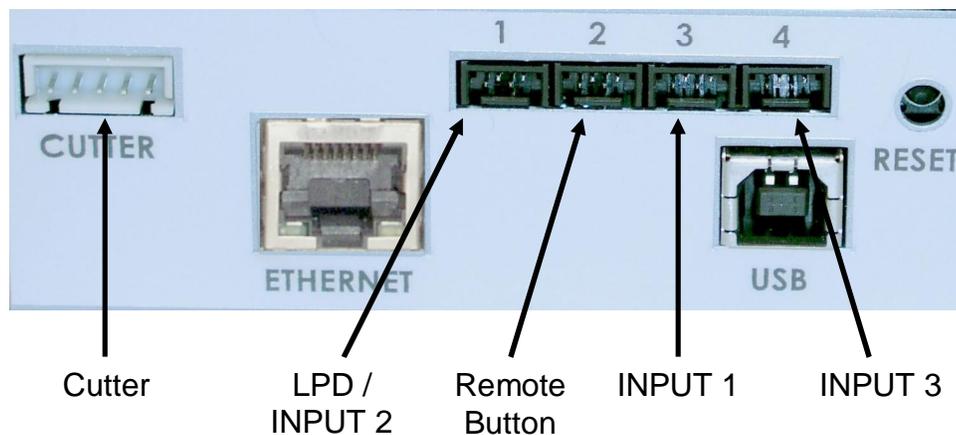


Figure 6 Optional Component Connections

3.2.3 Optional Cutter Interface

The printer provides a connector on the rear panel for the optional cutter interface. Use this connector when a cutter is installed on the printer. To prevent damage to the printer and/or cutter, connect the cutter when the printer's power is off. Refer to Figure 6 for the location of the cutter interface connector. Refer to the LDSII Programming Guide for additional information regarding the “^D506)” and “^D740)” cutter control commands.

3.2.4 Optional LPD / INPUT 2 Sensor

Port 1 on the printer's rear panel provides an extra input signal to the printer that may be used in conjunction with an optional sensor. This sensor is configured using the “^D508)” command (refer to the LDSII Programming Guide) to set the desired polarity of the sensor. Once the sensor is blocked or activated, the printer issues either the “>INPUT 2<” or >LABEL/TAG PRESENT<” enquiry response that may be defined by the user to identify custom meanings. Refer to the LDSII Programming Guide for additional information regarding the operational commands required to use this input.

3.2.5 Optional Remote Button

Port 2 on the printer's rear panel provides an extra connection that may be used with a custom remote button in addition to the “Feed” button provided on the printer's rear panel. This button is configured using the “^D541)” command (refer to the LDSII Programming Guide) to set the desired operation of the button. Refer to the LDSII Programming Guide for additional information regarding the operational commands required to use this port.

3.2.6 Optional INPUT 1 Sensor

Port 3 on the printer's rear panel provides another input signal to the printer that may be used in conjunction with an optional sensor. This sensor is configured using the “^D509)” command (refer to the LDSII Programming Guide) to set the desired polarity of the sensor. Once the sensor is blocked or activated, the printer issues the “>INPUT 1<” enquiry response that may be defined by the user to identify custom meanings. Refer to the LDSII Programming Guide for additional information regarding the operational commands required to use this input.

3.2.7 Optional INPUT 3 Sensor

Port 4 on the printer's rear panel provides an extra input signal to the printer that may be used in conjunction with an optional sensor. This port is not yet active but will provide an additional sensor input. Once the sensor is blocked or activated, the printer issues either the “>INPUT 3<” enquiry response that may be defined by the user to identify custom meanings.

3.3 Button and Indicator Light

The button and the indicator light (Figure 9) are used to identify and perform many functions. This section provides a brief description to familiarize you with the basic function of the button and light with default settings. Refer to *Chapter 4: Printer Modes* for more detailed information on the default settings. The Button is configured using the “^D541” command with the default being “1”. Refer to the LDSII Programming Guide for additional information regarding the button’s configuration.

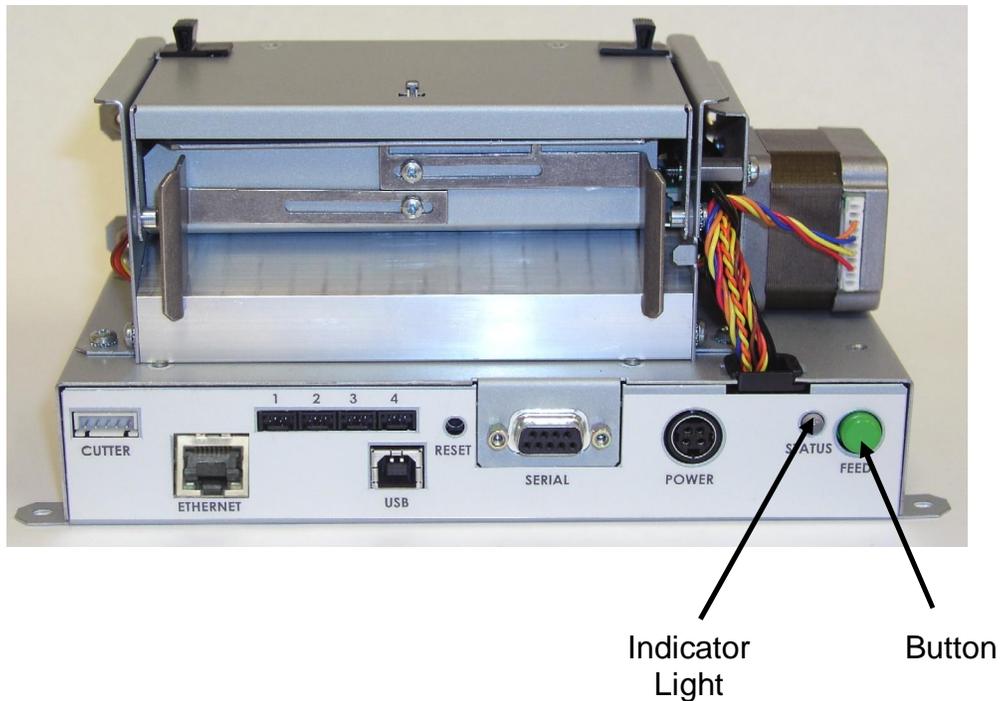


Figure 7 Button and Indicator Light (426M)

3.3.1 Button

<i>Operation</i>	<i>Description</i>
Printing a label.	Press the FEED button while the printer is idle or paused to reprint the last label or after a cold start, print a power up label. <i>Note: If a power up label has not been enabled or if one does not exist, the printer will print a blank label.</i>
Printer Pause.	A brief-FEED button press while printing will cause the printer to pause. <i>Note: Press the FEED button again to continue printing.</i>
Feeding Labels.	Hold the FEED button down while the printer is idle to feed labels. The printer will continue feeding labels until the button is released.

Table 5 Print Button Description

3.3.2 Indicator Light

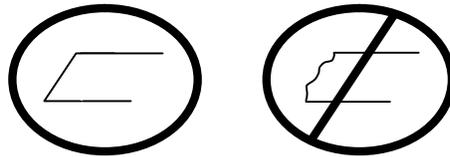
<i>Light Color</i>	<i>Description</i>
Solid Green.	Indicates that the power is on, the printer is in a ready state, and is either in LOCKOUT or BASIC access levels.
Solid Amber.	Indicates that the printer is busy or is in a tag/tear mode other than Advance When Idle (3).
Solid Red.	Indicates that the printer is either in SERVICE, FACTORY, or DEVELOPER access levels.
Flashing Amber.	Indicates that the printer is paused.
Flashing Red.	Indicates an error has occurred. The printer will remain in this state until the condition is removed. <i>Note: Refer to Chapter 7: Troubleshooting for helpful hints.</i>
Alternating Green/Amber.	Indicates that the printer is Initializing the RAM memory.
Alternating Amber/Red.	Indicates that the printer is updating or loading a new MCA or MCB code revision to Flash memory.

Table 6 Indicator Light Description

3.4 Loading Media

The open frame printers have been designed to make loading media a simple process. No adjustments are required when installing media once the media guides are set, thus reducing down time. Contact your Microcom Corporation Representative about the availability of custom size media guides. Follow the instructions below to properly load the media.

1. Tear off a clean edge on the media before loading into the printer.



2. Insert the media into the media path (see Figure 6), located on the back of the printer, until you feel resistance.
3. Push and hold the FEED button to feed the media through the printer.
4. Once the media exits the front of the printer, release the button.

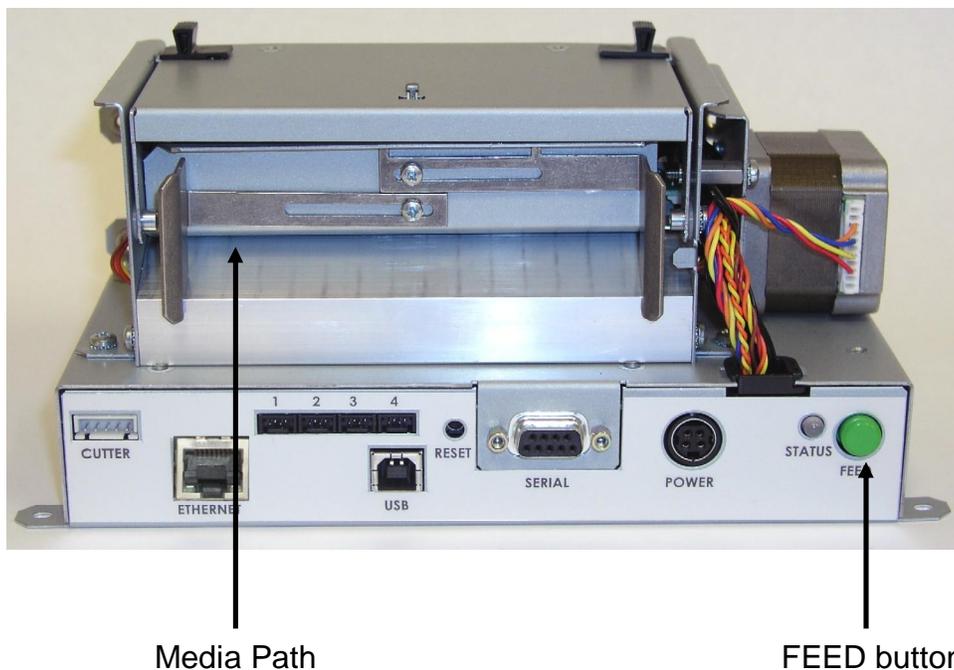
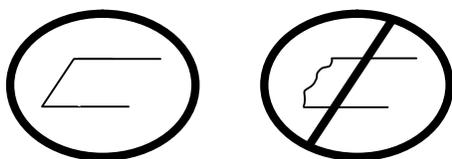


Figure 8 Loading Media (426M)

3.5 Clearing Media Jams

Occasionally, media may jam inside the printer and require the print head mechanism to be opened to clear the media jam. This section provides the proper procedure to remove and clear media jams.

1. Release (Figure 7) and lift the Print Head mechanism to the open position.
2. Remove the installed media from the media path.
3. Verify that all of the media is removed from the media path and drive roller areas.
4. Rotate and latch the print head mechanism in the down or normal position.
5. Tear off a clean edge on the media before loading into the printer.



6. Insert the media into the media path (Figure 6), located on the back of the printer, until you feel resistance.
7. Push and hold the FEED button to feed the media through the printer.
8. Once the media exits the front of the printer, release the button.

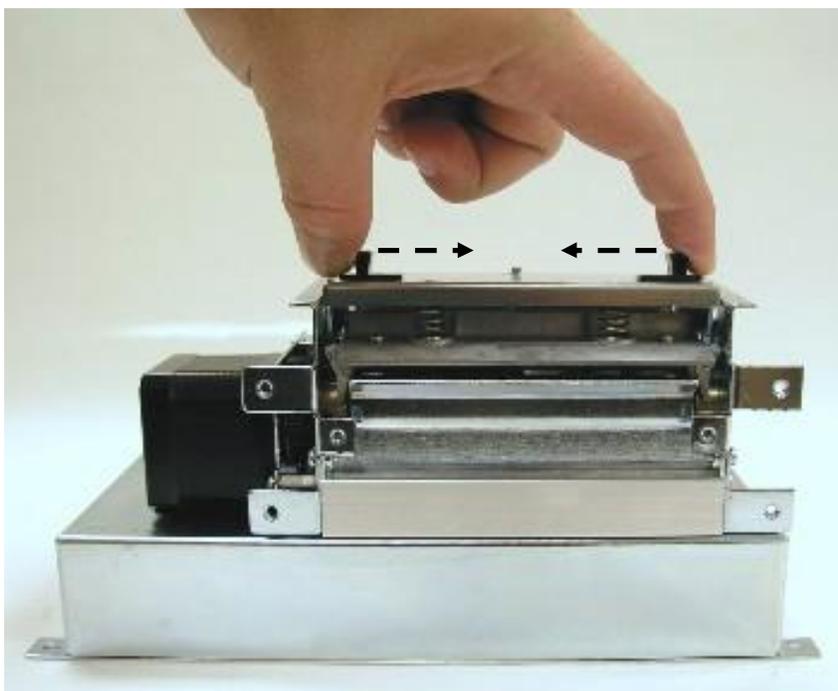


Figure 9 Releasing the Print Head (326M)

Chapter 4: Printer Modes

4.1 Idle Mode

Idle Mode is when the printer is not printing and has no pending activity. The indicator light is green, which indicates that the printer is ready to receive label scripts and/or commands. The Print Button has a couple of different functions while in the *Idle Mode*. Pressing the button once will reprint the last label; if the printer has just been turned on the printer will print a power up label. If no power up label exists, or if powers up labels are not enabled, then the printer prints a blank label. Pressing and holding the button in, causes the printer to feed labels until the button is released.

4.2 Halted Mode

Halted Mode is when the printer has stopped due to an error condition that needs to be corrected before the printer. The indicator light flashes red when the printer enters the *Halted Mode*. The printer remains in this mode until the error is corrected. The error is cleared by pressing the Print Button after the condition causing the error is removed. If it is not possible for the printer to execute the previous information, the printer enters the *Paused Mode* (see *Paused Mode* below for additional information). Refer to *Chapter 7: Troubleshooting* for information on how to correct error conditions.

4.2.1 Enquiry Responses

Enquiry responses provide a method of determining the current status of the printer as well as identifying the different error conditions. This is possible by sending either the “Ctrl+E” combination or by issuing the “^D327)” command. Immediate error responses are sent from the printer to the host automatically when they occur. Refer to the table below and the following sections for more information about the various types of responses.

Byte Mode Responses (ASCII Hex)	Text and Verbose Mode Responses	Definition
0x01	>STOCK OUT<	Out of Media
0x02	>STOCK OVERADVANCED<	Excess media past LPD preventing a TOF operation.
0x03	>STOCK JAMMED<	Media is jammed.
0x04	>INCORRECT STOCK<	Problem encountered trying to realign media.
0x06	>OK<	ACK message used with the ^D726)1 command.

Byte Mode Responses (ASCII Hex)	Text and Verbose Mode Responses	Definition
0x10	>CUTTER JAMMED<	The cutter has jammed.
0x11	>CUTTER INOPERATIVE<	The cutter is not detected
0x12	>CUTTER WATCHDOG STOPPED CUTTER<	The software shut the cutter off for safety issues.
0x13	>CUTTER WATCHDOG WON'T RESET<	The software cannot reset the cutter after a stopped condition.
0x1C	>MISSING LABEL<	Generated if more than one die-cut label has been detected.
0x1D	>INCOMPLETE FORM<	A complete script did not print on a >STOCK OUT< condition.
0x20	>CATCH TRAY FULL<	The PMH has reached its capacity.
0x21	>INPUT 1<	The Input 1 sensor has been actuated.
0x22	>INPUT 2<	The Input 2 sensor has been actuated.
0x30	>SCRIPT ERROR<	An error with the script has been detected.
0x31	>INVALID PARAMETER<	The printer has detected an invalid parameter.
0x32	>PARSER ERROR<	An error with the printer's parser has occurred.
0x40	>COMM ERROR<	A Communication error has been detected.
0x51	>FLASH ERROR<	The flash memory has encountered an error.
0x80	>RESTARTED<	The printer has been powered on or the power has been reset.
0x81	>READY<	The printer is in ready to receive data.
0x82	>BUSY<	The printer is currently busy.
0x83	>PAUSED<	The printer has been paused.
0x84	>PRINTING<	The printer is currently printing.
0x85	>FEEDING<	The printer is currently feeding media.
0x86	>LABEL/TAG PRESENT<	Media has been presented in a dispense mode.

Byte Mode Responses (ASCII Hex)	Text and Verbose Mode Responses	Definition
0x87	>STOCK ADVANCED<	The media has been advanced.
0x8A	>FLASH DEFRAGMENTING<	Flash file system is optimizing memory.
0x8F	>STOCK NOT LOADED<	The printer was powered up with out media installed.
0x90	>RETRACTION DELAY<	The retraction has been delayed.
0x91	>PRINT DELAY<	The printing has been delayed.
0xB0	>FLASH MEMORY LOW<	The Flash memory file space is 95% full.
0xC0	>BUTTON 1 TAPPED<	The print button has been pressed.
0xC1	>BUTTON 1 HELD<	The print button has been held.
0xD0	>TEMPERATURE OUT OF RANGE<	The print head temperature is out of operating range.
0xD1	>NONEXISTENT COMMAND<	The received command does not exist.
0xD2	>INCOMPLETE COMMAND<	The received command is not complete.
0xD3	>ZIP FILE ERROR<	The received Zipped file has an error.
0xD4	>FILE CONVERSION ERROR<	The file was not converted properly.
0xD5	>UNSUPPORTED FILE TYPE<	The received file is not recognized.
0xD6	>FILE NOT FOUND<	The requested file does not exist or cannot be found.
0xD7	>INADEQUATE ACCESS MODE<	Incorrect password to a higher access level.
0xD9	>FILE IS READ ONLY<	File is read only and cannot be deleted.
0xDA	>INADEQUATE FLASH SPACE<	Cannot save an item to the flash memory due to lack of space.
0xDB	>I/O FAILURE<	The Input/Output circuitry has failed.
0xDC	>FONT/GRAPHIC NOT FOUND<	The requested file does not exist or cannot be found.
0xE1	>SWITCH 0 ACTUATED<	Switch 0 has been actuated.

Byte Mode Responses (ASCII Hex)	Text and Verbose Mode Responses	Definition
0xE2	>SWITCH 1 ACTUATED<	Switch 1 has been actuated.
0xE3	>SWITCH 2 ACTUATED>	Switch 2 has been actuated.
0xE4	>TOF SWITCH ACTUATED<	The TOF switch has been actuated.
0xF0	>FIELD OFF IMAGE<	An image placement coordinates exceed the print head or form size.
0xF2	>GRAPHIC TOO LARGE<	The sent graphic exceeds the available memory.
0xFF	>POWERED DOWN<	The printer's power has been removed.

Table 7 Enquiry Responses

4.2.2 Fatal Error Responses

Fatal error responses are enquiry responses that halt the printer's current operation and cause the indicator light or LED to flash RED in color. A fatal error condition persists until the condition causing the error is removed and the error is cleared. These enquiry responses are sent from the printer to the host, when the appropriate condition occurs, by issuing the "Ctrl+E" (^E) combination or by issuing the queued "^D327)1" command. The printer may be configured to automatically reports errors and status messages by using the ^D72x series commands. The following sections provide further explanations of the various fatal error responses. Refer to the ^D550) command regarding the types of enquiry response sets.

NOTE: The following section titles are the responses that the printer will generate once the associating condition occurs and the printer processes an enquiry command. The first response (between and including the ">" and "<" characters) is generated if text and verbose responses have been enabled using the ^D550) command. The ASCII hex value listed between the parenthesis characters, indicate the enquiry response if byte mode has been enabled.

4.2.2.1 >STOCK OUT< (01)

The ">STOCK OUT<" error response is generated when the printer runs out of stock or media while in text and verbose modes. If the printer is configured for byte responses, the code ASCII 0x01 will be issued from the printer in response to an enquiry command.

4.2.2.2 >STOCK OVERADVANCED< (02)

This error response is typically generated when the printer has an excess amount of media feed out of the printer and a Top-of-Form operation is executed. If the printer is configured

for byte responses, the code ASCII 0x02 will be issued from the printer in response to an enquiry command.

4.2.2.3 >STOCK JAMMED< (03)

The “>STOCK JAMMED<” error response indicates that media is jammed and requires correction before the printer can continue printing while in text and verbose modes. A stock jam condition may be detected by two separate methods depending is the printer is configured with a Label Present Detector or LPD. If the printer is configured for byte responses, the code ASCII 0x03 will be issued from the printer in response to an enquiry command.

When the printer is configured with an LPD and selected by the “^D509)” command, a stock jam is detected by the LPD when the leading edge of the media did not arrive after the motor stepped through the Print head to LPD distance (“^D643) command”) plus 0.2 inches. This detection method does not work if media is not detected at the LPD once printing starts and is used in conjunction with the “^D311)” TOF command.

When the printer is configured without an LPD, not selected by the “^D509)” command, or if media is blocking a configured LPD once printing commences, a stock jam condition is detected using the registration mark detectors. The stock jam condition is reported when a registration mark does not arrive after the entire script repeat distance plus 0.2 inches.

4.2.2.4 >INCORRECT STOCK< (04)

This error response is generated when the printer detects a registration mark that is too high or too short or if the registration mark is detected too soon or too late. The >INCORRECT STOCK< message is generated once this condition exists when the printer is configured for text and verbose response sets. If the printer is configured for byte responses, the code ASCII 0x04 will be issued from the printer in response to an enquiry command.

4.2.2.5 >CUTTER JAMMED< (10)

The “>CUTTER JAMMED<” error response is generated when the cutter is in a jammed condition and cannot complete a full cycle while in text and verbose modes. If the printer is configured for byte responses, the code ASCII 0x10 will be issued from the printer in response to an enquiry command.

4.2.2.6 >CUTTER INOPERATIVE< (11)

This error response is typically generated if the cutter is not detected by the printer while in text and verbose modes. If the printer is configured for byte responses, the code ASCII 0x11 will be issued from the printer in response to an enquiry command.

4.2.2.7 >CUTTER WATCHDOG STOPPED CUTTER< (12)

This error response is generated when the cutter cannot complete a full rotation and is jammed while in text and verbose modes. The cutter watchdog timer will disable the power to the cutter to prevent damage from occurring. The printer power should to be cycled to properly clear this error after the jam has been cleared from the cutter blades. If the printer

is configured for byte responses, the code ASCII 0x12 will be issued from the printer in response to an enquiry command.

4.2.2.8 >CUTTER WATCHDOG WON'T RESET< (13)

This error response is generated when the cutter watchdog timer cannot be reset and the printer power is required to be cycled to clear this error while in text and verbose modes. The cutter watchdog timer disables the power to the cutter to prevent damage from occurring. The printer power should be cycled to properly clear this error after the jam has been cleared from the cutter blades. If the printer is configured for byte responses, the code ASCII 0x13 will be issued from the printer in response to an enquiry command.

4.2.2.9 >MISSING LABEL< (1C)

The ">MISSING LABEL<" response indicates that the printer has detected only the backing material when using die-cut media indicating a missing label while in text or verbose response modes. If the printer is configured for byte responses, the code ASCII 0x1C is issued from the printer in response to an enquiry command.

4.2.2.10 >INCOMPLETE FORM< (1D)

The ">INCOMPLETE FORM<" response indicates that the printer did not complete the current script while in text or verbose response modes. If the printer is configured for byte responses, the code ASCII 0x1D is issued from the printer in response to an enquiry command. This response appears in conjunction with the >STOCK OUT< error and a printer configured with the "^D581)2" Finish Label command.

4.2.2.11 >CATCH TRAY FULL< (20)

The ">CATCH TRAY FULL<" response is generated when the optional Catch Tray has reached its capacity while in text or verbose response modes. If the printer is configured for byte responses, the code ASCII 0x20 is issued from the printer in response to an enquiry command.

4.2.2.12 >SCRIPT ERROR< (30)

The ">SCRIPT ERROR<" response is generated when a script contains an error and cannot be processed while in text and verbose response sets. If the printer is configured for byte responses, the code ASCII 0x30 will be issued from the printer in response to an enquiry command.

4.2.2.13 >INVALID PARAMETER< (31)

This error response indicates that a received command contains an invalid parameter or illegal structure while in text and verbose response sets. If the printer is configured for byte responses, the code ASCII 0x31 will be issued from the printer in response to an enquiry command.

4.2.2.14 >PARSER ERROR< (32)

The “>PARSER ERROR<” indicates that the printer has detected an internal error with the parser while in text and verbose response sets. If the printer is configured for byte responses, the code ASCII 0x32 will be issued from the printer in response to an enquiry command.

4.2.2.15 >COMM ERROR< (40)

The “>COMM ERROR<” indicates that the printer has detected a communication error while in text or verbose response modes. If the printer is configured for byte responses, the code ASCII 0x40 is issued from the printer in response to an enquiry command. This error response is generated if the serial communication timeout period of 10 seconds plus 100 times the transfer has occurred.

4.2.2.16 >FLASH ERROR< (51)

The “>FLASH ERROR<” indicates that an error has occurred with the flash memory while in text and verbose response sets. The printer power should be cycled in the event that this error message has been received. If the printer is configured for byte responses, the code ASCII 0x51 will be issued from the printer in response to an enquiry command.

4.2.3 Basic Status Responses

Basic status responses are enquiry responses that are not immediate. These enquiry responses are sent from the printer to the host, when the appropriate condition occurs, by issuing the “Ctrl+E” (^E) combination or by issuing the “^D327)” command. The following sections provide further explanations of the non-immediate basic status responses. Refer to the ^D550) command regarding the types of enquiry response sets.

NOTE: The following section titles are the responses that the printer will generate once the associating condition occurs. The first response (between and including the “>” and “<” characters) is generated if text and verbose responses have been enabled using the ^D550) command. The ASCII hex value listed between the parenthesis characters, indicate the enquiry response if byte mode has been enabled.

4.2.3.1 >OK< (06)

The “>OK<” response is generated in conjunction with the “^D726)1” command and indicates that a command completed successfully while in text or verbose response modes. If the printer is configured for byte responses, the code ASCII 0x06 is issued from the printer in response to an enquiry command.

4.2.3.2 >INPUT 1< (21)

The “>INPUT 1<” response indicates that the INPUT 1 sensor option is tripped while in text or verbose response modes. If the printer is configured for byte responses, the code ASCII 0x21 is issued from the printer in response to an enquiry command. This sensor and response is intended to provide the user with the flexibility for custom configurations.

4.2.3.3 >INPUT 2< (22)

The “>INPUT 2<” response indicates that the INPUT 2 sensor option is tripped while in text or verbose response modes. If the printer is configured for byte responses, the code ASCII 0x22 is issued from the printer in response to an enquiry command. This sensor and response is intended to provide the user with the flexibility for custom configurations.

4.2.3.4 >RESTARTED< (80)

The “>RESTARTED<” response is issued the first time the printer’s status is queried after a power up or reset condition while in verbose and/or semi byte responses. If the printer is configured for byte responses, the code ASCII 0x80 will be issued from the printer in response to an enquiry command.

4.2.3.5 >READY< (81)

The “>READY<” response indicates that the printer is in the normal operating state and that it is ready to accept data while in text and verbose response sets. If the printer is configured for byte responses, the code ASCII 0x81 will be issued from the printer in response to an enquiry command.

4.2.3.6 >BUSY< (82)

The “>BUSY<” response indicates that the printer is performing an operation that prevents the printer from accepting data while in text and verbose response sets. If the printer is configured for byte responses, the code ASCII 0x82 will be issued from the printer in response to an enquiry command.

4.2.3.7 >PAUSED< (83)

The “>PAUSED<” response indicates that the printer’s printing capabilities have been paused while in text and verbose response sets. The printer will continue to receive data while in the >PAUSED< state. The printer may be put into the paused condition by either issuing the “Ctrl+X” combination or by pressing the print button while the printer is printing. Issuing the “Ctrl+X” combination or pressing the print button a second time will cause the printer to resume. If the printer is configured for byte responses, the ASCII code 0x83 will be issued from the printer in response to an enquiry command.

4.2.3.8 >PRINTING< (84)

The “>PRINTING<” response indicates that the printer is currently printing while in text and verbose response sets. If the printer is configured for byte responses, the code ASCII 0x84 will be issued from the printer in response to an enquiry command.

4.2.3.9 >FEEDING< (85)

The “>FEEDING<” response indicates that the printer is currently feeding media while in text and verbose response sets. If the printer is configured for byte responses, the code ASCII 0x85 will be issued from the printer in response to an enquiry command.

4.2.3.10 >LABEL/TAG PRESENT< (86)

This response indicates that media is blocking the Label Present Sensor (LPS) and protruding out the front of the printer. If the printer is configured for byte responses, the code ASCII 0x86 will be issued from the printer in response to an enquiry command.

4.2.3.11 >STOCK ADVANCED< (87)

The “>STOCK ADVANCED<” response indicates that the media has been advanced after printing when a Dispense Mode (^D597) command) is being used while in text and verbose response sets. If the printer is configured for byte responses, the code ASCII 0x87 will be issued from the printer in response to an enquiry command.

4.2.3.12 >FLASH DEFRAGMENTING< (8A)

The “>FLASH DEFRAGMENTING<” response indicates that the printer is optimizing the flash memory and is currently not available while in text and verbose response sets. If the printer is configured for byte responses, the code ASCII 0x8A will be issued from the printer in response to an enquiry command.

4.2.3.13 >STOCK NOT LOADED< (8F)

The “>STOCK NOT LOADED<” response indicates that media is not being detected in the printer on power up while in text and verbose response sets. If the printer is configured for byte responses, the code ASCII 0x8F is issued from the printer in response to an enquiry command. This message persists until media is detected at the registration mark sensors but does not prevent commands from being processed.

4.2.3.14 >RETRACTION DELAY< (90)

The “>RETRACTION DELAY<” response indicates that the printer has been configured with a delay before retracting, refer to the (^D641) command, while in text and verbose response sets. If the printer is configured for byte responses, the code ASCII 0x90 will be issued from the printer in response to an enquiry command.

4.2.3.15 >PRINT DELAY< (91)

The “>PRINT DELAY<” response indicates that the printer has been configured with a delay between labels, refer to the (^D640) command, while in text and verbose response sets. If the printer is configured for byte responses, the code ASCII 0x91 will be issued from the printer in response to an enquiry command.

4.2.3.16 >FLASH MEMORY LOW< (B0)

The “>FLASH MEMORY LOW<” response indicates that the user storage area of the flash memory is 95% full while in text and verbose response sets. This message will continue to be received until files are removed from flash memory or until the printer performs garbage collecting and defragmenting. If the printer is configured for byte responses, the code ASCII 0xB0 will be issued from the printer in response to an enquiry command.

4.2.3.17 >BUTTON 1 TAPPED< (C0)

The “>BUTTON 1 TAPPED<” response occurs when the ^D541) command is configured for the “tapped” response while in text and verbose response sets. This may be used for custom configuration and definition of the print button press or tapped condition. If the printer is configured for byte responses, the code ASCII 0xC0 will be issued from the printer in response to an enquiry command.

4.2.3.18 >BUTTON 1 HELD< (C1)

The “>BUTTON 1 HELD<” response occurs when the ^D541) command is configured for the “held” response while in text and verbose response sets. This may be used for custom configuration and definition of the print button held condition. If the printer is configured for byte responses, the code ASCII 0xC1 will be issued from the printer in response to an enquiry command.

4.2.3.19 >TEMPERATURE OUT OF RANGE< (D0)

The “>TEMPERATURE OUT OF RANGE<” response indicates that the printer’s print head is not within the proper operating range while in text and verbose response sets. This response will not allow the printer to print until the print head returns to the proper operating range. If the printer is configured for byte responses, the code ASCII 0xD0 will be issued from the printer in response to an enquiry command.

4.2.3.20 >NONEXISTENT COMMAND< (D1)

The “>NONEXISTENT COMMAND<” response indicates that the printer has received data in the LDSII command structure that does not exist or is yet to be implemented while in text and verbose response sets. If the printer is configured for byte responses, the code ASCII 0xD1 will be issued from the printer in response to an enquiry command.

4.2.3.21 >INCOMPLETE COMMAND< (D2)

The “>INCOMPLETE COMMAND<” response indicates that the printer has received a command that does not contain all of the required parameters for proper operation while in text and verbose response sets. If the printer is configured for byte responses, the code ASCII 0xD2 will be issued from the printer in response to an enquiry command.

4.2.3.22 >ZIP FILE ERROR< (D3)

The “>ZIP FILE ERROR<” response indicates that the printer has received a zip file that is either not complete or that the file contains errors while in text and verbose response sets. If the printer is configured for byte responses, the code ASCII 0xD3 will be issued from the printer in response to an enquiry command.

4.2.3.23 >FILE CONVERSION ERROR< (D4)

This enquiry response indicates that the printer encountered an error while performing an internal conversion of the received file while in text and verbose modes. If the printer is configured for byte responses, the code ASCII 0xD4 will be issued from the printer in response to an enquiry command.

4.2.3.24 >UNSUPPORTED FILE TYPE< (D5)

This enquiry response indicates that the printer does not recognize the type of the received file while in text and verbose modes. If the printer is configured for byte responses, the code ASCII 0xD5 will be issued from the printer in response to an enquiry command.

4.2.3.25 >FILE NOT FOUND< (D6)

The ">FILE NOT FOUND<" response typically indicates that the printer is being instructed to recall and process a file that does not exist in the printer's memory while in text and verbose response sets. If the printer is configured for byte responses, the code ASCII 0xD6 will be issued from the printer in response to an enquiry command.

4.2.3.26 >INADEQUATE ACCESS MODE< (D7)

This enquiry response is typically issued when the user is attempting to issue a persistent command that is not allowed by the current access mode level or is attempting to enter an access mode that has a higher security level. If the printer is configured for byte responses, the code ASCII 0xD7 will be issued from the printer in response to an enquiry command.

4.2.3.27 >FILE IS READ ONLY< (D9)

This enquiry response typically indicates that a save or delete command is being issued to the printer and that the file is a protected file stored in the printer. If the printer is configured for byte responses, the code ASCII 0xD9 will be issued from the printer in response to an enquiry command.

4.2.3.28 >INADEQUATE FLASH SPACE< (DA)

This enquiry response indicates that the available flash memory is less than the total size of a file being saved to flash memory. If the printer is configured for byte responses, the code ASCII 0xDA will be issued from the printer in response to an enquiry command.

4.2.3.29 >I/O FAILURE< (DB)

This enquiry response indicates that the printer has a failure with either the I/O hardware or with the I/O firmware. If the printer is configured for byte responses, the code ASCII 0xDB will be issued from the printer in response to an enquiry command.

4.2.3.30 >FONT/GRAPHIC NOT FOUND< (DC)

This enquiry response typically indicates that a font being specified a script file does not exist in flash memory. If the printer is configured for byte responses, the code ASCII 0xDC will be issued from the printer in response to an enquiry command.

4.2.3.31 >SWITCH 0 ACTUATED< (E1)

This enquiry response typically indicates that switch 0 is actuated while in text or verbose response sets. If the printer is configured for byte responses, the code ASCII 0xE1 is issued from the printer in response to an enquiry command.

4.2.3.32 >SWITCH 1 ACTUATED< (E2)

This enquiry response typically indicates that switch 1 is actuated while in text or verbose response sets. If the printer is configured for byte responses, the code ASCII 0xE2 is issued from the printer in response to an enquiry command.

4.2.3.33 >SWITCH 2 ACTUATED< (E3)

This enquiry response typically indicates that switch 2 is actuated while in text or verbose response sets. If the printer is configured for byte responses, the code ASCII 0xE3 is issued from the printer in response to an enquiry command.

4.2.3.34 >TOF SWITCH ACTUATED< (E4)

This enquiry response typically indicates that the Top-Of-Form (TOF) switch is actuated while in text or verbose response sets. If the printer is configured for byte responses, the code ASCII 0xE4 is issued from the printer in response to an enquiry command.

4.2.3.35 >FIELD OFF IMAGE< (F0)

The “>FIELD OFF IMAGE<” response indicates that a fields size and placement coordinates will not allow the field to fit on the print image or script layout while in text and verbose modes. The given field that is being placed off the image will not be printed on to the media. If the printer is configured for byte responses, the code ASCII 0xF0 will be issued from the printer in response to an enquiry command.

4.2.3.36 >GRAPHIC TOO LARGE< (F2)

This enquiry response indicates that the graphic sent to the printer is larger than the available memory while in text or verbose response sets. If the printer is configured for byte responses, the code ASCII 0xF2 is issued from the printer in response to an enquiry command.

4.2.3.37 >POWERED DOWN< (FF)

The “>POWERED DOWN<” response indicates that the printer’s power has been interrupted while in text and verbose modes. If the printer is configured for byte responses, the code ASCII 0xFF will be issued from the printer in response to an enquiry command. This message also indicates that the printer was successful writing pending updates to flash on a power loss situation.

4.3 Paused Mode

Paused Mode is when the printer has pending activity and stopped, but is not in an error condition. The indicator light is flashing amber in color when the printer is in *Paused Mode*. The printer enters the *Paused Mode* by issuing the ^X command or by pressing the Print Button while the printer is printing. The printer will remain paused until the ^X is reissued, the button is pressed again, or the printer power is cycled. Additional examples of the printers *Paused Mode* includes a label script that does not include a print command, or after the printer fails to execute the pending data after an error condition.

4.4 Diagnostic Mode

Diagnostic Mode temporarily powers the printer using factory default parameters while printing out the printer's current configuration on what is called the *Status Label*. This information is used to help diagnose and troubleshoot printer configuration issues. The default baud rate is set to 9600 and is used when entering the diagnostic mode. The printer continues using the factory default parameters until printer power is cycled. The printer will then return to the previous configuration in use before entering the diagnostic mode.

4.4.1 Entering Diagnostic Mode

To enter the diagnostic mode, press and hold the print button in while turning on the printer. Release the button after the status light indicator starts to blink and the printer will power up into diagnostic mode.

4.1.2 Status Label

The printer will print the Status label after the printer performs a power-up and enters the diagnostic mode. The status label prints out the reports generated by the ^D323), ^D326), ^D325), and ^D324) commands followed by the print head test pattern.

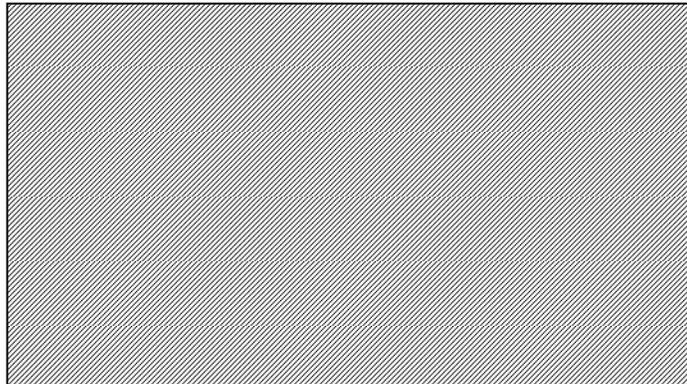


Figure 10 ^D960)1 or ^K Test Pattern

Enablements (D323 or <Ctrl> Y)		
User Interface		
Software flow control:	(D770)	enabled
Hardware flow control:	(D771)	disabled
Operational		
Auto power-up script:	(D720)	disabled
Auto enquiry after print:	(D721)	disabled
Auto media sizing:	(D722)	disabled
Auto top-of-form alignment:	(D723)	disabled
Auto alignment after error:	(D724)	disabled
Auto acknowledge after cmd:	(D726)	disabled
Auto respond after error:	(D727)	disabled
Cutter:	(D740)	disabled
Printed Media Handler PMH:	(D741)	disabled

Figure 11 ^D323-List Enablements Example

Settings (D326 or <Ctrl> V)		
Operational		
Print Speed:	(D635)	6.0 ips
Detector mode:	(D636)	0 (none)
Slew Speed:	(D645)	6.0 ips
Darkness:	(D690)	75 (Dark)
Retraction delay:	(D641)	0.5 sec.
Print delay:	(D640)	0.0 sec.
Labels printed:	(D655)	42
Distances		
Label width (LSX):	(D631)	3.34 inches
Label height (LSY):	(D632)	1.5.12 inches
Reg. mark height (GAP):	(D633)	0.148 inches
To reg'n mark (DRM):	(D634)	0.0 inches
X offset (OFX):	(D637)	0.0 inches
Y offset (OFY):	(D638)	0.0 inches
Dist. Past Gap (DPG):	(Auto)	1.225 inches
Activate Gap Det (AGD)	(Auto)	0.0 inches
Advance/retract:	(D642)	0.512 inches
Roll diam. ref. length:	(D646)	10.0 inches
Black line det to head:	(D648)	2.32 inches
Gap det to head:	(D649)	2.34 inches
Printhead		
Width:	(D647)	4.094 inches
Resolution:	(D647)	203 dpi
Serial port settings	(D670)	9600,N,8,1
Ethernet		Active at 10/100
MAC:		0x000257795634
Internet Protocol		
Printer port number:	(D674)	23
Printer addr:	(D675)	192.168.200.3
Server/Host addr:	(D676)	192.168.200.1
Gateway addr:	(D677)	192.168.200.1
Broadcast addr mask:	(D678)	192.168.200.255
Net addr mask:	(D679)	255.255.255.0
Parallel port settings:		Not installed
USB port settings		Not installed
Thresholds		
Gap:	(D680)	30
Black line:	(D681)	120
Stock:	(D682)	110
High head temperature:		147
Low head temperature:		24
PWM periods		
Gap:		12
Black line:		41
Label Present:		64
Stacker:		64
NOTE: Some items may not be correct until after a scripted label has been printed or Auto-size (D310) has been run.		

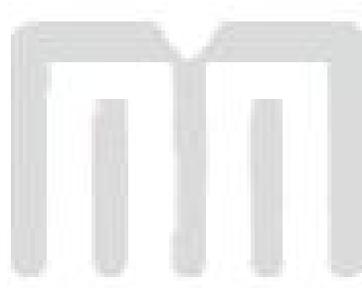
Figure 12 ^D326-List Settings Example

Selections (D325 or <Ctrl> U)		
Operational		
Dispense mode:	(D597)	3
Emulation:	(D501)	Microcom 426
Cutter Type:	(D506)	NONE
PMH Type:	(D507)	NONE
Button Mode:	(D541)	1
Stock-out handling	(D581)	Halt
Response Mode:	(D550)	Text
RS-232 connection:	(D570)	Serial port
Power-up label:	(D586)	@ default
Detector mode:	(D636)	0 (none)
Input 1	(D509)	0
LPD type or Input 2	(D508)	0
General		
Measurement units:	(D564)	1 (inches)
Speed units:	(D565)	1 (ips)
Temperature units:	(D566)	1 (Fahrenheit)

Figure 13 ^D325-List Selections Example

Statistics (D324 or <Ctrl> W)		
Identity		
Model number:	(D501)	Microcom 426
Language:	(Auto)	LDS2
Serial number:		01234567890
CPU Serial number:		01234567890
Accumulated operation		
Labels printed:	(D655)	44
Inches printed:		97 inches (246 cm)
Total inches run:		109 inches (276 cm)
Power on time:		2 hours
Printhead		
Width:	(D647)	4.094 inches
Resolution:	(D647)	203 dpi
Temperature:		80 Fahrenheit
Cutter		
Detected at power-up:		false
Type installed:	(D506)	NONE
Operation enabled:	(D740)	false
Total cycle count:		0
Printed Media Handler (PMH)		
Type installed:	(D507)	NONE
Operation enabled:	(D741)	false
Flash		
Installed:		4 MB
Available in file area:		964 KB
RAM:		
Installed:		16.0 MB
Heap:		12.5 MB
Available:		6.53 MB
Code:		
Revision:		1.10
Part number:		950000-0110
Size:		1851552
CRC32:		0x70c6cc74
Bootloader revision:		1.08
Analog PIC revision:		4.5

Figure 14 ^D324-List Statistics Example



Chapter 5: Communications

5.1 RS-232 Serial

The printers provide a 9 pin female D-Sub connector, on the rear panel, for RS-232 serial communication. The printer is configured as DCE (Data Circuit-terminating Equipment) so a NULL modem cable is not necessary. A serial data cable is required to use serial communications, refer to the table below for correct cable configurations.

The factory settings, unless otherwise requested, are set at 9600 baud, 8 data bits, 1 stop bit, and no parity with both hardware and software handshaking. The baud rate is user selectable from 1200 to 115,200 and uses software XON/XOFF flow control and/or hardware CTS handshaking.

9 to 9 Pin Cable				9 to 25 Pin Cable			
State	DE-9 Pin #	Signals / Directions	PC DE-9 Pin #	State	DE-9 Pin #	Signals / Directions	PC DB-25 Pin #
XX	1	DCD → DCD	1	HI	1	DCD → DCD	8
XX	2	TXD → RXD	2	XX	2	TXD → RXD	3
XX	3	RXD ← TXD	3	XX	3	RXD ← TXD	2
HI	4	DTR → DSR	4	HI	4	DTR → DSR	20
LO	5	GND ↔ GND	5	LO	5	GND ↔ GND	7
HI	6	DSR → DTR	6	HI	6	DSR → DTR	6
DC	7	RTS ← CTS	7	DC	7	RTS ← CTS	4
XX	8	CTS → RTS	8	XX	8	CTS → RTS	5
HI	9	+5V ↔ +5V	9	HI	9	+5V	-
DC = DO NOT CARE				XX = INDETERMINATE			

Table 8 RS-232 Cable Configurations

If XON/XOFF handshaking is used, only signals RXD, TXD, and GND are required for proper operation. If the hardware handshaking is used the CTS and RTS signals are required. The other signals are offered in the event that the host computer requires them.

5.1.1 RS-232 Printer Cables

The 326M and 426M printers use standard cables that may be purchased through Microcom Corporation or a local computer supply company. A NULL-modem cable is not required because the printer is configured as DCE.

For a 25-pin serial communication port – Use a 25-pin female to 9-pin male cable.

For a 9-pin serial communication port – Use a 9-pin female to 9-pin male cable.



CAUTION: Connection of a serial port to a parallel port may result in damage to the printer and / or computer.

5.2 Ethernet - 10BASE TX

The printer provides an auto-sensing, 10Mbps Fast Ethernet port with half duplex operation capability. The Ethernet port only supports raw sockets. Refer to the “^D570)” command for additional information regarding the available communication ports the printer offers. The printer requires that the Printer IP (^D675), Port Number (^D674), Net Mask (^D679), and Ethernet port (“^D570)5”) be properly configured for the Ethernet port to function. The ^D326 or ^V command is useful in reporting the addresses and command values.

(A) = RJ45 connector for Ethernet port connection.

(B) = Solid green light indicates that a connection is present.

(C) = Flashing yellow light indicates that the port has activity.

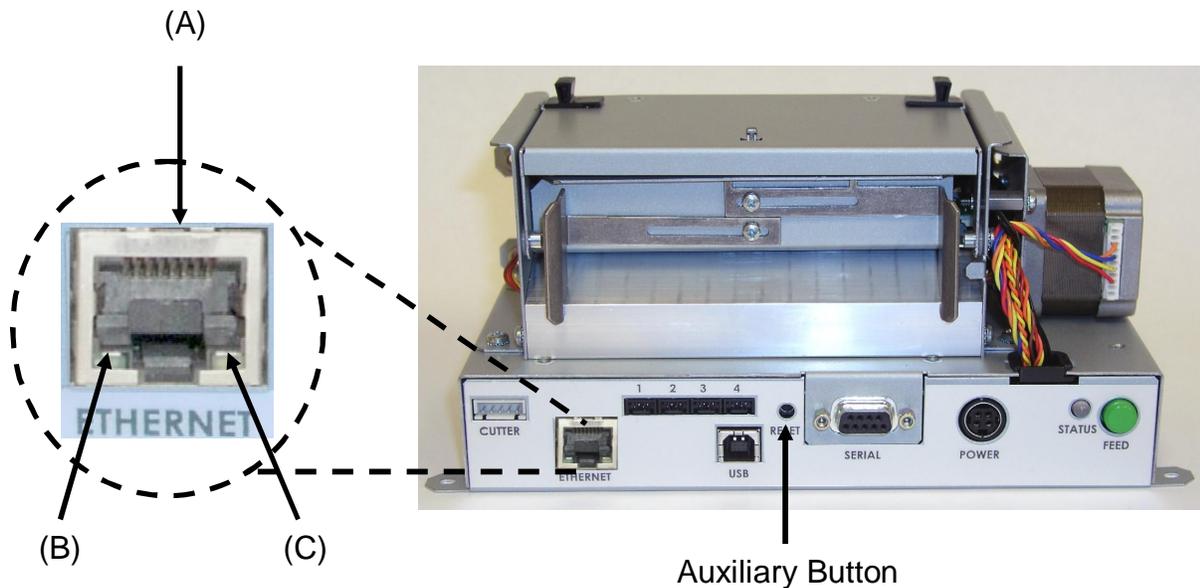


Figure 15 Ethernet Port (426M)

5.3 USB Port

The printer provides the capability of a Universal Serial Bus (USB) port that supports version 1.1. The USB Type 1 port is a virtual serial communications port and requires the installation of the Microcom Corporation supplied virtual serial communication USB driver to be installed to properly function.

Chapter 6: Maintenance and Adjustments

6.1 Maintenance Schedule

It is important to note that optimum print quality and print head life is achieved by maintaining a clean printer and print head. A Microcom Corporation approved cleaning kit (part # 040005-0000) is available. Contact your Microcom Corporation sales representative for purchasing information.

AREA	METHOD	INTERVAL
Print head	Foam tipped swab, cotton tipped swab, or thermal printer cleaning card dampened with Isopropyl Alcohol. <i>See section 6.4</i>	After every roll of media or every 512 feet of tag stock or fanfold media.
Drive Roller	Foam tipped swab, cotton tipped swab, thermal printer cleaning card, or lint-free cloth dampened with Isopropyl Alcohol <i>See Section 6.5</i>	After every roll of media or every 512 feet of tag stock or fanfold media.
Peel Edge	Foam tipped swab, cotton tipped swab, thermal printer cleaning card, or lint-free cloth dampened with Isopropyl Alcohol <i>See section 6.3</i>	<i>As Needed.</i>
Interior Cleaning	Compressed air, soft-bristle brush, and/or lint-free cloth dampened with Isopropyl Alcohol. <i>See section 6.3</i>	<i>As Needed.</i>
Exterior Cleaning	Lint-free cloth dampened with a mild, non-abrasive general purpose cleaner. <i>See section 6.6</i>	<i>As Needed.</i>

Table 9 Recommended Maintenance Schedule



CAUTION: *Microcom Corporation will not be held responsible for damage caused by any non-approved solvent, cleaning material and/or method and the use of such non-approved materials and/or methods may void appropriate expressed or implied warranties.*

6.2 Thermal Printer Card

Decline in print quality, voids or drop out areas in bar codes and/or graphics may indicate that the print head is dirty and needs to be cleaned. The necessary cleaning materials can be purchased through Microcom Corporation by contacting your sales representative and ordering the *Cleaning Kit, part # 040005-0000*. The print head should be cleaned after every roll of media or after every 512 feet (a typical stack of tag or fanfold media is about 3200 tags).

A thermal printer card is the quickest and easiest way to clean the print head, drive roller, and peel edge all at the same time. Follow the steps below for the proper cleaning procedure.

1. Remove any installed media.
2. Dampen both sides on one end of the cleaning card with isopropyl alcohol.
3. Release the print head (Figure 15) by pushing the *Head Release Levers* towards the center of the printer and insert the thermal card into the front of the printer between the print head and the drive roller.
4. Continue inserting the card into the media path until you feel resistance, now latch the print head making sure the *Head Release Levers* lock into place.
5. Using both hands, slowly pull the card out of the printer at a 45° down angle (See Figure 16).
6. Repeat as necessary
7. Reinstall media.

Thermal cleaning cards should not be used more than three times each. Extremely dirty cards should be disposed of immediately.



CAUTION: *Never touch or clean the print head with any abrasive solvents and/or with any metal or sharp object.*

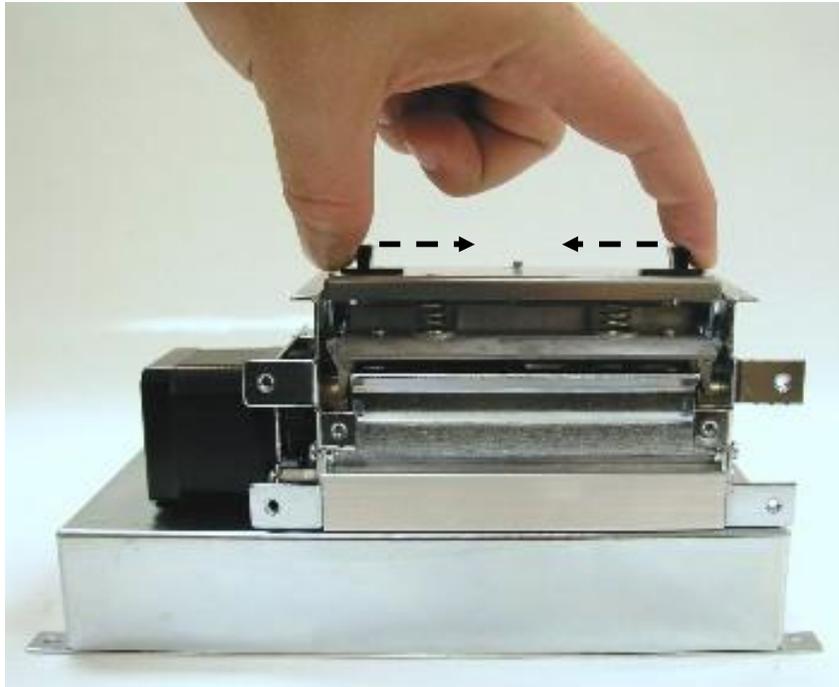


Figure 16 Unlatching of the Print head (326M)

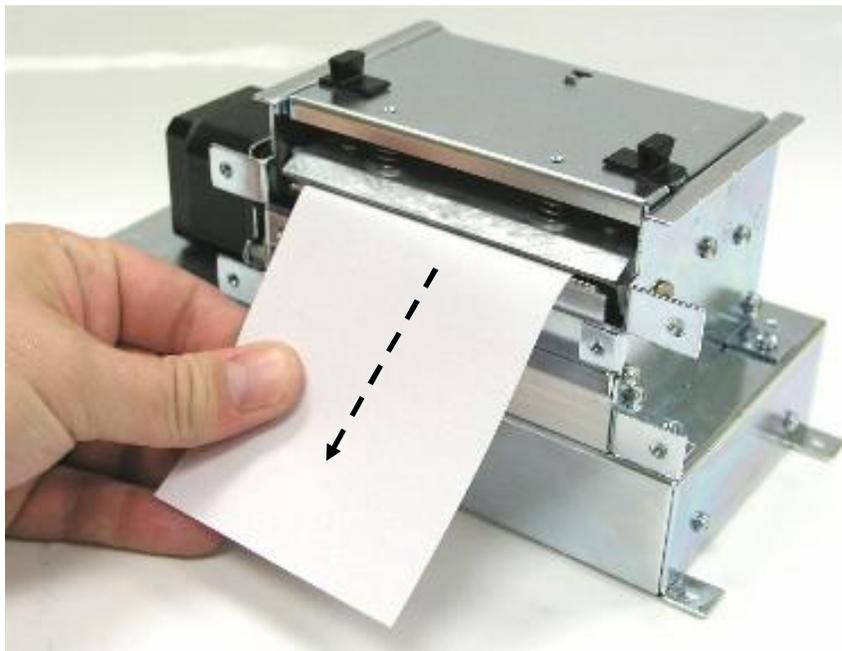


Figure 17 Removal of Thermal Card (326M)

6.3 Internal Cleaning

The overall internal cleaning of the printer is important to help reduce the dust and other contaminants residing in the printer. Contaminates may attach to the print head or drive roller and affect the printer's performance. Refer to Figure 17 for common areas needing cleaned.

1. Remove installed media.
2. Turn the printer power OFF.
3. Using the two *Head Release Levers* (See Figure 15), unlatch and raise the print head.
4. Basic internal cleaning can be done using a combination of compressed air, soft-bristle brushes, foam/cotton tipped swabs, and/or lint-free cloths dampened in alcohol. Using any combination of these materials, remove dust or other contaminants from the printer. See section 6.4 for the proper print head maintenance procedure.
5. When finished, latch the print head completely and reinstall the media.
6. Turn the printer power ON

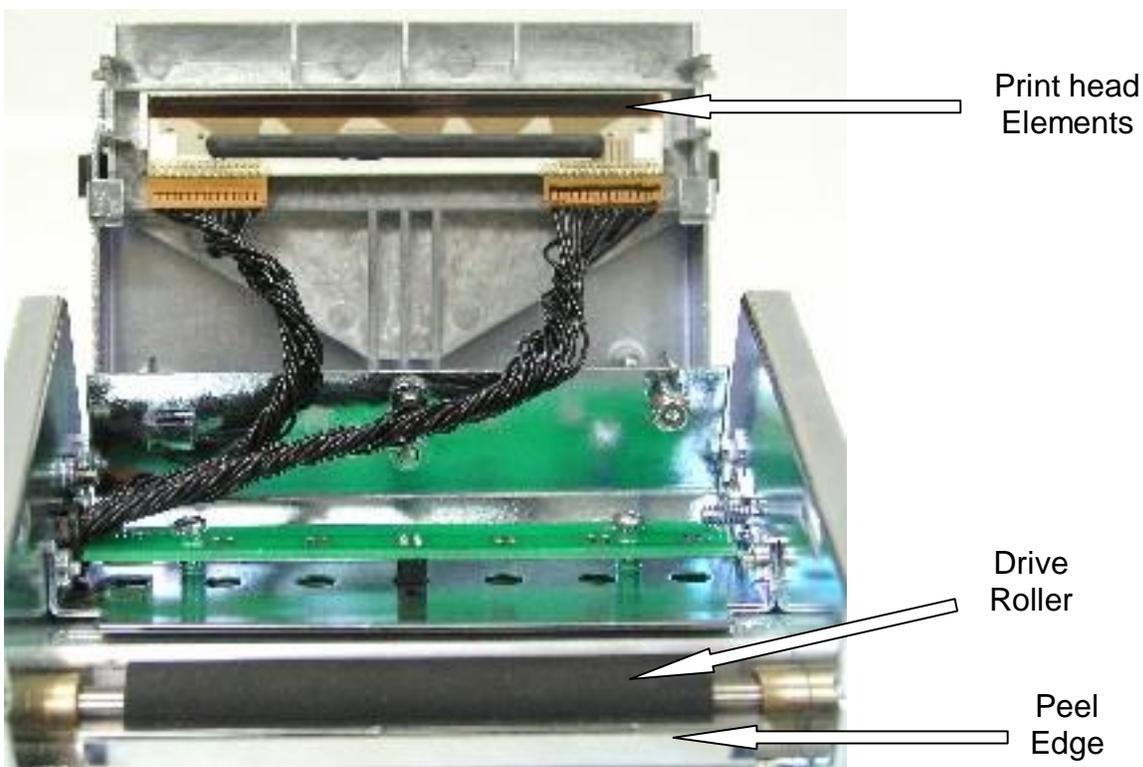


Figure 18 Internal Cleaning (326M)

6.4 Print head Maintenance

If print quality has not improved after cleaning using a thermal cleaning card or if one is not available, foam or cotton tipped swabs dampened in isopropyl alcohol may be used. Refer to Figure 18 and follow the steps below for the proper cleaning procedure.

1. Remove any installed media.
2. Turn the power to the printer OFF.
3. Using the two *Head Release Levers* (Figure 15), unlatch and raise the print head.
4. With a foam or cotton tipped swab dampened in isopropyl alcohol, clean the thermal elements by gently rubbing the swab down the length of the print head. Allow for the alcohol to evaporate then repeat if necessary.
5. The Drive Roller, Peel Edge, and other basic internal cleaning may also be performed at this time. See the appropriate sections for more information.
6. Latch the print head completely and reinstall the media.
7. Turn the power to the printer ON.

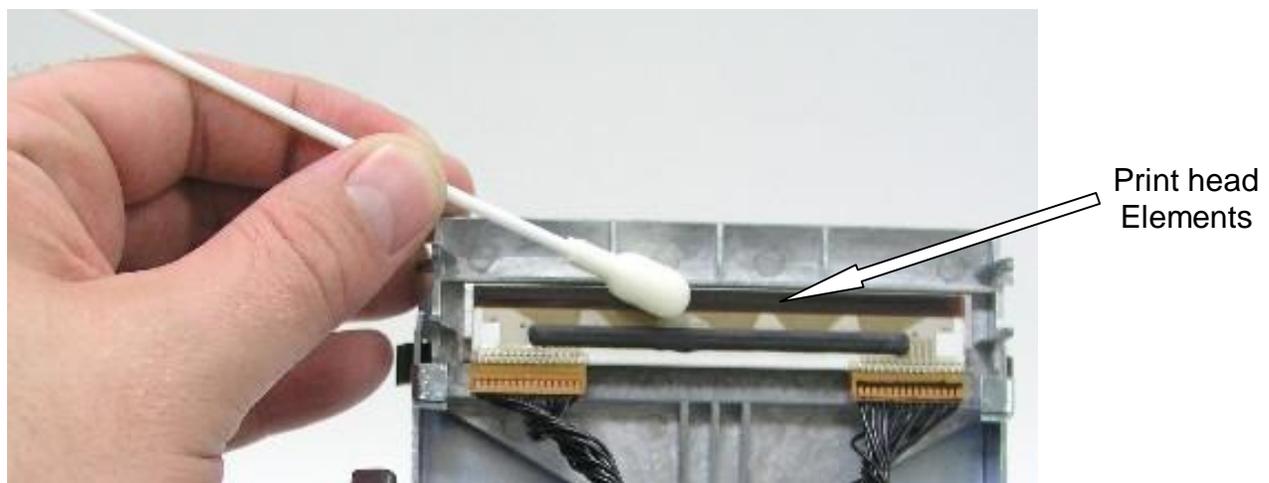


Figure 19 Print head Thermal Elements (326M)



CAUTION: When performing maintenance inside the printer, always make sure that the print head is latched completely before installing the top cover. Failure to do so may result in damage to the print head.

6.5 Cleaning the Drive Roller

Maintaining a clean drive roller not only helps extend the life of the roller but also reduces print quality issues and media slips that may occur due to dust, label adhesive and other forms of contamination. The drive roller should be cleaned after every roll of media or after every 512 feet (a typical stack of tag or fanfold media is about 3200 tags). See the previous section *Thermal Printer Card* for a quick and easy way to clean the drive roller or follow the steps below.

1. Remove any installed media.
2. Turn the printer power OFF.
3. Using the two *Head Release Levers* (Figure 15), unlatch and raise the print head.
4. With a lint-free cloth dampened in alcohol, clean the drive roller. Manually rotate the drive roller by the drive gear located to the left (from the front of the printer) or by manually rotating the drive roller itself to clean the entire drive roller surface.
5. Print head, Peel Edge, and Internal cleaning may also be performed at this time, see the appropriate sections for more information.
6. Latch the print head completely and reinstall the media.
7. Turn the printer power ON.



CAUTION: *Isopropyl Alcohol should be used to clean the drive roller. The use of other cleaning solvents or materials is not recommended and may degrade the performance of the drive roller.*

6.6 Exterior Cleaning

Although cleaning the exterior surfaces does not affect printer performance, it will help the overall appearance of the printer. The use of any mild, non-abrasive general purpose cleaner with a lint-free cloth may be used to clean the exterior surfaces. This cleaning should be performed on an as needed basis.

6.7 Gap Detector Adjustment

Refer to Figure 19. The gap detector assembly is centered in the media path at the factory and should work for almost every type of media. The Gap detectors may be custom configured and placed in a different position upon request. The printers contain fixed gap detection locations every half inch to provide flexibility for custom applications.

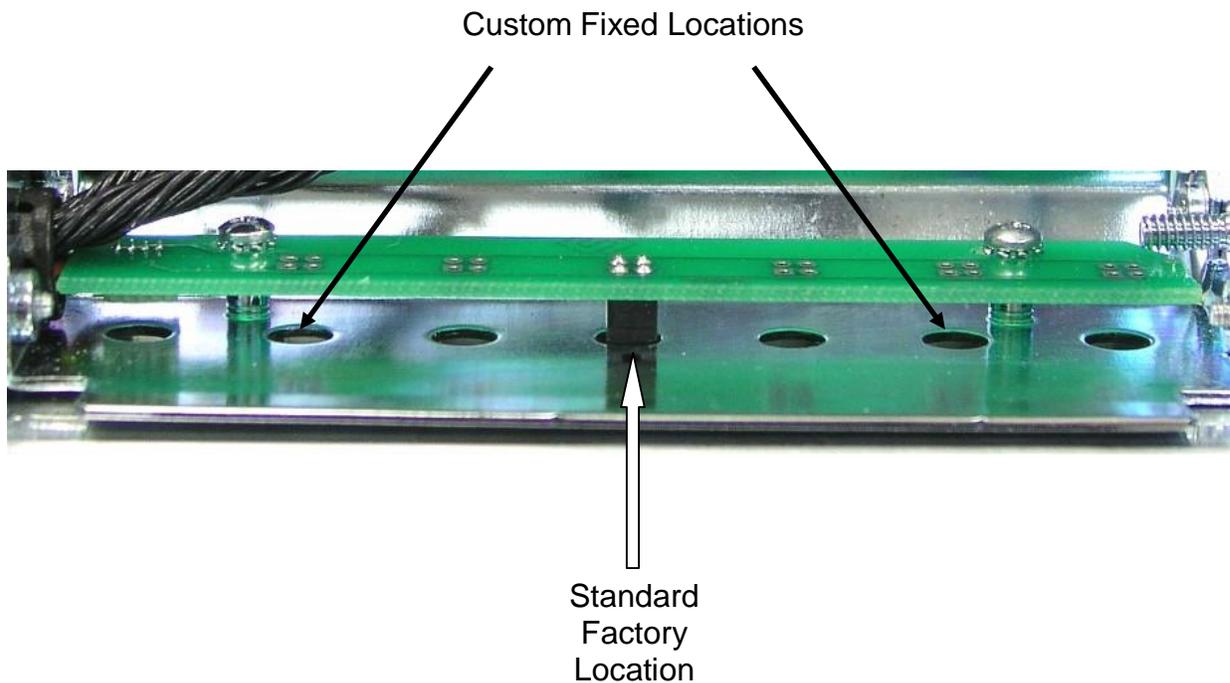


Figure 20 Gap Detector (326M)

6.8 Auxiliary Button

The auxiliary button (see Figure 14) is used for factory adjustments, recovers flash memory, and may be customized for other special features.

6.9 Flash Memory Update

The printer is equipped with 4MB of flash memory that can be updated automatically or optionally upgraded remotely or by using the auxiliary button. Flash memory is used to store the printer source code and is also used to store user graphics, formats, and/or fonts. The MCA and MCB code files should always be sent to the printer in the compressed zipped format.

6.9.1 Compressed File Update

This method is used to update the firmware stored in flash memory. To update the printer's firmware the following are required: a compressed MCB or MCA (ZIP file), a host computer equipped with a RS-232 serial port, and a Terminal Emulation Program (i.e., HyperAccess, HyperTerminal, Procomm Plus, Tera Term Pro...). The printer is configured at the factory with serial parameters of 9600,n, 8,1 and the terminal emulation program will need the serial parameters set to 9600,n, 8, 1.

It is a good idea to completely read through the procedure before an update attempt is made. Do not send any unnecessary characters or remove the printer's power during the update or the printer may become inoperable. Refer to section 6.9.2 in the event the printer does not function properly after an update and the printer has become inoperable.

1. Make sure the RS-232 serial connection is made between the host and the printer including the proper Baud rate.
2. It is recommended to use the fastest Baud rate up to 115200 to reduce transfer time. Refer to the “^D670)” command regarding the printer's serial port parameters. If the printer does not update properly, use a slower Baud rate to transfer the update.
3. Contact the Microcom Corporation support department and/or visit the following web address www.microcomcorp.com to acquire the desired MCA or MCB file.
4. Issue the “^D945)?” command and retain the resulting listing for comparison after flash update.
5. Send the MCA or MCB file to the printer in compressed form (ZIP). The MCA must be updated before the MCB if both are being updated. Failure to do this may cause the printer to become unstable.
6. After the printer has identified the MCA file, the following dialog will be reported to the host: “File received. Unzipping. Please Wait...” This dialog is only reported if the printer is set to use the VERBOSE response set. Refer to the “^D550)” command for additional information regarding the printer response sets.
7. After the file has been unzipped and the checksum verified, the following dialog is reported to the host: “Unzipped. CRC Okay: 0x36410D55” (The checksum shown is for demonstration purposes only. The checksum will reflect the MCA files internal checksum and report any differences automatically.) This dialog is only reported if the printer is set to use the VERBOSE response set. Refer to the “^D550)” command for additional information regarding the printer response sets.
8. Sample MCA update dialog is reported to the host and is listed below. If the MCB code is being updated, the same dialog format would be reported with the word “application” being changed to “bootloader” as the only difference.

Application file recognized.
 Erasing old application.....
 Saving new application..... (The periods are status indicators)
 Booting application now . . . (The periods are status indicators)

9. If problems are experienced during the update and the printer has lost the previous application, refer to the following section regarding the recovery file update.
10. After the code has been successfully updated, the “^D391)1”, “^D392)1”, and “^D390)1” commands must be sent to complete the update process. The “^D391)1” and “^D392)1” commands force setting to factory defaults while the “^D390)1” resets the printer and automatically issues an enquiry command on reboot.
11. Once the printer reboots, any custom configuration file and/or commands must be sent to the printer to verify that all commands are set to the desired values before using with the intended application.
12. The “^D945)?” command may now be issued to compare against the previous listing to assist in determining what commands were changed in the update process.



CAUTION: *Do not send any unnecessary characters or turn the printer off during the flash memory update. Failure to observe this precaution may result in the printer becoming inoperable.*

6.9.2 MCA Compressed File Recovery

The printer’s firmware can typically be recovered using this method in the event that during the MCA update the printer has become unstable. Using this method is only intended to provide a recovery method and is not intended to be a normal way to update the MCA firmware stored in the printer’s flash memory. This method requires the use of a compressed MCA code file, a host computer equipped with a RS-232 serial port, and a Terminal Emulation Program (i.e., HyperAccess, HyperTerminal, Procomm Plus, Tera Term Pro...).

It is a good idea to completely read through the procedure before an update attempt is made. Do not send any unnecessary characters or remove the printer’s power during the update or the printer may become inoperable.

1. Make sure the RS-232 serial connection is made between the host and the printer including the proper Baud rate.
2. Contact Microcom Corporation support department and/or visit www.microcomcorp.com to acquire the desired MCA code file.
3. Start the terminal emulation program and set the serial parameters to 115200,n,8,1.

4. While pressing the Auxiliary button (see Figure 6) turn the printer power switch on.
Note: To press the Auxiliary button, use a ballpoint pen and gently press and hold the switch in.
5. Immediately after applying printer power, observe the terminal window and follow the sample dialog below. The bold italics text denotes informational comments or instructions and is not part of the printer's update dialog.

Found rear button pressed. Load an application, now? (y/n) [n]:

Enter "y" to load new code ↵

Request received

Okay. You may send a zipped application file now (e.g., MCA_version.zip).

Start of transfer recognized.....

File received

Unzipping. Please stand by (approx. 54 seconds) . . .

Unzipped. CRC32 okay: 0x3fd1bf94

Application file recognized.

Erasing old application.....

Saving new application.....

Now booting to the new firmware

The printer takes approximately 5 minutes to read the read and copy the new code. If a power loss occurs during this time the printer will revert back to the previous code and the update process will have to be restarted.

6. The flash memory has been recovered and the MCB firmware may be upgraded using the procedure outlined in section 6.9.1.

Note: The emulation program used to transfer the MCA file via the serial port must be capable of sending Binary data, (i.e., Tera Term Pro) for proper transfer to occur. If the transfer was not successful the emulation program used, may not have the ability to transfer Binary data.



CAUTION: Do not send any unnecessary characters or turn the printer off during the flash memory update. Failure to observe this precaution may result in the printer becoming inoperable.

Chapter 7: Troubleshooting

7.1 Troubleshooting Tips

The printer fails to turn “ON” and the indicator light fails to light:

- ✓ Verify that the power cord is connected to the printer as well as the AC outlet.
- ✓ Verify that the printer power switch is in the “ON” position.
- ✓ Verify that the AC outlet is functioning properly.
- ✓ Contact your Service Representative.

The indicator light is solid amber in color:

- ✓ Indicates that the printer is paused or a ^D597 tag/tear mode is being used.
- ✓ Press the Print Button, light should turn green and resume printing if the printer is paused.
- ✓ Remove the tag, the light should turn green if a tag/tear mode is enabled.
- ✓ Contact your Service Representative.

The indicator light is flashing red in color:

- ✓ The printer has an error and requires service before printing will continue.
- ✓ Verify that media is loaded in the printer properly.
- ✓ Press Button 1 to attempt to clear the error.
- ✓ Refer to the LDSII Programming Guide for information on the Enquiry Command to help identify the error condition.
- ✓ Cycle power to reset the printer.

The indicator light is solid red in color:

- ✓ The printer may be in Service, Factory, or Dev access Mode, refer to the LDSII Programming Guide for additional information pertaining to the ^D930 and ^D931 commands.
- ✓ Set the access level to BASIC using the ^D931 command.
- ✓ Cycle power to reset the printer.

The indicator light is flashing green/amber in color:

- ✓ The printer is initializing the RAM memory.
- ✓ This occurs when the printer boots and should change to solid green after 10 to 20 seconds.
- ✓ Cycle power to reset the printer.

The indicator light is flashing amber/red in color:

- ✓ The printer is updating flash memory.
- ✓ During this process the firmware is copied from flash to RAM and if power is removed during this time the printer will become inoperative.
- ✓ Wait until flashing stops before sending additional data or removing power to the printer.

The printer creates excessive noise when printing or fails to move media:

- ✓ Reduce print speed to prevent motor from stalling.
- ✓ Verify that the media thickness is within acceptable limits.
- ✓ Verify that media guides are adjusted correctly and that the media is not experiencing excessive drag.
- ✓ Check the rigidity of the media being used.
- ✓ Check the gear drive for excessive wear and/or damage.
- ✓ Contact your Service Representative.

The printer has varying print registration:

- ✓ Verify that the script file DET header parameter and/or ^D636 detector type command is configured for the correct media type being used.
- ✓ Verify that the registration mark detectors are correctly aligned.
- ✓ Clean and remove media dust using compressed air from between the sensors.
- ✓ Adjust the appropriate sensor threshold to media type being used, refer to the ^D680 and/or ^D681 commands for threshold adjustment and the ^D900 for additional information on determining the correct threshold value in the LDSII Programming Guide.
- ✓ Cycle power to reset the printer.

Vertical blank or light lines appear on printed areas:

- ✓ Verify that the print head assembly is properly latched in the closed position.
- ✓ Clean the print head.
- ✓ Verify that the ^D690 contrast command is properly configured for the media being used.
- ✓ Print head may need replaced.
- ✓ Contact your Service Representative.

The printer does not detect stock out conditions:

- ✓ Verify that the registration mark detectors are properly aligned with each other.
- ✓ Clean and remove media dust using compressed air from between the sensors.
- ✓ Adjust the appropriate stock threshold to media type being used, refer to the ^D682 command for threshold adjustment and the ^D900 for additional information on determining the correct stock out threshold value in the LDSII Programming Guide.
- ✓ Contact your Service Representative.

The printer has no serial communication:

- ✓ Verify that the serial cable is properly connected to the printer and an available serial port on the host computer.
- ✓ Verify that the host serial port is functioning properly.
- ✓ Verify that the printer and the host serial port parameters are set exactly the same.
- ✓ Change terminal emulation parameters to 9600,n,8,1 and press two carriage returns then use the ^E enquiry command.
- ✓ Contact your Service Representative.

The label present detector is not sensing labels properly:

- ✓ Is an LPD present?
- ✓ Is a ^D597 dispense command being used that uses the LPD sensor?
- ✓ Adjust the LPD drive using the ^D683 command to achieve proper operation.
- ✓ Contact your Service Representative.

Appendix A

Limited Warranty

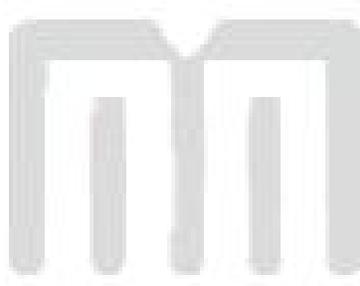
Microcom Corporation printers, excluding thermal print heads, which are warranted separately below, are warranted against defects in material and workmanship for twelve (12) months from the date of original shipment by Microcom Corporation. This warranty does not cover normal wear and tear and shall be null and void if the printer is modified, improperly installed or used, damaged by accident or neglect, or in the event any parts are improperly installed or replaced by the user.

The thermal print head is covered by a limited warranty of three (3) months or 500,000 linear inches to be free from defects in material and workmanship. The length of media run through the printer may be verified using the printer's internal statistical counter. Although the user is not required to purchase Microcom Corporation brand supplies, to the extent it is determined that the use of other supplies (such as non-approved label stock, ribbons, and cleaning solutions) shall have caused any defects in the thermal print head for which the warranty claim is made, the user shall be responsible for Microcom Corporation's customary charges for labor and materials to repair such defects.

MICROCOM CORPORATION'S SOLE OBLIGATION UNDER THIS WARRANTY SHALL BE TO FURNISH PARTS AND LABOR FOR THE REPAIR OR REPLACEMENT OF PRODUCTS FOUND TO BE DEFECTIVE IN MATERIAL OR WORKMANSHIP DURING THE WARRANTY PERIOD.

Except for the express warranties stated, Microcom Corporation disclaims all warranties on products, including all implied warranties of merchantability and fitness for a particular purpose. The stated warranties and remedies are in lieu of all other warranties, obligations or liabilities on the part of Microcom Corporation for any damages, including, but not limited to, special, indirect, or consequential damages arising out of or in conjunction with the sale, use, or performance of these products.

MICROCOM CORPORATION SHALL NOT, UNDER ANY CIRCUMSTANCES WHATSOEVER, BE LIABLE TO THE BUYER OR ANY OTHER PARTY FOR LOST PROFITS, DIMINUTION OF GOODWILL OR ANY OTHER SPECIAL OR CONSEQUENTIAL DAMAGES WHATSOEVER WITH RESPECT TO ANY CLAIM HEREUNDER. IN ADDITION, MICROCOM CORPORATION'S LIABILITY FOR WARRANTY CLAIMS SHALL NOT, IN ANY EVENT, EXCEED THE INVOICE PRICE OF THE PRODUCT CLAIMED TO BE DEFECTIVE, NOR SHALL MICROCOM CORPORATION BE LIABLE FOR DELAYS IN THE REPLACEMENT OR REPAIR OF PRODUCTS.



Appendix B

Return Material Authorization (RMA) Procedure

A Return Material Authorization (RMA) number must be obtained prior to the return of printer's and/or materials to the Microcom Corporation Service Department. The purpose of the RMA number is to provide effective tracking and control of returned printers and/or materials. Microcom Corporation is not responsible or accountable for printers and/or materials returned without proper authorization.

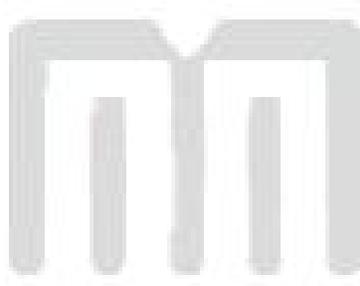
Shipping Charges:

The return of printers and/or materials to Microcom Corporation for repair should be returned freight and insurance prepaid. Microcom Corporation will pay the return shipping charges (standard ground service) on all warranty repairs; an Expedited service is paid at the customer's expense. The return of non-warranty repairs to printers and/or materials is shipped by the customer's choice of shipping carrier and delivery service.

Receiving a Return Material Authorization (RMA) number:

1. To receive an RMA number, either complete the online RMA request form located on the World Wide Web (www.microcomcorp.com) or contact the Microcom Corporation Service Department and provide the representative with the following information.
 - Company name.
 - Contact name and phone number.
 - Model number.
 - Printer serial number.
 - A detailed description of the problem.
 - Service option requested (1 Day, 3 Day, 5 Day, or Standard turnaround).
 - Purchase Order Number.
2. The shipping label should contain the following information:

Microcom Corporation
Attn: Service Dept. RMA# <place RMA number here>
8220 Green Meadows Dr. N.
Lewis Center, Oh 43035 USA
3. Return the defective item(s) for repair to the address listed above, freight and insurance prepaid.
4. Upon receipt of an RMA number, the customer contact is notified by a Microcom Corporation representative regarding repair charges, at which time the ship method is determined. Items returned for repair with inadequate packaging material are returned to the customer in Microcom Corporation approved packaging at the customer's expense.



Glossary

Alphanumeric - A term used to identify characters consisting of letters, numbers, and other symbols such as punctuation marks and mathematical symbols.

Bar code - Alphanumeric characters that are represented using a system of printed lines, which can be read by a computer.

Black-line - A registration mark, typically a black line on the underside of certain media that is used to identify the starting position of a label.

Blow-hole - A registration mark, typically a notch or cutout in certain media that is used to identify the starting position of a label.

Continuous media - Media that contains no gap and continues as one piece of media.

CTS (Clear to Send) - A handshaking signal used to provide information when a DCE or modem is ready to receive data in an RS-232 Communication link. Used in conjunction with RTS.

Cutter - An optional device, mounted on the printer, used to cut media into custom sized labels after printing

DCE (Data-Circuit-terminating Equipment) - The modem or printer end of an RS-232 serial communication link. Modem serial ports and other peripherals are typically configured as DCE.

Die-cut media - Media that is cut using a die to form individual labels that have a start and stop point. Typically, the excess material surrounding the label is removed from the backing material.

Direct thermal - Method of printing with a special heat-sensitive media that directly contacts heat elements of a thermal print head. (See *Thermal print head*)

DPI (Dots Per Inch) - A unit of measure term that identifies the print resolution capability.

Drive roller - Platen roller that is located below the print head that is used to drive media through the printer.

DSR (Data Set Ready) - A handshaking signal used to provide information about the status of an RS-232 Communication link. Used in conjunction with DTR.

DTE (Data Terminal Equipment) - The terminal or computer end of an RS-232 serial communication link. Serial ports on computers are typically configured as DTE.

DTR (Data Terminal Ready) - A handshaking signal used to provide information about the status of the communication line connected to the DCE end of an RS-232 link. Used in conjunction with DSR.

Ethernet - A fast and capable serial interface used by many networks for connecting host computers to various peripherals.

Fanfold media - Die-cut or tag media that is folded into stacks.

Flash memory - Memory that is used to store font, graphics and label formats. This is a non-volatile type of memory; information stored is saved even when the printer power is turned off.

GND (Signal Ground) - The ground terminal of a power supply's output, and all points that connect to it. This is an essential signal in an RS-232 serial communication link that is used to reduce noise spikes, which can cause a receiver to misread logic levels. Also known as SG and SGND.

Guillotine Cutter – A cutter that has a blade that cuts perpendicular to the media path.

Kiosk – A small structure or stand used to dispense items..

LDSII (Label Design Software II) - This is the resident control software language that is used to develop label formats and controls the full function of the printer.

LPS (Label Present Sensor) - This sensor, when enabled, detects when media is present. Also referred to as LTS (Label Taken Sensor).

Platen - Roller that is located below the print head, which the media rests upon. (See *Drive roller*)

Rolled media - Media that is rolled onto a core, which is typically cardboard in nature.

Rotary Cutter – A cutter that has multiple angled blades mounted to a shaft that cut media by rotating the shaft.

RS-232 - A popular and inexpensive asynchronous serial interface used for connecting host computers to various peripherals.

RTS (Request To Send) - A handshaking signal used to provide information when a DTE or terminal has data to send in an RS-232 Communication link. Used in conjunction with CTS.

RXD (Receive Data) - An essential signal that carries data from the DCE to the DTE for 2-way RS-232 serial communication. Also known as RX and RD.

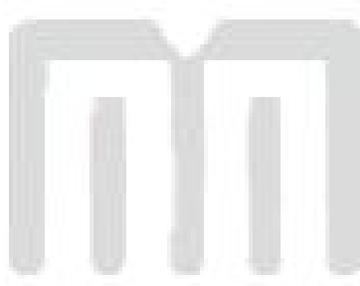
SRAM (Synchronous Random Access Memory) - Memory used to store formats while printing. This is volatile memory; information stored in this memory is not saved when the printer power is turned off.

Tag stock - Media that typically has no adhesive backing, thicker in nature, and generally is a fanfold type media.

Thermal print head - A print head that uses thermal technology, to heat individual elements or dots to produce images. Also referred to as print head in this manual.

TXD (Transmit Data) - An essential signal that carries data from the DTE to the DCE for 2-way RS-232 serial communication. Also known as TX and TD.

USB (Universal Serial Bus) - A high-speed asynchronous serial interface, typically transfers up to 12M bits/second, used for connecting host computers to various peripherals.



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