



Prodigy Plus™
Operator's Manual

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UL: UL1950 Information Technology Equipment, file number E156091.
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TUV-GS: EN60950/03.88, certificate number S9371819.
VDE: Class B Vfg. 1046/1984.

1. Nur für Gebrauch innerhalb eines Gebäudes geeignet.
2. Bei Gefahr, Kabel aus der Steckdose herausziehen
3. Falls kein Kabel mitgeliefert wurde, bitte Folgendes bei der Anschaffung eines Kabels beachten:

Für 230 Volt (Europa): Benützen Sie ein Kabel, das mit "HAR" markiert ist, bestehend mindestens aus einem H05VV-F Kabel, das mindestens 0,75 Quadratmillimeter Drahtdurchmesser hat; sowie eine IEC320 Steckdose und einen für das Land geeigneten Stecker, 6A, 250 Volt.

1. This unit is intended for indoor use only.
2. Disconnect power supply cord in case of emergency.
3. When power supply cord is not provided; for proper power supply cord selection please see below:

For 230 Volt Operation (Europe): Use a cord set, marked "HAR," consisting of a min H05VV-F cord which has a minimum 0.75 square mm diameter conductors, provided with an IEC 320 receptacle and a male plug for the country of installation rated 6A, 250V.

FCC: This device complies with Part 15 of FCC rules.

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

Important Safety Instructions

Your Barcode Printer has been designed to give you many years of safe, reliable service. As with all electrical equipment, there are a few basic precautions you should take to avoid getting hurt or damaging the Printer.

- Carefully read the installation and operating instructions provided with your Printer.
- Read and follow all warning instruction labels on the Printer itself.
- Place the Printer on a flat, firm, solid surface.
- To protect your Printer from overheating, make sure all openings on the Printer are not blocked.
- Do not place the Printer on or near a heat source, (i.e., a radiator or heat register).
- Do not use your Printer near water, or spill liquid of any kind into it.
- Be certain that your power source matches the rating listed on the back of the Printer. If you are unsure, check with your dealer or with your local power company.
- Do not place the power cord where it will be walked on. If the power cord becomes damaged or frayed replace it immediately.
- Do not insert anything into the ventilation slots or openings on the Printer.
- Only qualified, trained service technicians should attempt to repair your Printer.

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◆ Getting Started

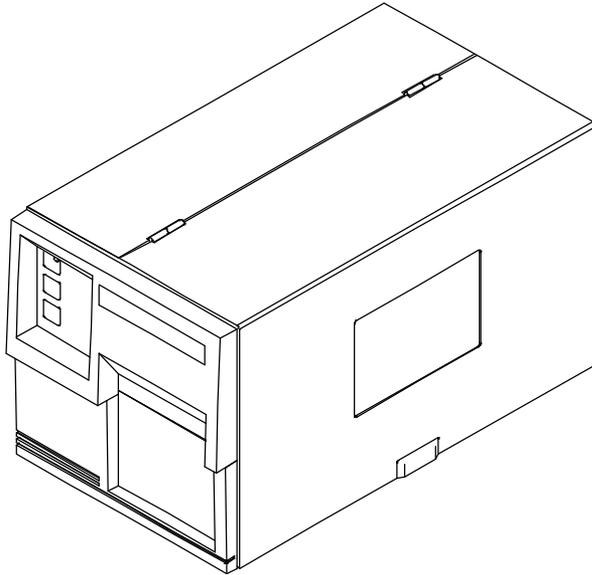


Figure 1-1 Printer Overview

1.0 Introduction

The Prodigy Plus, hereafter referred to as the “Printer”, incorporates high-performance/low cost thermal label printing capabilities. The combination of powerful capabilities, easy-to-use features, a contemporary look and affordable pricing set a new standard for thermal label printing in retail, office and industrial applications.

1.1 Unpacking and Inspection

Inspect the shipping container(s), if damage is evident, contact the carrier to specify the nature and extent of the damage.

The Printer is packed in Corrupad™ recycled packaging and is enclosed in a plastic bag to reduce the chance of moisture damage during shipment. Remove the Printer from the plastic bag before use.

Along with this manual, the shipping container(s) should include the following items:

- Label Printer
- Printer's front door panel (packaged separately)
- Special or additional items purchased.

1.2 Supplies Necessary to Print Labels

In order for the Printer to generate labels you will need the necessary software and media. There are many different types of media and software packages available, therefore it is a good idea to contact your local reseller on which software and media is best suited for your needs.

1.3 Location of Parts on your Printer

The following illustrations show the major components of your Printer. Figure 1-2 is the front panel with the cover open, Figure 1-3 is the mechanism detail and Figure 1-4 is the rear view.

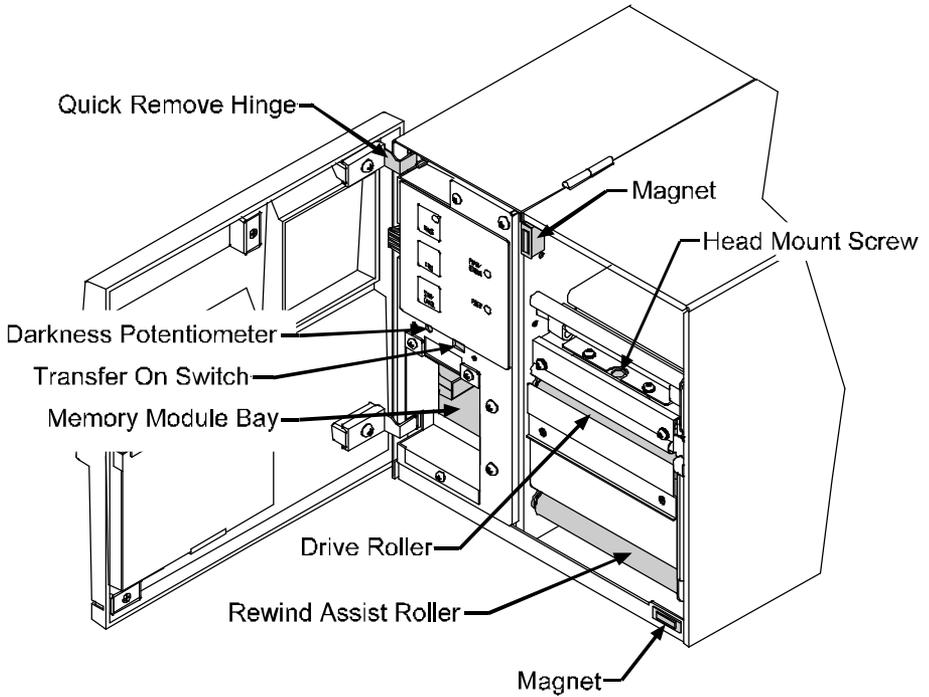


Figure 1-2 Front Panel (Front Cover Open)

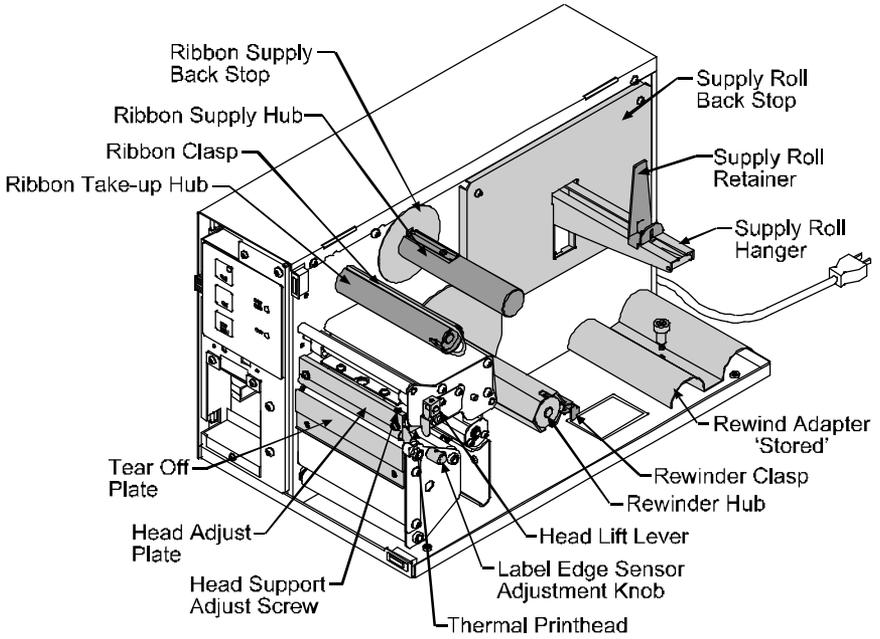


Figure 1-3 Mechanism Detail

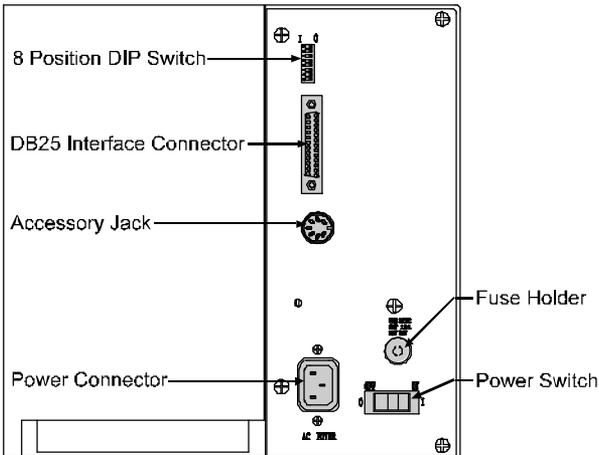


Figure 1-4 Rear View

1.4 Installing the Front Door

Prior to operating the Printer the front door must be installed. Complete the following steps when installing the front door.

1. Remove the door and Printer from its packaging.
2. With the hinges lined up to the proper location on the Printer, gently slide the door into the Printer's hinge slots.

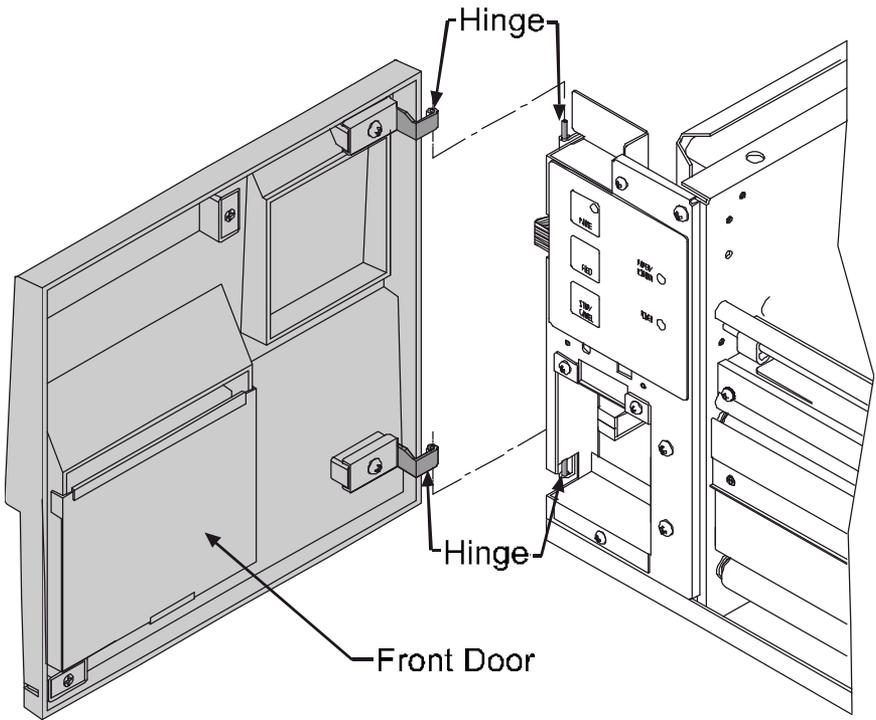


Figure 1-5 Installing the Door

1.5 Using the Printer's Control Panel

The Printer has three operator-accessible buttons, three indicator lights (LEDs), one switch, and one POT, (see Figure 1-6). A brief description of the buttons, light, switches and POT are listed in this section.

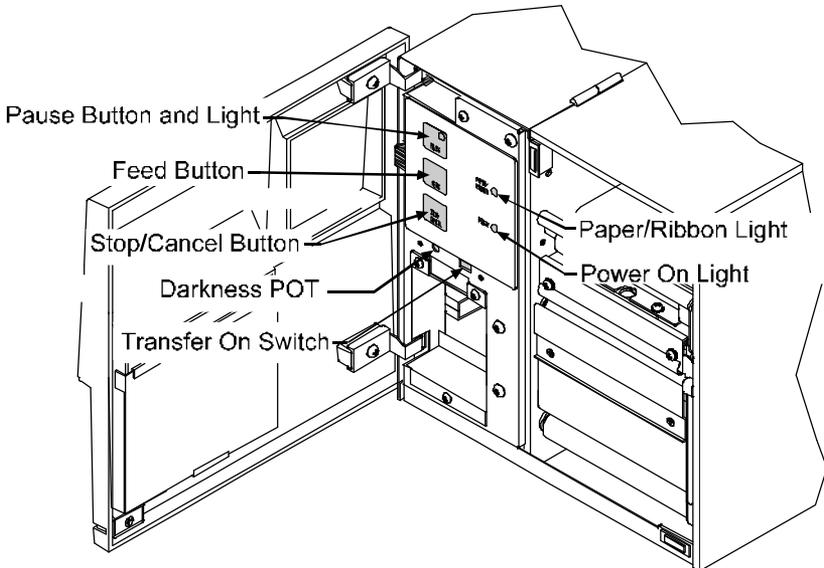


Figure 1-6 Switches and Indicators

Power Light: This light is turned on after the Power Switch on the rear of the Printer is activated.

Pause Light: This light will turn on if any of the following occurs: the Pause Button is pressed; a print job is canceled with the Stop/Cancel Button, or; a fault occurs with the Cutter.

Pause Button: This button allows the operator to stop the printing of a run of labels and then complete the job by pressing the switch again. Activation of the switch will: stop the print mechanism when the label printing is complete; turn on the Pause Light; stop the label counter, but maintain the count balance, and; hold all data in memory. Pressing the switch a second time will: restart the Printer; print the balance of labels on the counter unless interrupted, and; turn 'off' the Pause Indicator.

Stop/Cancel Button: This Button allows the operator to stop and cancel a run of labels in the process of being produced and continue on to the next run in the Printer's buffer.

Feed Button: Pressing the Feed Button causes the paper to automatically advance to the first print position of the next label. On a new size label, multiple labels may be fed before registration occurs.

Paper/Ribbon Light: The Paper/Ribbon light is activated when a label and/or ribbon is not detected

Transfer on Switch: This switch should be in the 'off' position for Direct-Thermal Printing and in the 'on' position for Thermal-Transfer Printing. When on, it has two functions: the ribbon sensor is enabled, and; the Printhead temperature is reduced, since most Thermal-Transfer Printing does not require as much heat as Direct-Thermal Printing.

Darkness Control POT: This potentiometer (POT) is used to fine adjust darkness to variations in the media.

1.6 Using Print Media

Installation for Media Loading

1. Slide the Media Retainer to outer end of Media Supply Mount.
2. Place the new media supply roll on the Media Supply Mount and slide the Media Retainer firmly back against it.

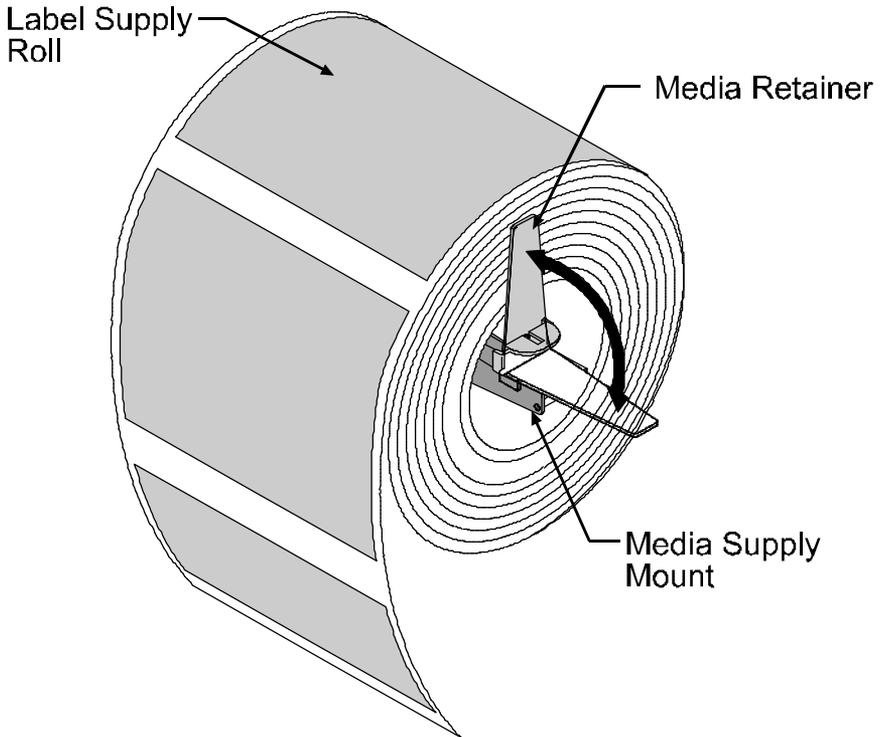


Figure 1-7 Media Supply Mount

3. Disengage the Printhead by rotating head-lift lever clockwise to the 'up' position.
4. Rotate the media Guide down.
5. Insert the label stock as shown in Figure 1-8.
6. Rotate the media guide up and slide to the edge of the media.

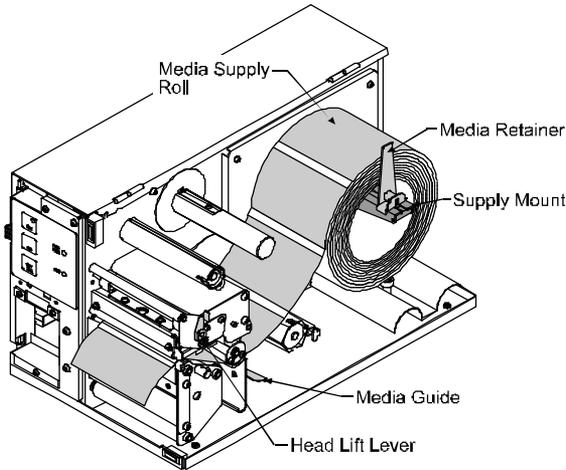


Figure 1-8 Media Routing

7. Engage Printhead by rotating the head lift lever counterclockwise to the "down" position

If the media is not sensing, try adjusting the sensor position by turning the adjusting knob for the movable sensor. The gauge behind and below the Printhead can be viewed for making the adjustment. If a label is not detected within 12" of feeding, the Printer will stop and the Paper Out Indicator will remain lit. In this case, check the threading of the media around the bottom of the upper and lower media guides.

If the paper feeds forward only about 1" each time you press the 'Feed' button and does not seem to be stopping on a label's edge, the Thermal/Thermal Transfer switch has probably been turned on without thermal-transfer ribbon being installed. Slide the switch back to the left side for direct-thermal printing.

1.7 Media Rewind Instructions

1. Remove the window cover from the front door.
2. Fasten the rewind adapter to the front of the Printer as shown in Figure 1-9.

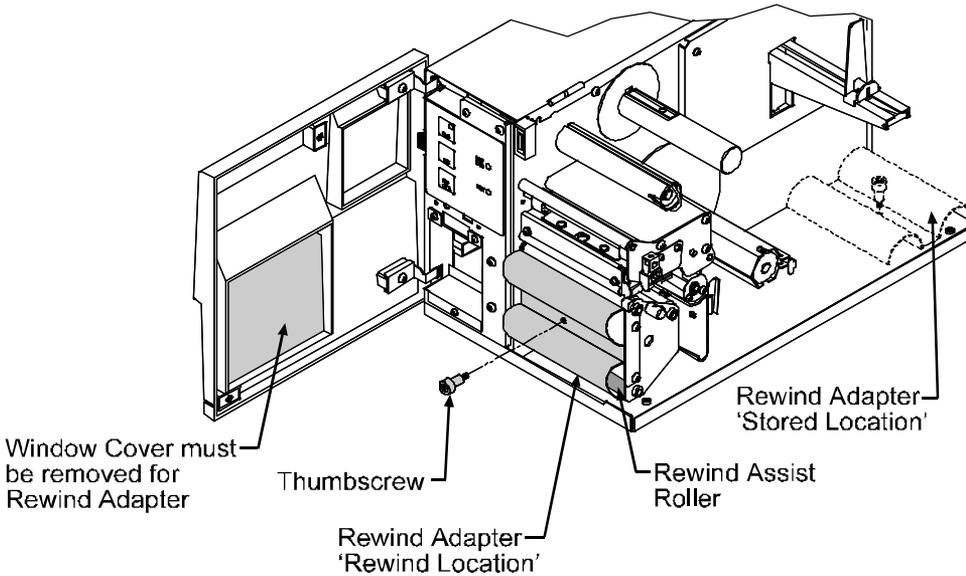


Figure 1-9 Attaching the Rewind Adapter

3. Route the media so that it slides over the rewind adapter as shown in Figure 1-10.
4. Partially wrap media around the Media Rewinder and install the clasp over the media.

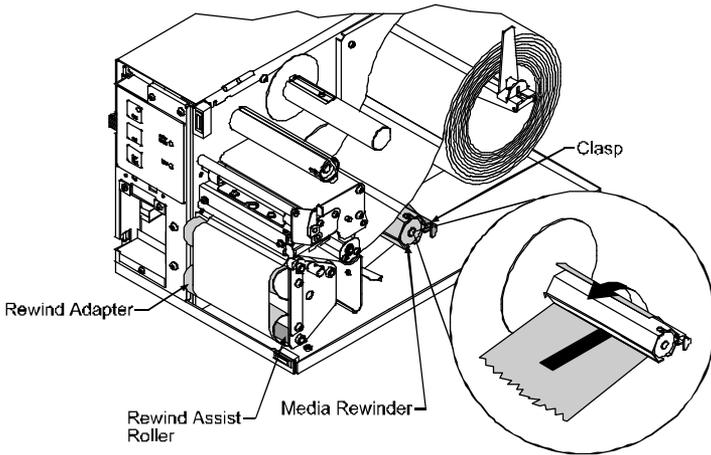


Figure 1-10 Routing the Media for Rewinding

1.7.1 Peel-off Mode

1. If the Peel-off Mode is desired, route the media backing down past the Rewind Assist Roller, (see Figure 1-10) to the media rewriter and reverse the serrated tear off plate.

Note: Do not install the rewind adapter when using the Peel-off Mode.



Caution

Using the Peel-off Mode without the Present Sensor installed and enabled can cause labels to become jammed in the Printer.

1.8 Ribbon Loading Instructions

Load ribbon as shown below in Figure 1-11. The ribbon can be wound directly onto the hub and held with a clasp, or a used ribbon core can be placed on the hub.

Ribbon Loading Instructions

1. Disengage the Printhead by rotating the Head-Lift Lever clockwise to the 'up' position.
2. Slide the Ribbon onto the Ribbon Supply Hub. Route the ribbon, (see Figure 1-11), and attach the ribbon to the Ribbon Take-up Hub.
3. Engage the Printhead by rotating the Head-Lift Lever counterclockwise to the 'down' position.

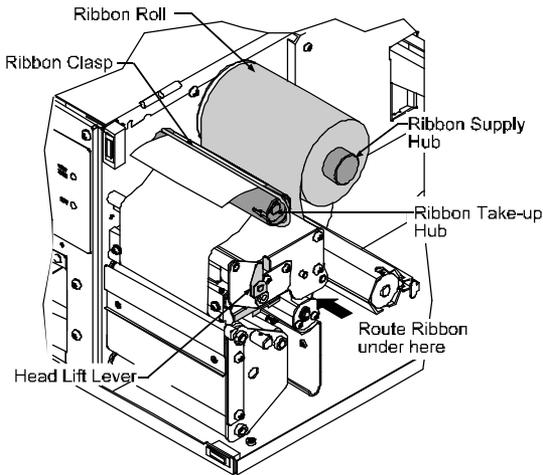


Figure 1-11 Ribbon Loading

4. Ensure that the Transfer Switch is in the 'on' position.

Note: If using a ribbon that is translucent, (i.e., color other than black), it may be necessary to turn on switch 1-7 located on the back of the Printer.



◆ **Printing Labels**

2.0 Introduction

Labels can be generated using RS-232 or parallel communications to a host computer or a PC with a compatible labeling software package. This chapter explains some of the basic programming commands that are required when writing programs to generate label formats. A programmer's manual can be obtained by mailing or faxing the request card located in the back of this manual.

2.1 Programming Commands

In order to be ready for a command sequence, the Printer must first receive a special character called an “attention getter” that informs the Printer that it is about to receive a command and the type of command it will be. Immediate Commands, System-Level Commands, and Font-Loading Commands each have their own attention getter. The attention getter character is followed by a command character that tells the Printer what action to take.

ASCII Char.	Decimal Value	HEX Value	DOS Prompt	Attention Getter For
SOH	1	01	Ctrl A	Immediate Commands
STX	2	02	Ctrl B	System-Level Commands
ESC	27	1B	Ctrl [	Font-Loading Commands

Table 2-1 Attention Getters

When the Printer receives an Immediate Command it will cease whatever it is doing and perform that command. Commands of all types must be in this sequence:

1. Attention Getter
2. Command Character
3. Parameters that must be entered by the user (if any).

Command Character	Must Enter Parameters	Printer Responds	Command
#	N	Y	Reset
A	N	Y	Send ASCII status string
B	N	N	Toggle pause
C	N	N	Cancel
D	N	N	SOH shutdown
E	N	Y	Send batch quantity
F	N	Y	Send status byte

Table 2-2 Immediate Commands

The System-Level Commands are used to create formats, load and store graphic information, and control the Printer. Table 2-3 provides a brief description and format of each System-Level Command Character.

Char	Description	Format
A	Set time and date	Format: <i>AwmmddyyyyhhMMjjj</i> 16 digits total. <i>w</i> = 1 digit day, 1 is Monday <i>mm</i> = 2 digits for month <i>dd</i> = 2 digits for day <i>yyyy</i> = 4 digits for year <i>hh</i> = 2 digits for hour (24 hr ft) <i>MM</i> = 2 digits for minutes <i>jjj</i> = 3 digits for Julian I.D. value
a	Enable feedback characters	Returns 30 after each label and 31 after each batch of labels
B	Get Printer time and date information	Print time and date to port
b	Set Cutter signal time	Sets Cutter's signal time Format: <i>bnnnn</i> Where: <i>n</i> =4 digits*24, low/delay time
c	Set continuous paper length	<i>cnnnn</i> = length of paper to feed per label
d	Set Printer to double buffer mode	Used to print a label while a second is formatting in memory
E	Set quantity for stored label	<i>Ennnn</i> = Set Quantity for stored label
e	Select edge sensor	Used for "see through" media sensing
F	Form feed	Feeds one label at a time
f	Set form stop position (Backfeed)	Set distance to peel (tear off) position <i>fnnn</i> = 3 digits from sensor
G	Print last label format	
H	Set Cutter signal/time	Format: <i>Hnnnn</i> Where: <i>n</i> =4 digits, usec*24 delay time
I	Input graphics data block "See Programmer's Manual for format"	A bank designation, an optional word length modifier, a format designation, and up to a 16-character string to identify the stored image data
J	Set pause for each label	
K	Start of print, (fine tune Printer matching)	<i>K[-]nn</i> Where: <i>nn</i> plus or minus (.50 inches in hundredths of an inch increments)
k	Test RS-232 Port Y=ok	Sends character "Y" to RS-232 port
L	Enter Label Formatting Mode	
M	Set maximum label length	<i>Mnnnn</i> = 4 digits (default)

Table 2-3 System-Level Commands

Char	Description	Format
m	Set metric flag, enter metric mode	All references set to metric until reset
O	Form edge offset (start of print position)	<i>O</i> <i>nnnn</i> = 4 digits, in/100 or mm/10
o	Cycle cutter	
P	Enter character dump mode	
p	Controlled pause	
Q	Clear all memory modules	
q	Clear module	<i>qx</i> = Module I.D. (Uppercase)
r	Select reflective sensor	Used for "black-strip" media sensing, (e.g. continuous tags, butt-cut labels. Stripe must be printed on back side of media)
S	Slew (feed) speed	<i>Sx</i> <i>x</i> = C-0, 2-8 ips
s	Set up for one print buffer	
T	Printhead dot pattern test label	
t	Test RAM memory module (Must be in Test Mode)	<i>a</i> <i>bbbK</i> 'Module Good' A=1(top slot) B=2 (bottom slot) <i>bbb</i> = 256 or 512, for size of module
U	Label format field replacement	
V	Software switch settings	<i>Vn</i> <i>n</i> = 4-Label Present, 2-color ribbon, 1-Cutter Enable
v	Firmware version information	Sends version string to Host
W	Request memory module information	<i>Wx</i> <i>x</i> = F-font, G-graphic, L-label
w	Test FLASH module memory	Takes about 90 seconds
X	Set default module bank	<i>Xa</i> <i>a</i> - A = Memory Module A
Y	Output sensor values	Dumps sensor values status to RS-232 port
Z	Print internal information and dot pattern	

Table 2-3 System-Level Commands (Continued)

A STX L Command switches the Printer from the System Level to the Label-Formatting Mode. All command characters after STX L are interpreted as Label Formatting Commands until the Label-Formatting Mode is terminated with the Command Character E, X or s. All Label -Formatting Commands are terminated with hex value 0D.

CC	Description	Format
:	Set cut by amount (4 digits) The cutter function will perform a cutting action after the number of labels specified	<i>:nnnn</i> <i>nnnn</i> = 4 digits of labels printed before cut. Default = 0001
C	Set column offset amount	<i>Cnnnn nnnn</i> = in/100 or mm/10
c	Set cut by amount (2 digits)	<i>cnn nn</i> = 2 cut amount
D	Set height and width dot size	h = Horiz. dot size; can be 1 or 2 v = Vert. dot size; can be 1,2, or 3 (0.005" steps) Default is "D22"
E	Terminate label format and print label	
G	Place data in global register	
H	Enter heat setting (The amount of heat applied per dot row, can be used to help control print quality)	<i>Hnn nn</i> = 2 digits. 1 - 20 10 is nominal and default
m	Set metric mode	The Printer must be reset in order to return to standard measure
P	Print speed	<i>Px x</i> = C -O (2 to 8 ips)
p	Set label backup speed	<i>px x x</i> = C -I (2 to 5 ips)
Q	Enter quantity of labels to print	<i>Qnnnn nnnn</i> = quantity
R	Set row offset amount	<i>Rnnnn nnnn</i> = in/100 or mm/10
r	Recall stored label format	<i>rnn...n nn...n</i> Label name of up to 16 char. terminated by CR
S	Slew (feed) speed	<i>Sx x</i> = C - 0 (2 - 8ips)
s	Store label format in module	<i>sann...n a</i> - destination module A= Memory Module A B =Memory Module B C= Default Module <i>nn...n</i> - label name (16 char. max)
T	Set field data line terminator	<i>Tnn nn</i> = 2 digit ASCII Hex 00 - FF
U	Make previous field a string replace field	

Table 2-4 Label-Formatting Commands

CC	Description	Format
X	Terminate label formatting mode	
z	Zero (0) conversion to "O" eliminates slash (/)	
+	Make last field entered increment numeric	<i>+pii</i> Make last entered field incrementing <i>p</i> = Zero fill character <i>ii</i> = Data added to field
-	Make last field entered decrement numeric	<i>-pii</i> Make last entered field decrementing <i>p</i> = Zero fill character <i>ii</i> = Data subtracted from field
>	Make last field entered increment alphanumeric	<i>>pii</i> Make last entered field incrementing Z - 0 <i>p</i> = Zero fill character <i>ii</i> = Data added to field
<	Make last field entered decrement alphanumeric	<i><pii</i> Make last entered field decrementing 0 - Z <i>p</i> = Zero fill character <i>ii</i> = Data subtracted from field
^	Set count by amount	<i>^nn</i> Set count by amount <i>nn</i> = 2 digits Skip # of labels before updating count fields and time fields

Table 2-4 Label-Formatting Commands (Continued)

There are two special commands used by the Printer, the STX S, (Recall Global Data), and the STX T (print date and time) Commands. Unlike the other Label-Formatting Commands, which follow the STX L Command, these special commands are entered directly into the data field.

Character	Description
<STX>S	Recall global data and place in field
<STX>T	Print time and date

Table 2-5 Special Label-Formatting Commands

The commands used for bit mapped font loading are usually generated by font-creation software. However, the Assign Font ID Number command must be sent to the Printer before the font file. Font-Loading Commands are listed in Table 2-6.

CC	P	PR	Description
*c###D	N	N	Assign Font ID Number ### = ID Number 100 to 999
)s#W	Y	N	Font Descriptor
*c#E	N	N	Character Code # = ASCII Value of Character
(s#W	Y	N	Character Download Data # = Bytes of Bit-mapped Data

Table 2-6 Font-Loading Commands

CC = Command Character

P = Must Supply Parameters? (Y/N)

PR = Printer Responds? (Y/N)

2.2 Programming Examples

```
<STX> L <CR>
H07 <CR>
D11 <CR>
19110080100002510K OHM 1/4 WATT <CR>
1a6210000000050590PCS <CR>
E
```



Figure 2-1 Sample Label

The example shown below prints out a Code 3 of 9 bar code with a wide to narrow bar ratio of 3:1 and can be used to print any of the bar codes shown in Appendix B by altering the example's fields. Refer to Figures 2-2 and 2-3 for a brief explanation of the data fields that appear in the barcode shown below.

```
<STX>L<CR>
D11<CR>
1A93040001501000123456789<CR>
121100000000100Barcode A<CR>
E
```



<STX>L <STX>L on line 1 is used to enter the label formatting mode.

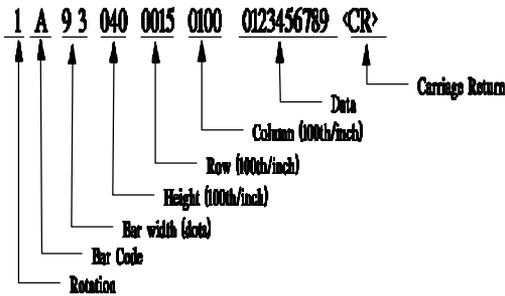


Figure 2-2 Example line 3

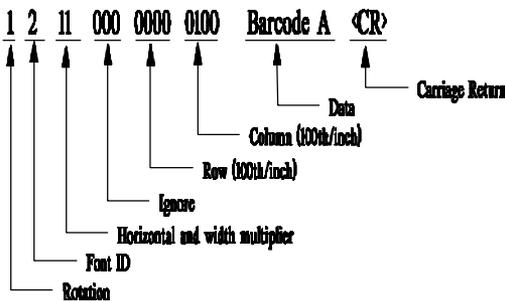


Figure 2-3 Example line 4

2.3 Configuration and Test Labels

The Printer is capable of printing both a Configuration Label and a Test Label. The Configuration Label is used to quickly determine the configuration setup of the Printer while the Test Label is used as an aid in Printhead adjustments and determining bad Printheads.

2.3.1 Configuration Label

Below is an illustration of an actual Configuration Label. The label contains information about the Printer's current setup settings, as well as the date/time, RAM and ROM checksums, and other Important information. To print a Configuration and Test Label follow the outlined steps:

1. Hold in the Feed Button and turn on the Printer until the Printer feeds one label.
2. After the Printer feeds one label release the Feed Button, after a brief hesitation the Configuration and Test Label will print.

```

THU MARCH 17, 1997 12:25 077
VER BA - 03.02 04/08/97
SYSTEM ROM CHECKSUM 8F7B IS GOOD
FONT ROM CHECKSUM 2E7A IS GOOD
TOTAL ROM CHECKSUM BDF5 IS GOOD
SYSTEM RAM CHECKS GOOD
SERIAL PORT BAUD RATE IS 9600

TRANSFER SWITCH IS ON
SETUP SWITCH 1 2 3 4 5 6 7 8
OFF OFF OFF OFF OFF OFF OFF OFF

ANALOG INPUT VALUES:
PAPER: 236 EDGE: 184 TEMP 064
POT ADJ: 139 BAT VOL: 204

INCH COUNTER DATE SET 4/07/97
TOTAL LABEL LENGTH IN INCHES 000000170

```

Figure 2-4 Configuration Label

2.3.2 Print Test Label

The Print Test Label consists of a test pattern of printed bars and can be used to isolate problems with the print quality, along with determining bad Printheads or rollers.

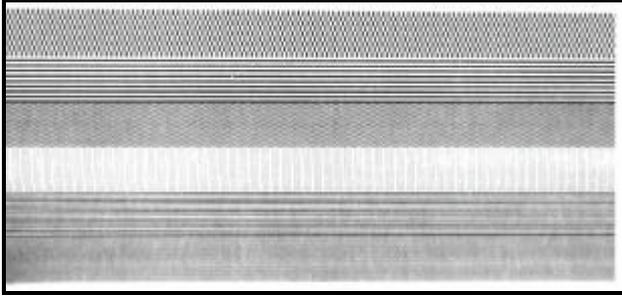


Figure 2-5 Print Test Label

2.3.3 Loop back Test Plug

A Loop Back Test Plug can be installed for serial communications testing. Below are examples of the Loop Back Test Plugs. If the Test Plug is installed the following two lines will be added to the Configuration Label.

SERIAL LOOP BACK CHECK GOOD
CTS & DTR LOOP BACK CHECK IS GOOD

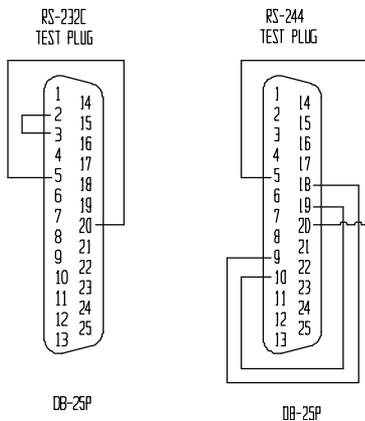


Figure 2-6 Loop Back Test Plugs



◆ Troubleshooting

3.0 Introduction

This chapter provides general guidelines to help maintain the print quality when using media other than the recommended 4 mil stock. It also provides basic ideas to help identify common installation and communication interfacing problems. If there is any doubt about your ability to perform the procedures outlined in this chapter, contact a qualified service technician before making any adjustments.

3.1 Controlling Print Quality

The Printer provides maximum flexibility by offering both direct-thermal and thermal-transfer printing capabilities. To support these printing options, the Printer has a flexible set of printing controls.

The amount of heat applied to the Printhead and the location of the Printhead to the label media have the most effect on the images that are printed on labels. The Printer provides print quality adjustments, but limits them to prevent the Printer from printing an image that could be damaging to the Printhead. For example, low cost direct-thermal stocks have high reaction temperatures therefore it takes a great deal of heat to make clear images on this type of paper. The Printer has two ways to compensate for this: first set the burn time to a higher value by using the H Label-Formatting Command. This causes more heat to be transferred into the media, and consequently generates a darker image; second, adjust the Printhead position. The Printer has been factory set to maintain good print quality on the majority of media. However, when using media other than the recommended 4 mil thick stock the Printhead position, ribbon, and media tracking may require slight adjustment to maintain its print quality. If poor print quality is apparent, follow the procedures outlined in sections 3.2.1 and 3.2.2.

3.2 Aligning the Printhead

Components used for Printhead alignment are illustrated in Figure 3-1.

3.2.1 Direct-Thermal Stock

For best results when using direct-thermal label stock, turn the head adjustment screws 1/4 turn clockwise to move the Printhead 0.006" (0.15 mm) back on the roller. When the Printhead is aligned with thermal-transfer stock the Printhead is forward on the roller so that the ribbon will separate from the label while the wax ink is still liquid ensuring good print quality. With direct-thermal stock, the Printhead burn line needs to be further back on the roller where there is more contact with the roller. This causes heat to transfer to the paper more efficiently.

3.2.2 Tag Stock or Stiff Media

The Printer is adjusted at the factory using 5 mil thick label stock. If heavier tag stock is used, the Printhead may need to be adjusted forward.

3.2.3 Mechanical Adjustments

The Printhead is precisely positioned on mount plate locating pins that are adjusted at the factory. Once adjusted, the locating pins will ensure correct alignment of all future replacement heads. It should not be necessary to realign each new Printhead; however, an alignment procedure is required if the Printhead Mount Assembly has been removed or disassembled.

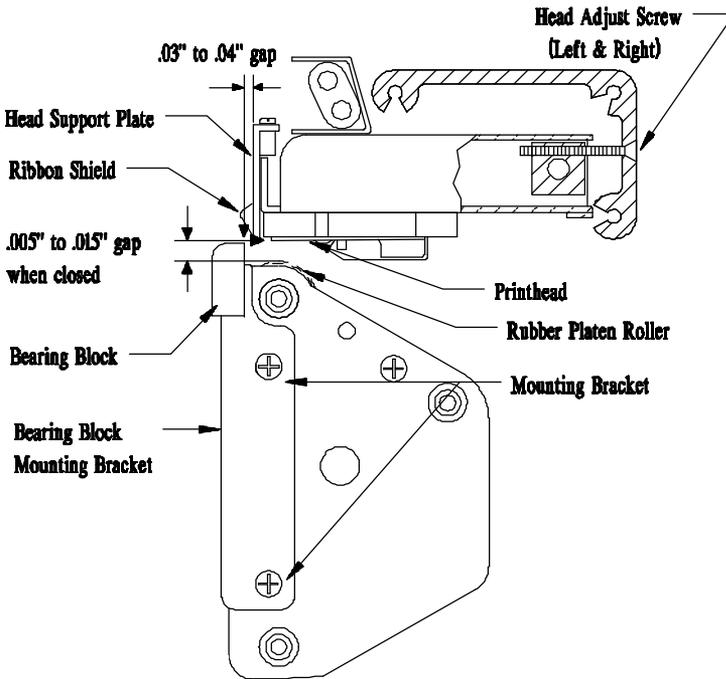


Figure 3-1 Components for Printhead alignment

Print rotated bars and inspect the quality. With a 1/16" hex key, turn the left and right head adjust screws counter-clockwise 1/4 to 1/2 turn until the desired print quality is achieved.

The horizontal placement of the Printhead is adjusted by turning the right and left head-adjustment screws that correspond to the right and left sides of the Printhead. Turning the screws 1/2 turn counter-clockwise will move the Printhead 0.012" (0.305 mm) forward. Likewise, a 1/2 turn clockwise will move the Printhead back 0.012" (0.305 mm). Therefore, only a small adjustment of even a 1/4 turn will cause a big difference in print quality.

 <p>Caution</p>	<p>Do not turn the head-adjustment screws more than 2 complete turns in either direction. Damage to the Head Mount Assembly will result if the adjustment screws are turned too far.</p>
---	--

The alignment procedure and the sequence that should be followed is described in section 3.2.1. This procedure should correct poor print quality; however, all adjustments must be performed with label stock that is at least 4" (102 mm) wide. If the final media used is different, then make the specific adjustments needed after the standard adjustments are completed.

3.3 Printhead Alignment Procedure

Depending on the degree of alignment necessary to your Printhead, one or perhaps all of the steps mentioned below may need to be completed.

3.3.1 Label Stock Tracking Adjustment

To ensure that the stock feeds straight use a full roll of 4" (102 mm) or 4.25" (108 mm) wide stock and complete the following steps:

1. Rotate the Media Guide 'down' and install the stock, keep the Media Guide in the down position.
2. Press the feed button to feed the labels until the stock begins to track at a stable position.
3. Rotate the Media Guide to the up position and slide the Media Guide in or out until the inside edge of the stock is gently resting against the inner Media Guide.

3.3.2 Ribbon Feed and Tracking Adjustments

Complete the following steps to complete the ribbon feed and tracking adjustment.

Turn the power switch 'on' and use full width paper and ribbon for this adjustment. Install a thermal-transfer ribbon/media in the Printer and secure the ribbon to the Ribbon Take-up Hub in a counter-clockwise direction (see Chapter 1, Figure 1-11).

1. Press the feed button several times to normalize the feeding of the ribbon and media. Check the ribbon for rippling as it travels from the Ribbon Supply Hub and goes under the Printhead assembly. If rippling or bagging occurs, follow the procedures outlined in steps 2 through 6.
2. To adjust the Ribbon Shield (see Figure 3-2), temporarily move the ribbon and loosen the screw located on the left end of the Head-Support Plate, (do not remove the screw). This end of the shield can be adjusted up or down in order to even out the ribbon tension across the full width of the ribbon.

<p>Note: The mount screws that secure the Ribbon Shield also secure the Head-Support Plate. When loosening these screws, be aware that both the shield and the plate may be affected.</p>
--

3. Position the shield so that there is no rippling in the ribbon as it travels from the Ribbon Supply Hub. The ribbon should also be adjusted so that tension is even across the entire width of the ribbon.

4. Once the Ribbon Shield is properly positioned, tighten the left screw that supports the Ribbon Shield to the Printhead Mount Assembly. Re-check the ribbon travel to make certain that the ribbon tension is even across the entire width of the ribbon.
5. Feed three or four labels and observe the ribbon as it travels from the Ribbon Supply Hub.
6. Feed the ribbon and paper out the front of the Printer together and check the ribbon for drifting. If the ribbon overlaps one edge of the paper stock, the ribbon and paper are not following the same path. In this case, the paper tracking may need to be re-adjusted. If there is no ribbon overlap, then continue.

3.4 Adjusting Printhead Pressure and Support

The Head-Support Plate supports the outer end of the Printhead when narrow media is used. Without this support, the Printhead would bear down on the drive roller, causing diminished print quality and premature wear. The Head-Support Plate needs to be engaged only when the media width is less than 3.5" (89 mm), (see Figure 3.2).

The Printer's Printhead support requires adjustment if media widths of 3.5" (89 mm) or less are used. To make this adjustment, loosen the two mount screws that fasten the Head to the Support Plate, leaving the screw on the left slightly snug. Load the media and engage the Printhead by rotating the Head-Lift Lever to the 'down' position. Turn the adjustment screw clockwise until the support plate moves down and contacts the bearing plate underneath. Finally, tighten the two mount screws to secure the Support Plate.

<p>Note: The mount screws that secure the Head-Support Plate also secure the Ribbon Shield. When loosening these screws, be aware that both the plate and the shield may move.</p>

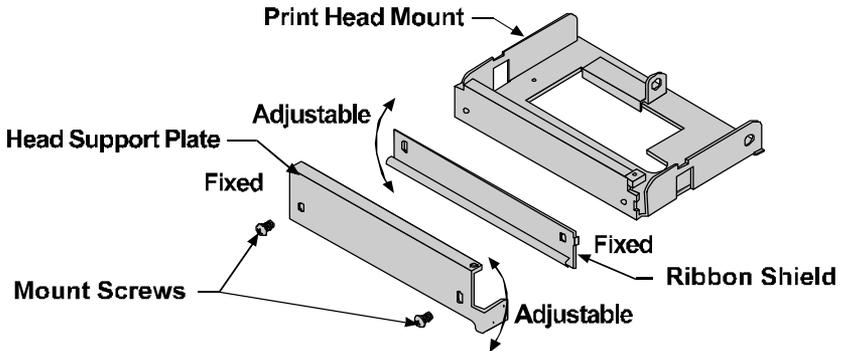


Figure 3-2 Printhead Mount Assembly

3.5 Troubleshooting

Occasionally, situations occur that require some troubleshooting skills. Possible problem situations and potential solutions are listed in this section. While not every situation is addressed, you may find some of these tips helpful. After the corrective action is taken press the feed button to clear the alarm. Contact a qualified service technician for problems that persist or are not covered in this section.

Unacceptable print quality

- The Printhead may be dirty, clean the Printhead, (see Section 4.1).
- The Printhead temperature is too high. Use the software control to adjust the burn time and/or heat setting .
- Incorrect ribbon/paper combination being used. Be sure to use the correct ribbon type.

The Printer does not print or prints several labels at once

- The labels are incorrectly loaded, see the loading instructions on the inside cover of the Printer.
- The Media Sensor may be out of adjustment.
- The Media Sensor or Media Sensor Circuitry may be defective, call for service.

Erratic printing

- The Printer is in the test mode. Reset the Printer via software, or simultaneously press the cancel and pause buttons, or turn the Printer 'off' and then 'on' again.
- The Printer is set for 8-data bits but the transmitting device is set for 7- data bits (or vice versa). Check the current data bits setting, (switch 4 on the back of the Printer).

The ribbon does not advance

- The ribbon is installed incorrectly. Make sure that the dull side (side with ink) is facing the paper.
- A bad ribbon/paper combination is resulting in an insufficient amount of friction between paper and ribbon. Ensure that the correct type of ribbon is being used.

Skips every other label

- The label is formatted too close to the top edge of the form. Leave white space equal to 8-dot rows at the top of the label, approximately .02" (.5 mm).
- Check operation of the Top-of-Form Sensor.

Unable to print in rotation 4

- The characters are formatted outside the dimensions of the label. Check that the row/column values provide enough room for the height of the characters or bar code to be printed.

Prints light on the right side of the label

- The Printhead is adjusted for thick media or cardstock.
- The Printhead is not properly aligned, call for service.

Printer fails to turn on

- A fuse may be blown, call for service.
- Faulty AC cord.
- A bad power switch may exist on the Printer, call for service.
- A faulty AC wall outlet.

Label advances 1-2 inches before a fault indication

- The ribbon is installed incorrectly. Make sure that the dull side (side with ink) is facing the paper.
- A bad ribbon/paper combination is resulting in an insufficient amount of friction between paper and ribbon. Ensure that the correct type of ribbon is being used.

Label advances 12 inches before a fault indication

- A hardware problem may exist, call for service.
- The Media Sensor may be out of adjustment.
- The Media Sensor, or Media Sensor Circuitry may be defective, call for service.



◆ Maintenance

4.0 Cleaning the Printer

Interior and Exterior

- **Interior** During normal operation dust particles from label stock can build up inside the Printer. To prevent build-up, use a soft bristle brush or vacuum cleaner as needed.
- **Exterior** The exterior surface can be cleaned using a general purpose cleaner and a damp soft cloth or sponge. Do not use abrasive cleansers or solvents.

Drive Roller

Print quality may be affected if the drive roller becomes contaminated with grit, label adhesive, or ink. To clean the Drive Roller complete the following steps:

1. Remove the Tear-off Plate, see Figure 1-3.
2. Turn the Head-Lift Lever to raise the Printhead to the 'up' position.
3. Dampen a clean, soft cloth with Isopropyl Alcohol and wipe off any debris from the Drive Roller.

Note: If the Drive Roller contains excessive build-up that is unable to be removed using Isopropyl Alcohol you can try acetone; however, this should be used sparingly.

4.1 Cleaning the Printhead

The Printhead should be cleaned on an ‘as needed’ basis. To determine when to clean the Printhead look for characters or bar codes that appear light or faded, or labels that contain spots or light streaks. Once you notice these signs follow the steps below to clean the Printhead.

1. Turn off the power and unplug the Printer.
2. Raise the cover and turn the Head-Lift Lever to the ‘up’ position.
3. Dampen a cotton swab with isopropyl alcohol and insert into the Printhead as shown below. Gently rub the underside of the Printhead with the moistened swab.

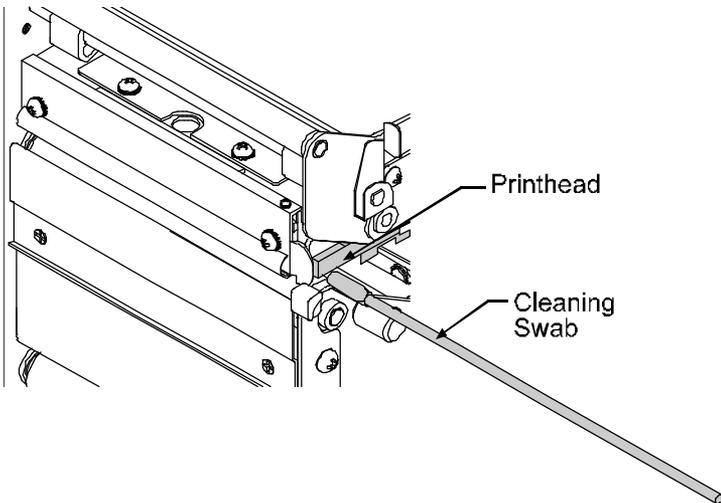


Figure 4-2 Cleaning the Printhead



Appendix A

ASCII Control Code Chart

Char	Dec	Hex	Char	Dec	Hex	Char	Dec	Hex	Char	Dec	Hex
NUL	0	00		32	20	@	64	40	`	96	60
SOH	1	01	!	33	21	A	65	41	a	97	61
STX	2	02	Ï	34	22	B	66	42	b	98	62
EXT	3	03	#	35	23	C	67	43	c	99	63
EOT	4	04	\$	36	24	D	68	44	d	100	64
ENQ	5	05	%	37	25	E	69	45	e	101	65
ACK	6	06	&	38	26	F	70	46	f	102	66
BEL	7	07	Ï	39	27	G	71	47	g	103	67
BS	8	08	(	40	28	H	72	48	h	104	68
HT	9	09	)	41	29	I	73	49	i	105	69
LF	10	0A	*	42	2A	J	74	4A	j	106	6A
VT	11	0B	+	43	2B	K	75	4B	k	107	6B
FF	12	0C	,	44	2C	L	76	4C	l	108	6C
CR	13	0D	-	45	2D	M	77	4D	m	109	6D
SO	14	0E	.	46	2E	N	78	4E	n	110	6E
SI	15	0F	/	47	2F	O	79	4F	o	111	6F
DLE	16	10	0	48	30	P	80	50	p	112	70
DC1	17	11	1	49	31	Q	81	51	q	113	71
DC2	18	12	2	50	32	R	82	52	r	114	72
DC3	19	13	3	51	33	S	83	53	s	115	73
DC4	20	14	4	52	34	T	84	54	t	116	74
NAK	21	15	5	53	35	U	85	55	u	117	75
SYN	22	16	6	54	36	V	86	56	v	118	76
ETB	23	17	7	55	37	W	87	57	w	119	77
CAN	24	18	8	56	38	X	88	58	x	120	78
EM	25	19	9	57	39	Y	89	59	y	121	79
SUB	26	1A	:	58	3A	Z	90	5A	z	122	7A
ESC	27	1B	;	59	3B	[	91	5B	{	123	7B
FS	28	1C	<	60	3C	\	92	5C	|	124	7C
GS	29	1D	=	61	3D	]	93	5D	}	125	7D
RS	30	1E	>	62	3E	^	94	5E	~	126	7E
US	31	1F	?	63	3F	_	95	5F		127	7F

ASCII Control Chart

Char	Dec	Hex	Char	Dec	Hex	Char	Dec	Hex	Char	Dec	Hex
Ç	128	80	á	160	A0		192	C0	Ó	224	E0
ü	129	81	í	161	A1		193	C1	ß	225	E1
é	130	82	ó	162	A2		194	C2	Ô	226	E2
â	131	83	ú	163	A3		195	C3	Ò	227	E3
ä	132	84	ñ	164	A4		196	C4	ö	228	E4
à	133	85	Ñ	165	A5		197	C5	Õ	229	E5
â	134	86	ª	166	A6	ã	198	C6	µ	230	E6
ç	135	87	º	167	A7	Ã	199	C7	þ	231	E7
ê	136	88	¿	168	A8		200	C8	ƒ	232	E8
ë	137	89	®	169	A9		201	C9	Ú	233	E9
è	138	8A		170	AA		202	CA	Û	234	EA
ï	139	8B	1/2	171	AB		203	CB	Ü	235	EB
î	140	8C	1/4	172	AC		204	CC	ý	236	EC
ì	141	8D	¡	173	AD		205	CD	Ý	237	ED
Ä	142	8E		174	AE		206	CE		238	EE
Å	143	8F	ˆ	175	AF		207	CF		239	EF
É	144	90		176	B0	ð	208	D0		240	F0
æ	145	91		177	B1	Ð	209	D1	±	241	F1
Æ	146	92	²	178	B2	Ê	210	D2		242	F2
ô	147	93	³	179	B3	Ë	211	D3	3/4	243	F3
ö	148	94	´	180	B4	È	212	D4		244	F4
ò	149	95	Á	181	B5		213	D5		245	F5
û	150	96	Â	182	B6	Í	214	D6	÷	246	F6
ù	151	97	À	183	B7	Î	215	D7	¸	247	F7
ÿ	152	98	©	184	B8	Ï	216	D8	°	248	F8
Ö	153	99	¹	185	B9		217	D9	¨	249	F9
Ü	154	9A		186	BA		218	DA	·	250	FA
ø	155	9B	»	187	BB		219	DB		251	FB
£	156	9C		188	BC		220	DC		252	FC
Ø	157	9D	¢	189	BD		221	DD		253	FD
x	158	9E	¥	190	BE	ì	222	DE		254	FE
f	159	9F		191	BF		223	DF		255	FF



Appendix B

Switch Settings and Cable Interfacing

Baud	9600	4800	2400	1200	600	300	9600 Test
SW-1	off	off	off	off	on	on	on
SW-2	off	off	on	on	off	off	on
SW-3	off	on	off	on	off	on	on

Table B-1 Baud Rate

SW-4	Data Bits	Parity	Stop Bits
on	7	None	2
off	8	None	1

Table B-2 Word Length

SW-5	Prodigy Compatible
On	Prodigy
Off	Prodigy Plus
SW-6	Present Sensor
On	Enabled
Off	Disabled
SW-7	Ribbon Sensor
On	Color (translucent)
Off	Black (opaque)
SW-8	Cutter
On	Cutter Enabled
Off	Cutter Disabled

Table B-3 Options

Printer Cabling and Interfacing:

When the Printer receives data from any host system, it will not properly function with an incorrectly wired cable. Proper wiring diagrams can be found in Appendix E. Table B-1 contains a list of the signals that if correctly wired to the host system will cause the Printer to operate properly.

Signal	Pin
TX	2
RX	3
BUSY	20
Ground	7
Jumper	4 to 5
Shield	1

Table B-1 I/O Port Wiring

When the Printer is turned on, it will default to pre-determined interfacing parameters. The default values are in Table B-2.

Parameter	Default Value
BAUD	9600
Data Bits	8
Parity	None
Stop Bits	1

Table B-2 Printer Default Communication Parameters

Altering the switch positions of Dip Switch S1 on the back of the Printer will configure the Printer for different applications. Appendix B shows the switch positions and configurations supported by each setting.



Appendix C

Available Fonts and Barcodes

All character fonts and barcodes available with the Printer are described in this section. Each font and barcode has a name associated with it for use in programming. Human-readable fonts have numeric names while barcode fonts have alpha names. Uppercase alpha names will print barcodes with human readable interpretations. Lowercase alpha names will print barcodes only.

Fonts

Fonts 0 through 8 use the slash zero (Ø) conventions for distinguishing between the zero and the alphabetic O. The slash can be removed with the label formatting command z. These fonts are non-proportional (monospaced) fonts; all of the characters take up the same amount of space when printed.

The Triumvirate font number 9 is a proportional font; each character will take up a different amount of space when printed.

Font	Valid ASCII Characters
0	32-127
1	32-168, 171, 172, 225
2	32-168, 171, 172, 225
3	32, 35-38, 40-58, 65-90, 128, 142-144, 146, 153, 154, 156, 157, 165, 168, 225
4	32, 35-38, 40-58, 65-90, 128, 142-144, 146, 153, 154, 156, 157, 165, 168, 225
5	32, 35-38, 40-58, 65-90, 128, 142-144, 146, 153, 154, 156, 157, 165, 168, 225
6	32, 35-38, 40-58, 65-90, 128, 142-144, 146, 153, 154, 156, 157, 165, 168, 225
7	32-126
8	32, 48-57, 60, 62, 67, 69, 78, 83, 84, 88, 90
9	32-126, 128-169, 171-173, 181-184, 189, 190, 198, 199, 208-216, 222, 224-237, 241, 243, 246-250

Table C-1 Valid Human-Readable Font ASCII Characters

Table C-2 lists the font sizes. The numbers indicate the number of dots.

FONT	HEIGHT	WIDTH	SPACING
Font 0	7	5	1
Font 1	13	7	2
Font 2	18	10	2
Font 3	27	14	2
Font 4	36	18	3
Font 5	52	18	3
Font 6	64	32	4
Font 7	32	15	5
Font 8	28	15	5

Table C-2 Font Sizes

Font 0: 96 character alphanumeric, upper and lower case:

Prodigy Plus

```
!"#$%&'()*+,-./
0123456789:;<=>?
@ABCDEFGHIJKLMNO
PQRSTUVWXYZ[\]^_
`abcdefghijklmno
pqrstuvwxyz{|}~*
```

Prodigy Plus 152

```
!"#$%&'()*+,-./
0123456789:;<=>?
@ABCDEFGHIJKLMNO
PQRSTUVWXYZ[\]^_
`abcdefghijklmno
pqrstuvwxyz{|}~*
```

Font 1: 145-character upper and lower case alphanumeric with descenders and ascenders:

Prodigy Plus

!"#\$%&'()*+,-./
 0123456789:;<=>?
 @ABCDEFGHIJKLMNO
 PQRSTUVWXYZ[\]^_
 `abcdefghijklmnop
 pqrstuvwxyz{|}~■
 ÇüéääàáçèèèïîïËÄ
 ÉæfföööüüÿÖÜø£Ø×f
 áíóúñÑãº¿¼¼i«»
 ß

Prodigy Plus 152

!"#\$%&'()*+,-./
 0123456789:;<=>?
 @ABCDEFGHIJKLMNO
 PQRSTUVWXYZ[\]^_
 `abcdefghijklmnop
 pqrstuvwxyz<|>~■
 ÇüéääàáçèèèïîïËÄ
 ÉæfföööüüÿÖÜø£Ø×f
 áíóúñÑãº¿¼¼iß

Font 2: 138-character alphanumeric, upper and lower case.

Prodigy Plus

!"#\$%&'()*+,-./
 0123456789:;<=>?
 @ABCDEFGHIJKLMNO
 PQRSTUVWXYZ[\]^_
 `abcdefghijklmnop
 Ppqrstuvwxyz{|}~■
 ÇüéääàáçèèèïîïËÄ
 ÉæfföööüüÿÖÜø£Ø×f
 áíóúñÑãº¿¼¼
 ß

Prodigy Plus 152

!"#\$%&'()*+,-./
 0123456789:;<=>?
 @ABCDEFGHIJKLMNO
 PQRSTUVWXYZ[\]^_
 `abcdefghijklmnop
 Ppqrstuvwxyz<|>~■
 ÇüéääàáçèèèïîïËÄ
 ÉæfföööüüÿÖÜø£Ø×f
 áíóúñÑãº¿¼¼ ß

Font 3: 62-character alphanumeric, uppercase.

Prodigy Plus

\$ % & () * + , - . /

0 1 2 3 4 5 6 7 8 9 :

A B C D E F G H I J K L M N O

P Q R S T U V W X Y Z

Ç Ä Å É Ê Æ Ö Ü Ø £ Ñ ÿ ß

Prodigy Plus 152

\$ % & () * + , - . /

0 1 2 3 4 5 6 7 8 9 :

A B C D E F G H I J K L M N O

P Q R S T U V W X Y Z

Ç Ä Å É Ê Æ Ö Ü Ø £ Ñ ÿ ß

Font 4: 62-character alphanumeric, uppercase.

Prodigy Plus

\$ % & () * + , - . /

0 1 2 3 4 5 6 7 8 9 :

A B C D E F G H I J K L M N O

P Q R S T U V W X Y Z

Ç Ä Å É Ê Æ Ö Ü Ø £ Ñ ÿ ß

Prodigy Plus 152 (Font 4, continued)

\$ % & () * + , -
0 1 2 3 4 5 6 7 8 9 :
A B C D E F G H I J K L M
P Q R S T U V W X Y Z
Ç Ä Å É Ê Ë Æ Ö Ü £ Ñ ¿ ß

Font 5: 62-character alphanumeric, uppercase

Prodigy Plus

\$ % & () * + , - . /

0 1 2 3 4 5 6 7 8 9 :

A B C D E F G H I J K L M N O

P Q R S T U V W X Y Z

Ç Ä Å É Ê Ë Ö Ù Ø £ Ñ ¿ ß

Prodigy Plus 152

\$ % & () * + , -

0 1 2 3 4 5 6 7 8 9 :

A B C D E F G H I J K L M N

O P Q R S T U V W X Y Z

Ç Ä Å É Ê Ë Ö Ù Ø £ Ñ ¿ ß

Font 6: 62-character, alphanumeric, uppercase

Prodigy Plus

\$ % & () * + , - . /
0 1 2 3 4 5 6 7 8 9 :
A B C D E F G H I J K L M N O
P Q R S T U V W X Y Z
Ç Ä Å É Ê Ë Ì Ö Ù Ø Æ Ñ ÿ ß

Prodigy Plus 152 (Font 6, continued)

\$ % () * +
0 1 2 3 4 5 6 7
A B C D E F G H
O P Q R S T U V
W X Y Z
I J K L M N
, - . /
Ç Ä Å É Ê Ë Ò Ù £

Font 7: OCR-A, size I

Prodigy Plus

. , : ; = + / * ^ { } % ? &
' - \$ ^ [] < > () ! # @ \
0 1 2 3 4 5 6 7 8 9
A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z
a b c d e f g h i j k l m
n o p q r s t u v w x y z

Prodigy Plus 152

. , : ; = + / * ^ { } % ? &
' - \$ ^ [] < > () ! # @ \
0 1 2 3 4 5 6 7 8 9
A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z
a b c d e f g h i j k l m
n o p q r s t u v w x y z

Font 8: OCR-B, size III

Prodigy Plus

CENSTXZ+<>|
0123456789

Prodigy Plus 152

CENSTXZ+<>|
0123456789

Font 9: Identifies the internal Triumvirate font. Point sizes are selected by number in the bar code height.

Prodigy Plus

6pt ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLM
8pt ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLM
10pt ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890abcdefg
12pt ABCDEFGHIJKLMNOPQRST1234567abcdefghijkl
14pt ABCDEFGHIJKLM1234567abcdefghijkl
18pt ABCEFGHIJKLM1234567abcd
24pt ABCDE12345abcdefg
30pt ABCDE123abcd
36pt ABC123abc
48pt ABC123

ABCDEFGHIJKLMN OPQRSTU VW
XYZ0123456789abcdefghijklmnopq
rstuvwxyz !"#\$%&'()*+,-./012345
6789:;<=>?@[\\]^_`{|}~Çüéääå
èïïÄÅÉæÆôöòûÿÖÜø£Ø × f áíóúñ
®½¼¡ÂÀ©¢¥ãÃδÐÊËÈİİİİßÔÒõ
μρϱÚÛÜýÝ ± ¾ ÷ ° °.

Prodigy Plus 152 (Font 9, continued)

6pt ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLM
8pt ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLM
10pt ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890abcdef
12pt ABCDEFGHIJKLMNOPQRST1234567abcdefghi
14pt ABCDEFGHIJKLM1234567abcdefghijkl
18pt ABCDEFGHIJKLM1234567abcd
24pt ABCDE12345abcdef
30pt ABCDE123abcd
36pt ABC123abc
48pt ABC123

ABCDEFGHIJKLMNOPQRSTUVWXYZ
XYZ0123456789abcdefghijklmnopqrstuvwxyz !"#%&'()*+,-./012345
6789:;<=>?@[^\]^_`{|}~Çüéâääå
çêëèïîÄÅÉæÆôöòûùÿÖÜø£Ø × f á í
Ñ¿®½¼¡ÁÂÀ©¢¥ãÃðÐÊËÈÌÍÎÏßÔÒ
þŮÚÛÜýÝ ± ¾ ÷ , ° ° · & ’

Barcodes

Font	Length	Cksum	Valid ASCII Characters	Bar widths Ratios
A	Varies	No	32, 36, 37, 42, 43, 45-57, 65-90	2:1 - 3:1
B	11	Yes	48-57 Numeric only Option V used in the 6th & 7th position	N/A
C	6	Yes	48-57 Numeric only	N/A
D	Varies	No	48-57 Numeric only	2:1 - 3:1
E	Varies	M-103	32-127	N/A
F	12	Yes	48-57 Numeric only Option V used in the 7th & 8th position	N/A
G	7	Yes	48-57 Numeric only	N/A
H	Varies	M-43	32, 36-39, 42, 43, 45-57, 65-90	2:1 - 3:1
I	Varies	No	36, 43, 45-58, 65-68	2:1 - 3:1
J	Varies	M-10	48-57 Numeric only	2:1 - 3:1
K	Up to 14	M-10	48-57 Numeric only Option + is Last Character for Second M-11 Checksum	2:1 - 3:1
L	13	M-10	48-57 Numeric only	2:1 - 3:1
M	2	Yes	48-57 Numeric only	N/A
N	5	Yes	48-57 Numeric only	N/A
O	Varies	No	0 - 127 ASCII characters	N/A
p	Varies	Yes	48-57 Numeric only	Same as fonts
Q	19	Yes	48-57 Numeric only	N/A
R	18	Yes	48-57 Numeric only	N/A
z	varies	Yes	All ASCII characters	N/A

Table C-3 Barcode Characteristics

Uppercase Barcode identifiers (I.D's) have corresponding lowercase I.D's that when selected suppress printing of associated human-readable text.

Barcode A Code 3 of 9



Barcode B UPC-A



Barcode C UPC-E



Barcode D Interleaved 2 of 5



Barcode E Code 128



Barcode F EAN-13



Barcode G EAN-8



Barcode H Health Industry Barcode (HBIC)



Barcode I Codabar



Barcode J Interleaved 2 of 5 w/module 10 checksum



Barcode K Plessey



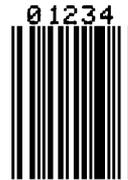
Barcode L Interleaved 2 of 5 w/module 10 checksum and shipping bearer bars



Barcode M 2 Digit UPC addendum



Barcode N 5 Digit UPC addendum



Barcode O Code 93



Barcode p Postnet



Barcode Q UCC/EAN Code
128



Barcode R UCC/EAN Code
128
KMART NON EDI



Bar Code z PDF-417
(Prodigy Plus, 203DPI only)





Appendix D

Error Codes

The error codes that may be transmitted by the Printer are described here.

Lowercase "c"

The Printer received a data byte from the host that contains a framing error due to noise.

Lowercase "v"

Input buffer overflow.

Uppercase "I"

An invalid command sequence was sent to the Printer. The Printer did not understand the command sequence and therefore terminated the command interpreter.

Uppercase "R"

This code is sent every time the Printer is turned on. It signals that there was a hardware reset.

Uppercase "T"

This code signals that there was a software reset. A software reset results from sending the <SOH># command sequence to the Printer or by doing a front panel reset.

BELL HEX "07"

This is usually returned on a corrupt image download, or if you try to load an image that is already installed in the module.



Appendix E

Cable Listings

Part Number	Description
556000	Printer to CRT Terminal (DB25P) RS-232
556001	Printer to PC 9 Pin (DB9S) RS-232
556002	Printer to PC 25 Pin (DB25S) RS-232
899516	Printer to PC Parallel Port (DB25P)

Table E-1 Printer Interface Cables

Pin	Description
1	CHASSIS
2	TXD (RS-232)
3	RXD (RS-232)
4	RTS (4.7k ohm to +5VDC)
5	CTS (input)
7	LOGIC GROUND
14	+5 VDC (100 mA maximum)
20	BUSY (output)

Table E-2 Printer Pin Connections

STRAIGHT CABLE (MXM)

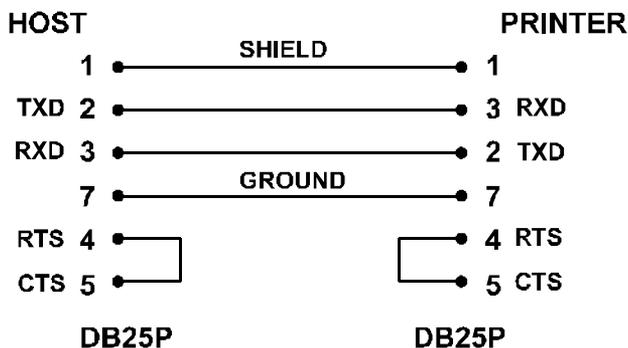


Figure E-1 Null Modem Cable (MXM)

Note: Cable is used for typical connection to other DCE equipment with Xon/Xoff flow control.

STRAIGHT CABLE (MM)

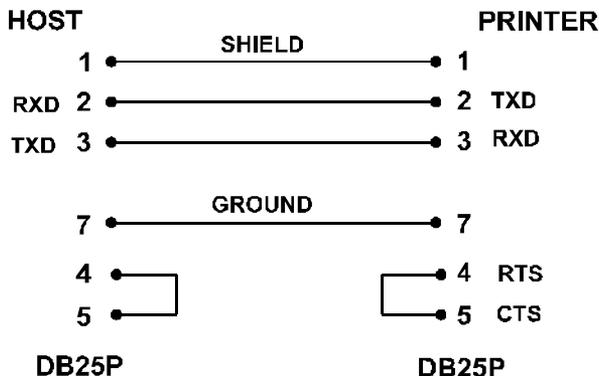


Figure E-2 Straight Cable (MM)

Note: Cable is used for typical connection to other DCE equipment with Xon/Xoff flow control.

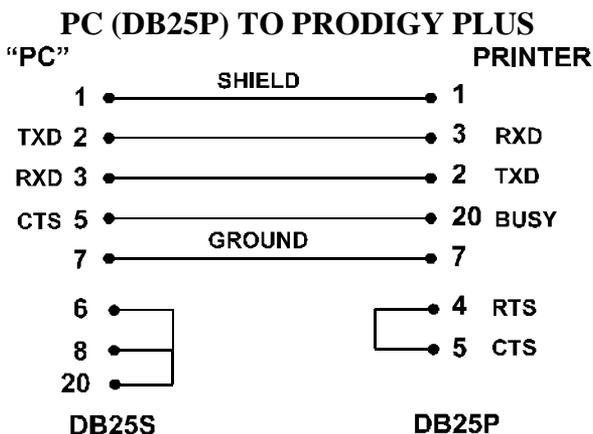


Figure E-3 PC (DB25P) to Printer

Note: Cable is used for connection to a PC compatible with DB25P communication ports. Flow control is either Xon/Xoff or CTS/DTR.

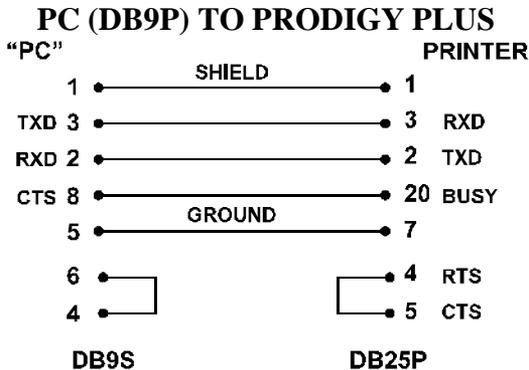


Figure E-4 PC (DB9P) to Printer

Note: Cable is used for connection to a PC compatible with DB9P communication ports. Flow control is either Xon/Xoff or CTS/DTR.

- **Parallel to Serial Adapter (Part Number: 899516)**

If the Printer is being set up for parallel to serial communications a special Parallel to Serial Interface Adapter is needed, (Figure E-5). The Parallel to Serial Interface Adapter is designed specifically for use with your Label Printers. The adapter is a one-way communication self-powered device. No external power source is required.

The adapter has a sophisticated microprocessor built into the head assembly that converts standard Centronics parallel to RS-232 serial communication. This cable is useful when using the Printer with a PC that has only a parallel Printer port available.

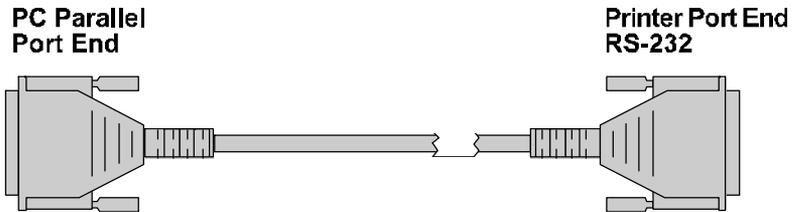


Figure E-5 Centronics Parallel Interface Converter

Cable is used for connection to a PC compatible with DB25M parallel communication ports. Flow control is CTS/DTR only. Part Number: 899516.



Appendix F

Specifications

Printing

Type:	Direct thermal or thermal transfer
Resolution:	Prodigy Plus: 203 dots per inch (8 dots/mm) Prodigy Plus 152: 152 dots per inch
Print Speed:	2.0 –8.0" (51 mm –203 mm) per second
Barcode Modules:	5 mil to 110 mil (.005" - .110") "X" dimension in picket or ladder orientation
Maximum Print Width:	4.1 W (104mm) @203 dpi
Maximum Print Length:	5.25" (133mm) with standard RAM; up to 20.25" (514mm) with optional 512K Memory Module.
White Space Slew Rate:	2.0"–8.0" (51mm–203 mm) per second
Maximum Fields Per Label:	200; 5K data per label maximum
Minimum Dot Size:	Prodigy Plus: 0.005" (0.127 mm) square Prodigy Plus 152: .0065" (.165mm) square
Optional Dot Sizes:	Prodigy Plus: 0.010" (0.25mm), 0.015 (0.38mm) vertical, 0.010" (0.254mm) horiz. Prodigy Plus 152: .013" (.33 mm)0.0195" (.495mm) vertical, .013" (.33 mm) horiz.

Label Backfeed: For use with optional Cutter or Peel and Present

Fonts

Resident Fonts: Nine alphanumeric fonts from 0.035"H (0.9mm) to 16"H (406mm) including OCR-A, OCR-B; CG Triumvirate smooth font (size and character set III) and a CG Triumvirate smooth font (10 point sizes)

Optional Fonts: Proportional and monospaced available

Character Density: Prodigy Plus: 33.83 cpi font 0 at 1X, .70 cpi font 6 at 8X.
Prodigy Plus 152: 25.64 cpi font 0 at 1X, .54 cpi font 6 at 8X

Barcodes: Code 39, Interleaved 2 of 5, Code 128 Codabar, LOGMARS, UPC-A, and UPC-E, EAN-8 and EAN-13, MSI Plessey, Universal Shipping Container Symbology, Code 39 variations to produce all industry standards (i.e., HIBC, AIAG, PDF-417 (203 DPI only), Postnet, and UCC/EAN 128, and PDF 417.

Barcode Density: Prodigy Plus: 12.63 cpi, Code 39, 0.005" narrow bar, 3:1 ratio 6.34 cpi, Code 39, 0.010" narrow bar, 3:1 ratio.
Prodigy Plus 152: 9.6 cpi, Code 39, 0.0066" narrow bar, 0.013" narrow 3.1 ratio.4.81 cpi, Code 39, 3:1 ratio.

Media

Width:	0.75" (19mm) to 4.65" (118mm)
Length:	Prodigy Plus: 0.50" (13mm) to 50" (1270mm) Prodigy Plus 152: 0.50" (13mm) to 50" (1270mm)
Thickness:	0.0025" (0.0635mm) to 0.0100" (0.254mm)
Type:	Roll-fed, die-cut tags, tickets or continuous forms with black-stripe sensing
Supply Roll:	8" (203mm) maximum diameter on 1.5" (38mm) to 3" (76mm) cores
Optional Front Rewind:	8" (203mm) maximum O.D. capacity (full supply roll)
Label Material:	Thermal transfer plain-coated papers, vinyl, Mylar, metalized paper, nonwoven fabric, fine woven fabric, thermal-visible light scalable paper, infrared scalable paper, thermal ticket/tag stock, thermally sensitive plastic stock.
Thermal -Transfer Ribbons:	Black or colored inks; 1182' (360 meters) long, 4.6 microns thick, back coated, $\pm 10\%$ label width, 1-inch cores, no notch required.
Media Sensing:	Moveable "see-through" for die-cut labels and reflective for tags with black striping

<p>Note: The reflective sensor mark must be carbon based. The sensor is infrared and will reflect off of a plain black mark.</p>

Label/Tag Media Specifications:

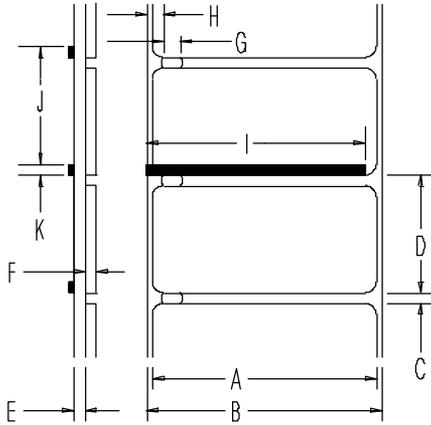


Figure F-1 Media Specifications

	Description	MAX*	MIN*
A	Label width	4.650	0.750
B	Backing width	4.650	0.750
C	Gap between labels	99.99	0.100
D	Label length	99.99	0.500
E	Backing thickness	0.005	0.0023
F	Label thickness	0.005	0.0023
G	Width of sensor opening	0.500	0.200
H	Distance from edge of Media to edge of sensor opening	2.250	0.200
I	Reflective sensor mark width	4.00	1.000
K	Reflective sensor mark length	99.99	0.100
J	Distance between reflective mark	99.99	0.500

* Units of measure are in inches

Table F-1 Media Dimensions

Lists of Approved Media

For a current list approved standard Media for use in Thermal and Thermal-Transfer Printers, please contact your customer support representative.

Indicators and Switches

Indicator Lights: Power, Paper/Ribbon, Pause

Switches: Power, Pause, Feed, Stop/Cancel, Thermal/Thermal Transfer, Rear communications DIP switch (SW I) and darkness potentiometer.

Communications Interfacing

Communications IEEE RS-232C IRS-422 at 300, 600, 1200, 2400, 4800, or 9600 baud

Character Set: ANSI ASCII character set

Word Length: Selectable 7-bit or 8-bit data format

Handshaking: XOn/XOff (in receive mode only) and CTS/DTR

Input Buffer: Approximately 7000 bytes. Xon/XOff is transmitted and DTR goes low when 768 bytes are available in the buffer. Xon is transmitted and DTR goes high when 1000 bytes are left in the buffer.

Electrical

Input Voltage:	115 VAC \pm 10%, single phase 50/60 Hz 230 VAC \pm 10%, single phase 50/60 Hz
Circuit Protection:	At 115V = 1.5A Slo Blo At 230V = circuit breaker at 1.2A
Grounding:	Unit must be connected to a properly-grounded receptacle

Environmental

Operating Temperature:	40°F to 90°F (4°C to 32°C)
Humidity:	10% to 95% non-condensing
Ventilation:	Free air movement
Dust:	Non-conducting, non-corrosive
Electromagnetic Radiation:	Moderate RF fields can be tolerated

Physical

Dimensions:	10"H x 10"W x 18"D (254mm H 254mm W x 457 mm D)	x
Weight:	36 lbs. (16.33 kg)	

Options

Ribbon Saver:	This factory-installed option reduces consumable costs by stopping the ribbon feed in unprinted label areas.
Cutter with Tray:	Used for cutting, printing and dispensing labels, tags or tickets. Maximum thickness of 0.010" (.254mm).
Font Memory Cartridges:	Six preloaded 512K byte ROM font modules are available as follows: CG Triumvirate bold, CG Triumvirate italic, CG Times, CG Times bold, Futura extra bold condensed and Plantin.
Present Sensor:	This option will not allow the next label to be printed until the last label is removed from the Printer.
256K RAM Memory Module:	Fonts can be loaded into the RAM module by most programs that are capable of transmitting fonts in HP PCL4 format.
512 RAM Memory Module:	Same as the 256K module except when the 512K module is in slot A, the dot memory (printable length) is doubled.
256K and 512K Flash ROM Memory Module:	Provides the same feature of the RAM modules but with the added benefit of permanent storage. In addition, the 512K module provides twice as much storage as the 256K module.
Centronics Parallel Interface adapter:	Converts Centronics Parallel type data to RS-232C.

PC-Batch Software:	Label-creation software for IBM-PC or compatible.
Twinax/Coax:	This device supports printing from IBM and IBM-compatible computers.
On-Line Verification:	Used to guarantee barcode quality and compliance.
Kanji:	A Japanese font that supports the full 24x24 and 16x16 dot gothic-style Kanji characters.



◆ Appendix G

Warranty Information

Prodigy Plus and Prodigy Plus 152

Printer

Datamax warrants to Purchaser that under normal use and service, the Prodigy Plus and Prodigy Plus 152 purchased hereunder shall be free from defects in material and workmanship for a period of (365) days from the date of shipment by Datamax.

Expendable and/or consumable items or parts such as lamps, fuses, labels and ribbons are not covered under this warranty. This warranty does not cover equipment or parts which have been misused, altered, neglected, handled carelessly, or used for purposes other than those for which they were manufactured. This warranty also does not cover loss, damages resulting from accident, or damages resulting from unauthorized service.

Thermal Printhead

This warranty is limited to a period of 365 days, or 1,000,000 linear inches of use, whichever comes first, for the Prodigy Plus and Prodigy Plus 152 thermal Printhead. This 365 day warranty is valid only if a Datamax- approved thermal or thermal transfer label media is used, as defined in the then current Datamax list of approved Thermal/Thermal Transfer Media, a copy of which is available from Datamax. Failure to use Datamax-approved media is justification for invalidation of this thermal Printhead warranty. This warranty does not cover Printheads which have been misused, altered, neglected, handled carelessly, or damaged due to improper cleaning or unauthorized repairs.

Warranty Service Procedures

If a defect should occur during the warranty period, the defective unit shall be returned, freight and insurance prepaid, in the original shipping containers, to Datamax at: 4724 Parkway Commerce Blvd., Orlando, Florida, 32808. A Return Material Authorization (RMA) number must be issued before the product can be returned. To open an RMA please call Datamax Customer Service Support Department at (407) 523-5540. Please include your RMA number on the outside of the box and on the shipping document. Include a contact name, action desired, a detailed description of the problem(s), and examples when possible with the defective unit. Datamax shall not be responsible for any loss or damages incurred in shipping. Any warranty work to be performed by Datamax shall be subject to Datamax's confirmation that such product meets Datamax warranty. In the event of a defect covered by its warranty, Datamax will return the repaired or replaced product to the Purchaser at Datamax's cost.

With respect to a defect in Hardware covered by the warranty, the warranty shall continue in effect until the end of the original warranty period, or for sixty (60) days after the repair or replacement, whichever is later.

General Warranty Provisions

Datamax makes no warranty as to the design, capability, capacity or suitability of any of its hardware, supplies, or software.

Software is licensed on an "as is" basis without warranty. Except and to the extent expressly provided in this warranty and in lieu of all other warranties, there are no warranties, expressed or implied, including, but not limited to, any warranties of merchantability or fitness for a particular purpose.

Purchaser shall be solely responsible for the selection, use, efficiency and suitability of Datamax's products.

Limitation of Liability

In no event shall Datamax be liable to the purchaser for any indirect, special or consequential damages or lost profits arising out of or relating to Datamax's products, or the performance or a breach thereof, even if Datamax has been advised of the possibility thereof. Datamax's liability, if any, to the purchaser or to the customer of the purchaser hereunder shall in no event exceed the total amounts paid to Datamax hereunder by the purchaser for a defective product.

In no event shall Datamax be liable to the purchaser for any damages resulting from or related to any failure or delay of Datamax in the delivery or installation of the computer hardware, supplies or software or in the performance of any services.

Some States do not permit the exclusion of incidental or consequential damages, and in those States the foregoing limitations may not apply. The warranties here give you specific legal rights, and you may have other legal rights which vary from State to State.

