

MODEL 226 / 426
DIRECT THERMAL PRINTER
USER'S GUIDE

PART NUMBER 880018-0110

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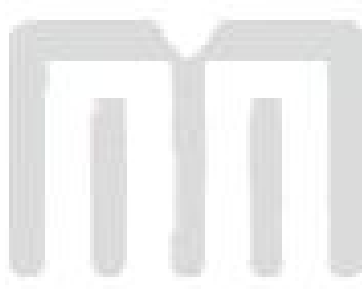
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Figure 1 426 Front Angled View



Figure 2 426 Rear Angled View

Introduction

The Models 226 and 426 are high performance, Direct Thermal tag/label printers that are economically priced to fit everyone's budget. The extensive list of standard features combined with an easy to operate and maintain design provides continuous and reliable printing at true high volume throughput. The Model 226 printer is a smaller version of the Model 426 with the only differences being the AC power plug orientation, the print head size and the lack of the Auxiliary Port.

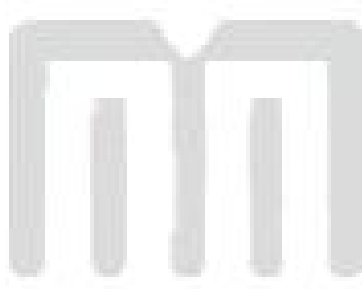
This manual provides the information needed to operate and maintain the printers on a daily basis. The resident Label Design Software II (LDSII) is a powerful and easy-to-use control language that allows the creation of custom label formats. The software is ASCII text based and can be interfaced to PC's, 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-xxxx) for additional information regarding LDSII programming instructions where the -xxxx represents the latest version.

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 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 printers are also capable of detecting many registration marks that enable it to print using media that contains die-cut, blow-hole, black-line sense marks and continuous media. The printers also provides 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 226/426 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.

Contact Microcom Corporation about the availability of Windows® drivers and WYSIWYG (**W**hat **Y**ou **S**ee **I**s **W**hat **Y**ou **G**et) software packages which allow quick and easy on-screen label designing.



Chapter 1: Printer Specifications

1.1 General Specifications

Width	226 - 6.6" (167mm); 426 - 8.5" (216mm)
Height	226 - 6.9" (175mm); 426 - 6.9" (175mm)
Depth	226 - 4.8" (122mm); 426 - 4.8" (122mm)
Weight	226 - 6 lbs (2.7kg); 426 - 7.8 lbs. (3.5kg)
Electrical	Auto-sensing 120/230 VAC ; 50-60 Hz
	4 Amps maximum
Temperature	40° F – 77° F (5° C – 25° C) Operating
Humidity	10% – 85%, non-condensing
SRAM Memory	16MB
Flash Memory	4MB
Agency Approvals	CUL, CE, and complies with FCC Class A.
Interface Communications	
<i>RS-232 Serial</i>	<i>Network Connectivity</i>
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	

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) – option on 426 only.
Maximum Print Speed	6"/sec. (152mm/sec.) 4"/sec. (102mm/sec.) with optional 300 DPI
Maximum Print Width	226 - 2.205 inches or 448 dots (56 mm) 426 - 4.1 inches or 832 dots (104mm) 426 - 4.26 inches or 1280 dots (108mm) with 300 DPI
Print Length	50" (1270mm) using standard memory 25" (635mm) with optional 300 DPI print head

Table 2 Printing Specifications

1.3 Media Specifications

Media Types	Continuous, die-cut, preprinted and tag stock either rolled or fanfold.
Maximum Media Thickness	.010" (.25mm) * <i>see note below.</i>
Maximum Media Width	4.5" (114.3mm) ** <i>see note below.</i>

Table 3 Media Specifications

The 426P printer is optimally configured with a fixed tag bracket to assist in the installation of direct thermal rolled or fanfold tag stock. The printer may use many other types of media with varying widths using the standard paper line guides.

*NOTE: The printer 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 media types.

**NOTE: The printer's media path has a maximum width of 4.5" while the actual printable width will vary depending on the print head installed.

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 case that protects your investment, even in harsh environments.
- Head lift lever for easy media loading.
- Rotating head mechanism for easy print head cleaning.

- Adjustable media guides for easy label centering or fixed tag bracket.
- Software controlled contrast adjustment.
- Downloadable monochrome BMP image support.
- Internal statistical counters for inches and labels printed.
- Remote printer interrogation.
- Ethernet 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.
- Auto-sensing 100-240 VAC 50-60 Hz Internal power supplies.

2.5 Options

- Full or partial cutter available in 3" (76.2 mm) or 4" (101.6 mm) versions.
- 4" (101.6 mm) Rotary cutter available for the 426.
- Model 160P vertical media stacker for the 426.
- Catch Tray for the 426.
- Configurable sensor (Input 1) that may be customized for different applications.
- External media supply holder (8" (203mm) o.d. maximum).
- 300 DPI (11.8 dots/mm) resolution print head for the 426.
- Pinch Roller for Peel-n-Dispense operation.
- Cleaning kit.

Chapter 3: Getting Started

3.1 Unpacking and Inspection

The printer has been packaged 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 parts are present and in good condition (see Figure 3).

The 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 in the event the printer needs to be shipped at a later date and the original packaging materials were not saved.



Figure 3 Standard Printer Accessories

3.2 Connecting the Printer

Refer to Figure 4 below for proper connections.

3.2.1 Printer Power

The printers use a universal auto-sensing internal power supply that operates in the 100-240 VAC; 50-60 Hertz range. The three-prong female end of the power cord plugs into the mating connector located on the back of the printer. The Model 226 printer's AC power connection is the same internally but rotated 90° counter clockwise externally.

Note: Verify that the printer's ON/OFF switch is switched to OFF before plugging the power cord into an electrical outlet.

3.2.2 Communication Interfaces

The printers may be interfaced to PC's, mini-computers, main frames, and special purpose machines. This printer offers standard serial RS-232 and 10BASE-T Ethernet.

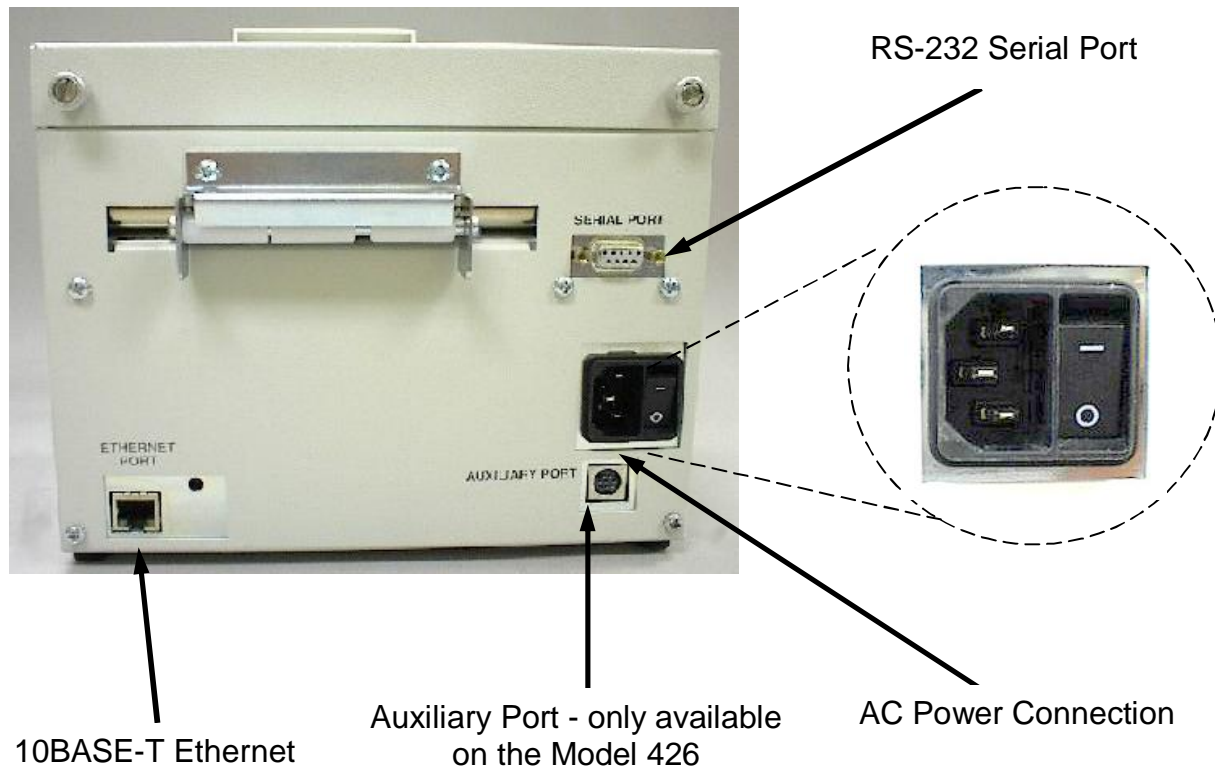


Figure 4 Connecting the Printer

3.3 Loading Media

The 426P printer has been designed to make loading fanfold or continuous media a simple process. With the fixed Tag bracket installed, no adjustments are needed when installing media, thus reducing down time. Follow the instructions below to properly load the media.

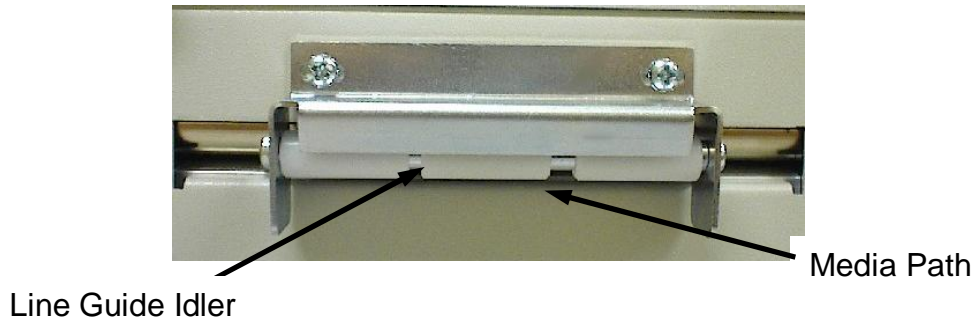


Figure 5 Tag Bracket

Note: The Tag bracket has a fixed opening of 3.37" (85.73mm).

1. Feed the media below the Line Guide Idler (see Figure 5.), located on the back of the printer, until you feel resistance.
2. Push down on the Head Lift Lever and continue feeding the media until it passes through to the front of the printer (see Figure 6.).

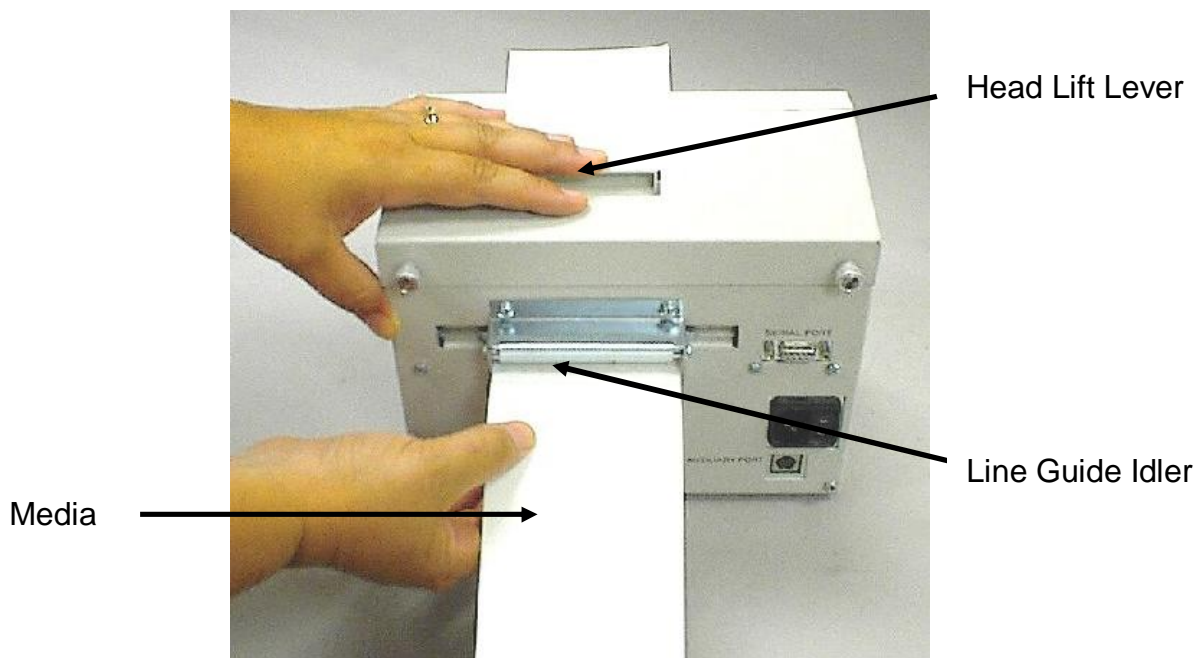
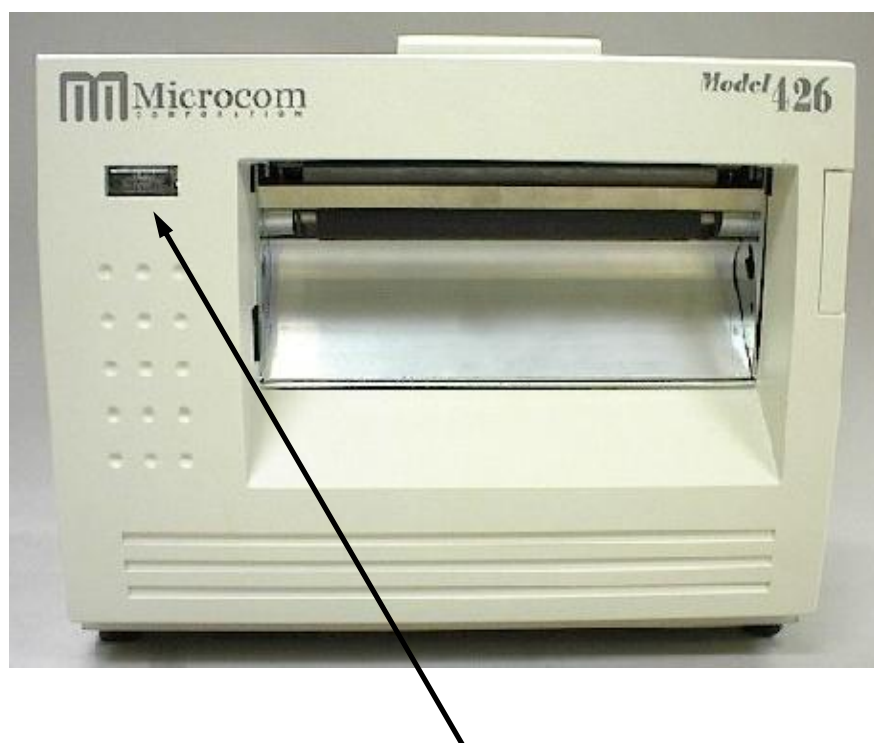


Figure 6 Loading Media

3.4 Front Panel Button and Indicator Light

The front panel button and the indicator light (see Figure 7) are used to identify and perform many functions. This section provides a brief description of the standard configuration to familiarize you with the basic function of the button and light. Refer to *Chapter 4: Printer Modes* for more detailed information. The front panel button is configurable by using the “^D541)” command, so this section only discusses the standard configuration. Refer to the *LDSII Programming Guide* for additional information regarding the button use.



Front Panel Button and indicator

Figure 7 Front Panel Button and Indicator Light

3.4.1 Front Panel Button

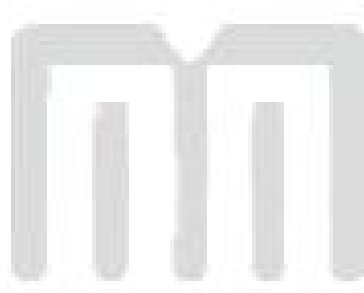
Operation	Description
Printing a label.	A button press while the printer is idle or paused will reprint the last label or after a cold start, a power up label will print. <i>Note: If a power up label has not been enabled or if one does not exist, the printer will print a blank label.</i>
Printer Pause.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

Table 4 Front Panel Button Description

3.4.2 Indicator Light

Light Color	Description
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 code revision to Flash memory.

Table 5 Indicator Light Description



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 front panel button has a couple of different functions while in the *Idle Mode*. Pressing the button will reprint the last label or the power-up label if the printer was recently turned on and no formats were sent to the printer. 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 immediate attention. 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 front panel button after the condition causing the error is removed. If it is not possible for the printer to execute the previous information, the printer will enter 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 different error conditions. This is possible by sending either the “Ctrl+E” combination, issuing the “^D327)” command, or by enabling any of the auto-reporting commands; Refer to the ^D72x series commands. Fatal error responses are triggered from the printer to the host when they occur and halt the printers operation until resolved. Status responses do not halt the printers operation but are simply a status of the printer’s current state.

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.
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.
0x15	>OPERATION FAILED<	The operation failed to execute properly.
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.

Byte Mode Responses (ASCII Hex)	Text and Verbose Mode Responses	Definition
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.
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 without 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.

Byte Mode Responses (ASCII Hex)	Text and Verbose Mode Responses	Definition
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.
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.
0xF1	>COMPOSITION ERROR<	A script cannot be printed onto a label due to incorrect size.
0xF2	>GRAPHIC TOO LARGE<	The sent graphic exceeds the available memory.
0xFF	>POWERED DOWN<	The printer's power has been removed.

Table 6 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 fed 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 if 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 has typically 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 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 will disable 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 >OPERATION FAILED< (15)

The “>OPERATION FAILED<” response is generated when the current operation could not be completed while in text or verbose response modes. If the printer is configured for byte responses, the code ASCII 0x15 will be issued from the printer in response to an enquiry command.

4.2.2.10 >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.

4.2.2.11 >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.

4.2.2.12 >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.

4.2.2.13 >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.

4.2.2.14 >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.

4.2.2.15 >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.

4.2.2.16 >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.

4.2.2.17 >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 not currently 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 that is in the LDSII command structure that does not exist or has not yet been 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 field's 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 >COMPOSITION ERROR< (F1)

This enquiry response is typically issued when the printer detects that the installed media is not the proper size for the given script file. If the printer is configured for byte responses, the code ASCII 0xF1 will be issued from the printer in response to an enquiry command.

4.2.3.37 >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.

4.2.3.38 >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 has 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 front panel 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 printer's *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 powered up and enters the diagnostic mode. The status label prints out the reports that are generated by the ^D323), ^D326), ^D325), and ^D324) commands.

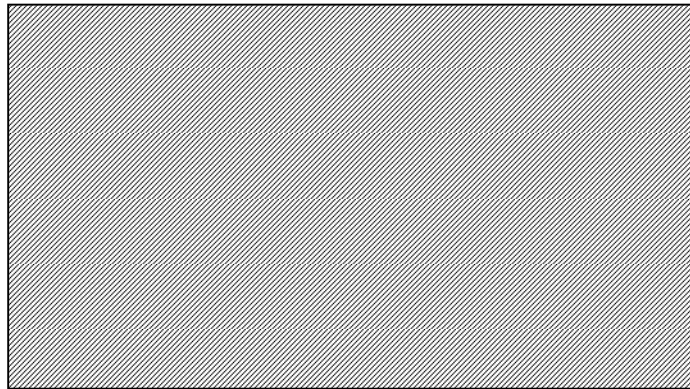


Figure 8 ^D960)1 or ^K Test Pattern

Enables (D323 or <Ctrl> Y)		
User Interface		
Software flow control:	(D770)	enabled
Hardware flow control:	(D771)	disabled
Format		
Operational		
Auto power-up label:	(D720)	disabled
Auto top-of-form alignment:	(D722)	disabled
Auto media sizing:	(D723)	disabled
Auto alignment after error:	(D724)	disabled
Cutter:	(D740)	disabled
PMH:	(D741)	disabled

Figure 9 ^D323-List Enables 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
Serial port settings	(D670)	9600,N,8,1
Ethernet		
MAC:		Active at 10/100
Printer IP:	(D675)	0x000257795634
Server/Host IP:	(D675)	192.168.200.3
Gateway IP:	(D675)	192.168.200.1
Broadcast Mask:	(D675)	192.168.200.1
Net Mask:	(D675)	192.168.200.255
USB port settings		255.255.255.0
Thresholds		
Gap:		Not installed
Black line:		29
Stock:		98
High head temperature:		110
Low head temperature:		147
PWM periods		
Gap:		24
Black line:		64
Label Present:		41
Stacker:		64
NOTE: Some items may not be correct until after a scripted label is printed or Auto-size (D310) is run.		

Figure 10 ^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
Response Mode:	(D550)	verbose
Automatic responses:	(D580)	Errors
Power-up label:	(D586)	1
Detector mode:	(D636)	0 (none)
General		
Measurement units:	(D564)	1 (inches)
Speed units:	(D565)	1 (ips)
Temperature units:	(565)	1 (Fahrenheit)

Figure 11 ^D325-List Selections Example

```
Statistics (D324 or <Ctrl> W)
Identity
  Model number:      (D501) Microcom 426
  Language:         (Auto) LDS2
  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:            (D910) 4.094 inches
  Resolution:       (D910) 203.2 dpi
  Temperature:     80 Fahrenheit
Cutter
  Detected at power-up: false
  Type installed:   (D506) NONE
  Operation enabled: (D740) false
  Total cycle count: 0
PMH
  Type installed:   (D507) NONE
  Operation enabled: (D741) false
Flash
  Installed:        4 MB
  Available in file area: 964 KB
RAM:
  Installed:        16.0 MB
  Available:        5.39 MB
Code:
  Revision:         1.02.030521b
  Part number:     950000-0102
  Size:            1851552
  Checksum:        0x88c1777
  CRC32:           0x70c6cc74
Bootloader revision: 1.04.030519b
Analog PIC revision: 4.5
```

Figure 12 ^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 Table 7 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 7 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 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 10BASE-T Ethernet

Refer to Figure 13.

The printers provide an auto-sensing, auto switching 10BASE-T Fast Ethernet port with full duplex operation capability.

- (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.

5.3 160P Stacker / Auxiliary Interface

The 426 printer provides an 8 pin Mini-din connector on the rear panel for auxiliary interfaces. This port can be used to power and operate the 160P stacker as well as other auxiliary functions. For more information about the 160P, please consult the *160P Stacker User Guide* part number 880021-0100.

NOTE: The Auxiliary Interface or Port is not available on the Model 226 printer.

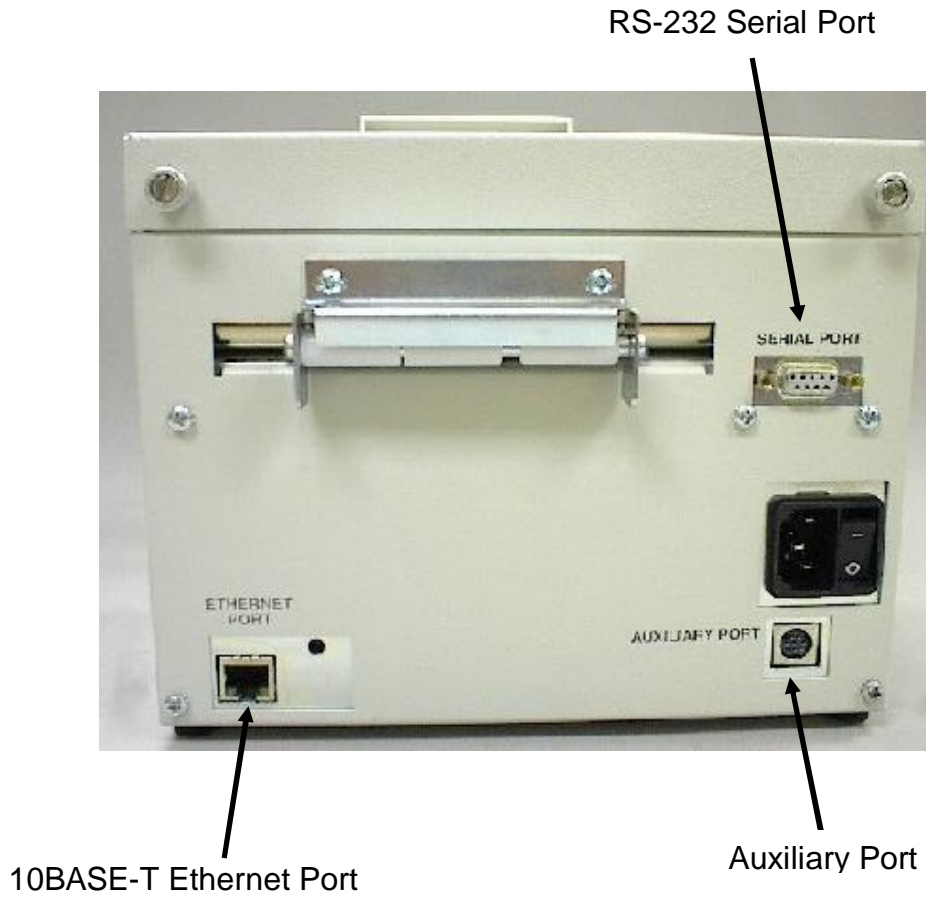


Figure 12 426 Interface Connections

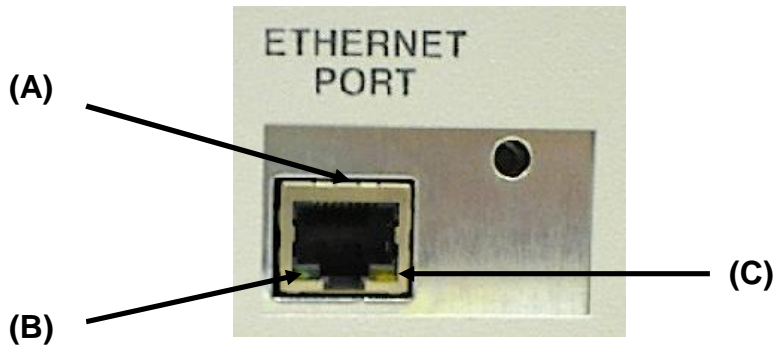
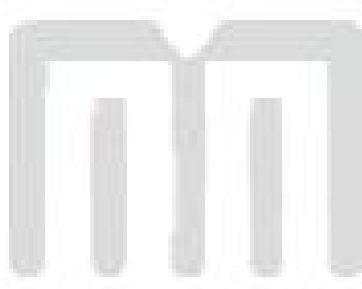


Figure 13 Ethernet Port - 10BASE-T



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 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 8 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 of one end of the cleaning card with isopropyl alcohol.
3. While pushing down on the *Head Lift Lever*, insert the card into the front of the printer between the print head and the peel edge (See Figure 14).
4. Continue inserting the card until you feel resistance, now release the *Head Lift Lever*.
5. Using both hands, slowly pull the card out of the printer at a 45° down angle (See Figure 15).
6. Repeat as necessary
7. Reinstall media.

Thermal cleaning cards should not be used more than three times each and 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.*

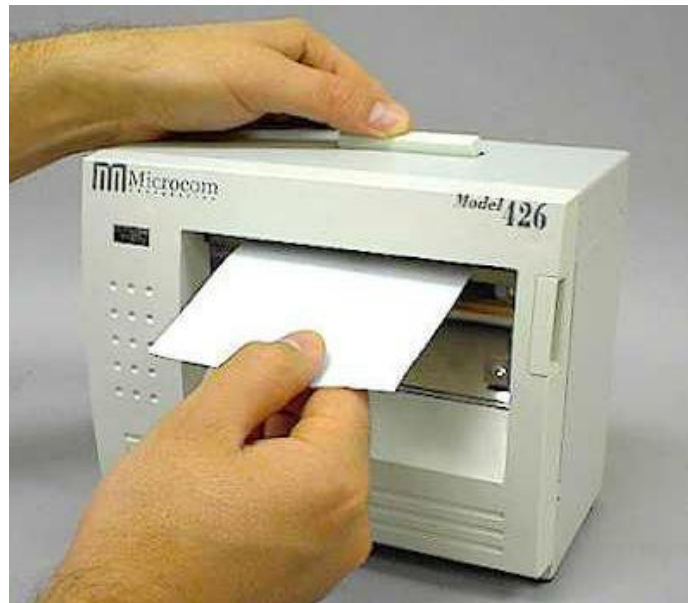


Figure 14 Insertion of Thermal Cleaning Card

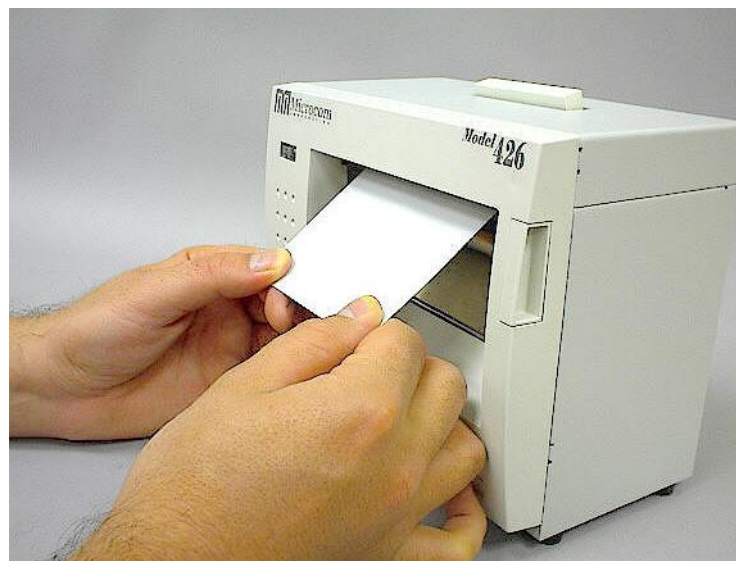


Figure 15 Thermal Card Removal



Figure 16 Removal of top cover



CAUTION: *Unplug the power cord before removing the printer covers to avoid possible personal injury or damage to the printer.*

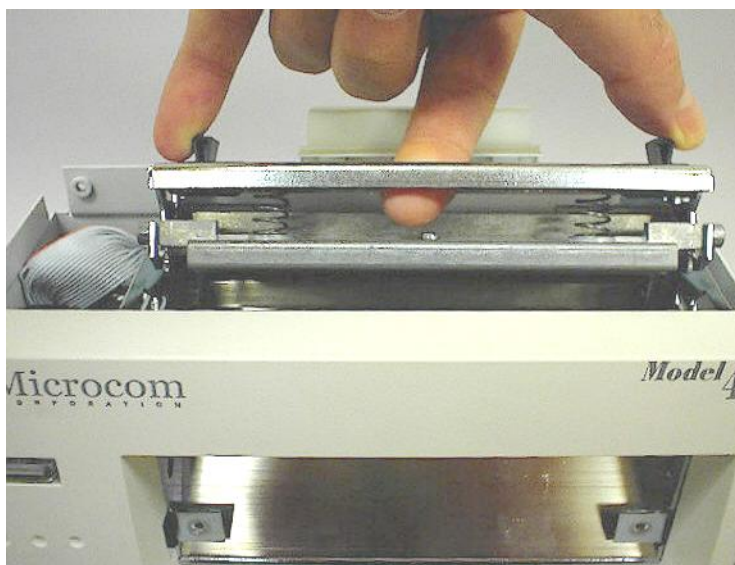


Figure 17 Unlatching of Print head

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 18 for common areas needing cleaned.

1. Remove any installed media.
2. Turn the printer power OFF.
3. Unplug and remove the power cord.
4. Loosen captive screw (A on Figure 16) and remove the top cover from the printer.
5. Using the two *Head Release Levers* (See Figure 17), unlatch and raise the print head.
6. 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.
7. When finished, latch the print head completely and reinstall the top cover and media.
8. Reattach the power cord and turn the printer power ON.

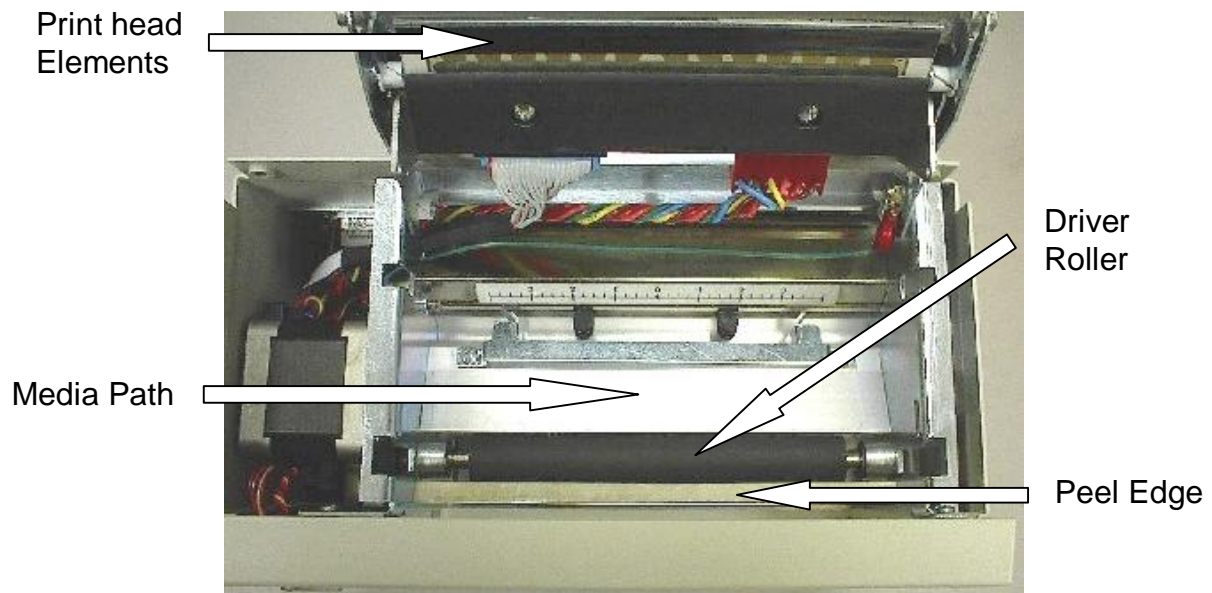


Figure 18 Internal Cleaning

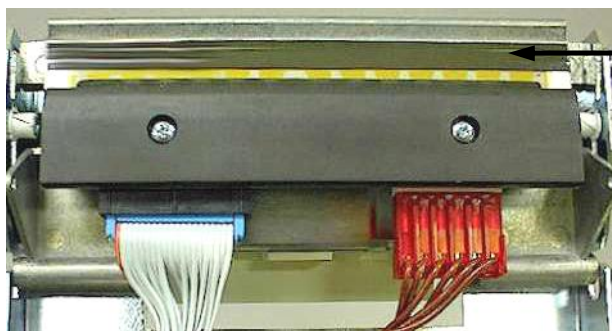


CAUTION: *Unplug the power cord before removing the printer covers to avoid possible personal injury or damage to the printer.*

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 19 and follow the steps below for the proper cleaning procedure.

1. Remove any installed media.
2. Turn the power to the printer OFF.
3. Unplug and remove the power cord.
4. Loosen captive screw (A on Figure 16) and remove the top cover from the printer.
5. Using the two *Head Release Levers* (Figure 17), unlatch and raise the print head.
6. 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.
7. The Drive Roller, Peel Edge, and other basic internal cleaning may also be performed at this time. See the appropriate sections for more information.
8. Latch the print head completely and reinstall the top cover and media.
9. Reattach the power cord and turn the printer power ON.



Thermal elements are located in the black area running the entire width of the print head.

Figure 19 Print head Thermal Elements



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 to extend the life of the roller but also helps to reduce 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. Unplug and remove the power cord.
4. Loosen captive screw (A on Figure 16) and remove the top cover from the printer.
5. Using the two *Head Release Levers* (Figure 17), unlatch and raise the print head.
6. 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.
7. Print head, Peel Edge, and Internal cleaning may also be performed at this time, see the appropriate sections for more information.
8. Latch the print head completely and reinstall the top cover and media.
9. Reattach the power cord and 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 the printer's 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 20. The gap detector assembly is centered in the media path at the factory and should work for almost every type of media. For applications (*for example* - media that has a Blowhole gap, which is offset) the gap detector can be adjusted as needed. To adjust the gap detector, simply move the assembly to the desired location. Care should be taken to assure that the top and bottom sensors are aligned with each other. If the sensors are not aligned properly, the gap detector may not work properly.

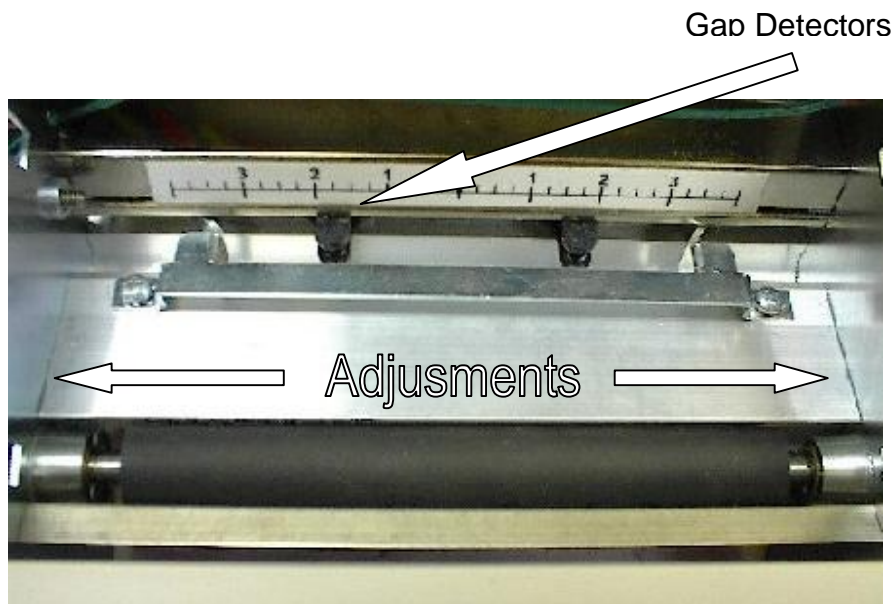


Figure 20 Gap Detector

6.8 Auxiliary Button

The auxiliary button is used for factory adjustments and updating the flash memory.

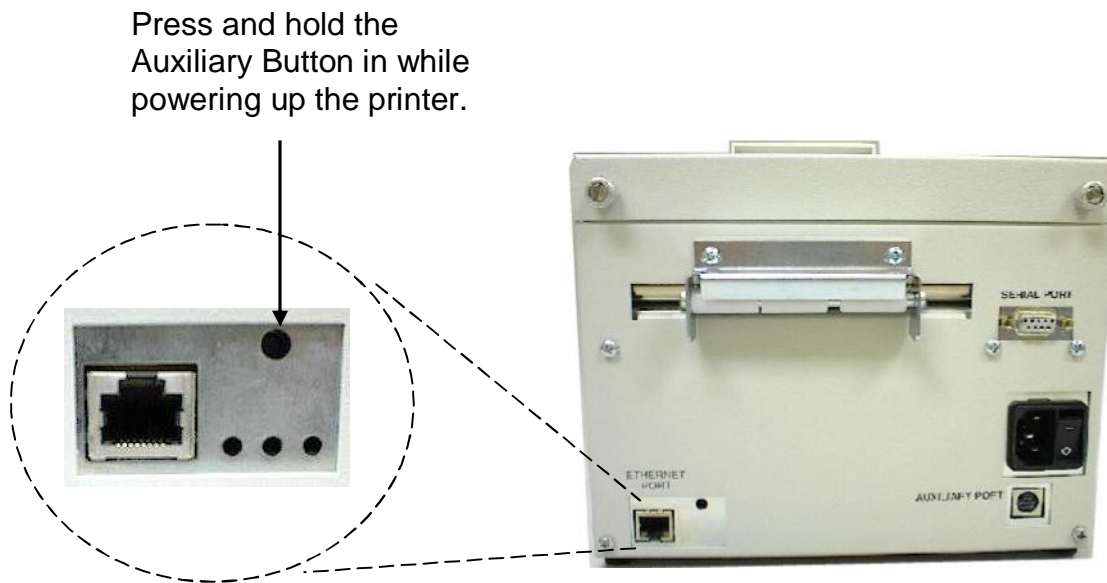


Figure 21 Auxiliary Button

6.9 Flash Memory 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 3.2 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 file.

4. Issue the “^D945)?” command and retain the resulting listing for comparison after flash update.
5. The printer’s power should be cycled or a “^D390)” reset command issued to assure that the printer has completed any necessary memory management tasks before updating the code.
6. Send the MCA file to the printer in compressed form (ZIP).
7. 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.
8. 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.
9. 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)

10. 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.
11. 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.
12. 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.
13. 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.

3.2 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 update the software 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 21) 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
```

Note: *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 firmware may be upgraded using the procedure outlined in section 3.1.

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 located on the front panel 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 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.
- ✓ Contact your Service Representative.

Vertical blank or light lines appear on printed areas:

- ✓ Clean the print head.
- ✓ Print head may need replaced.
- ✓ Contact your Service Representative.

The front panel indicator light is solid amber in color:

- ✓ Indicates that the printer is paused or a tag/tear mode is being used.
- ✓ Press the front panel 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 front panel 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 the front panel button 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 front panel indicator light is solid red in color:

- ✓ Generally due to a power fail error.
- ✓ Verify that the AC line-voltage is present at the AC outlet.
- ✓ The printer may be in Administration Mode, refer to the LDSII Programming Guide for additional information.
- ✓ Cycle power.

During download the indicator light flashes red in color:

- ✓ The script file or format contains an illegal operation / command.
- ✓ Refer to the LDSII Programming Guide and check script file.
- ✓ Verify that the printer is properly configured for the type of download being sent.

The printer has a cutter but it does not cycle:

- ✓ Refer to the LDSII Programming Guide.
- ✓ Verify that the cutter has been selected (^D506) and is enabled (^D740).
- ✓ Verify that the printer is properly configured to use a dispense method (^D597).

Appendix A

Limited Warranty

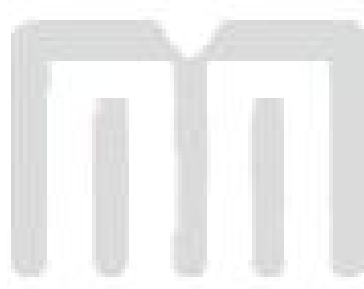
Microcom Corporation printers, excluding thermal print heads, which are warranted separately below, are warranted against defects in material and workmanship for twelve (12) months from the date of original shipment by Microcom Corporation. This warranty does not cover normal wear and tear and shall 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.

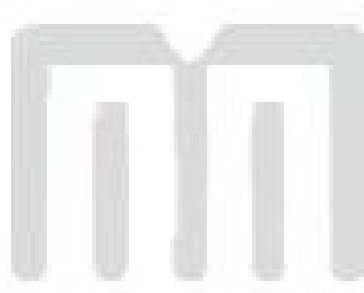
Shipping Charges:

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 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 serial 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.

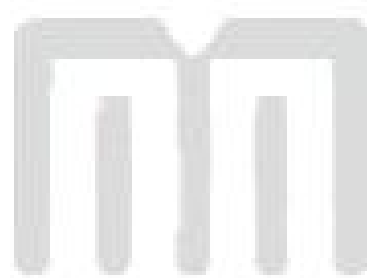
SRAM (Synchronous Random Access Memory) - Memory used to store formats while printing. This is volatile memory; information stored in this memory is not saved when the printer power is turned off.

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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