

Bradyprinter™ THT Model
1024 Thermal Transfer Printer

User's Guide

LOGO W.H. Brady Co.
Automatic Identification Products

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6555 W. Good Hope Road • Milwaukee, Wisconsin • 53223

800-537-8791 Customer Support
800-643-8766 Technical Support

Part Number: 88-2184-01
Revision: C

Agency Compliance and Approvals:

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 Bar Code 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 bottom 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

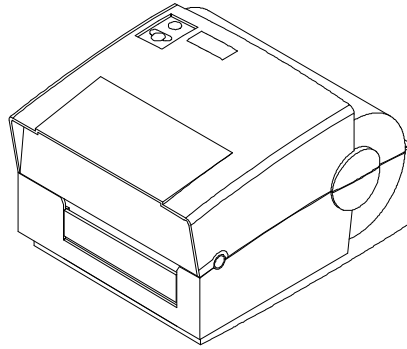


Figure 1-1 Printer Overview

1.0 Introduction

The Bradyprinter™ THT Model 1024, hereafter referred to as 'the Printer', incorporates high performance/low cost thermal transfer label printing capabilities. The combination of powerful capabilities, compact design, and easy to use features make this Printer truly unique.

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 standard items:

- Label printer
- External power supply
- Special or additional items purchased.

1.2 Printer Specifications

Mechanical

Width	8.8" (22.35 cm)
Depth	10.1" (25.65 cm)
Height	6.2" (15.75 cm)
Weight	7 lbs. (15.4 kg)
Operating Temperature	40° F to 100° F (4° C to 38° C)

Printer Specifications

Print Type	Thermal Transfer
Print Speed	1, 1.5, and 2" per second
Resolution	203 dpi (8 dots/mm)
Tear Bar	Tear up
DRAM Memory	512 kb
EPROM Memory	512 kb

Media/Ribbon

Media Types	Roll-Fed, Die-Cut, Continuous, Fan-Fold
Max. Media Width	4.65" (118 mm)
Max. Print Width	4.1" (104 mm)
Min. Print Width	1" (25 mm)
Max. Print Length	12" (305 mm) with standard RAM
Min. Print Length	.375" (.95 cm) .5" (1.27 cm) w/ Present Sensor
Media Thickness	.0025" - .01" (.0635 mm - .254 mm)
Ribbon	Matched to Media; approx. 4330"(110m) long 1.5" O.D. on .5" core

Communications

Interface	RS-232 (DB-9), and Centronics Parallel
Baud Speed	1200 to 19200 bps
Handshaking	Xon/Off, CTS, DTR
Parity	Even, Odd, or None
Stop Bits	1 or 2
Data Bits	7 or 8

Electrical

External Power Supply	Nominal 115 or 230 VAC IN/ 19 VAC OUT
------------------------------	---------------------------------------

Fonts

10 Resident Styles
Resident Fonts Expandable to 8x
Reverse Image
Rotated 0, 90, 180, 270 degrees

Available Bar Codes


Code 39, Ext Code 39, Code 93, Ext Code 93, Code 128 UCC, Code 128 A, B & C, Codabar, Interleaved 2 of 5, UPC-A, UPC-E, UPC Ship C Code, EAN-13, EAN-8, EAN 128, POSTNET, MaxiCode, PDF417

Options

Present Sensor
Memory Cartridges
External Cutter
DRAM Memory, (Expandable to 1MB)
Wall Mount
External Battery
Time/Date
External Media Supply

1.3 Connecting Power

The Printer is powered from an External Power Supply. The supply connects to the Printer as shown below. Power supplies are available for 115 and 230 AC voltages. Ensure that the power supply shipped with the Printer matches your electric service.

 **Caution!** Connect power supply to Printer before plugging into AC outlet.

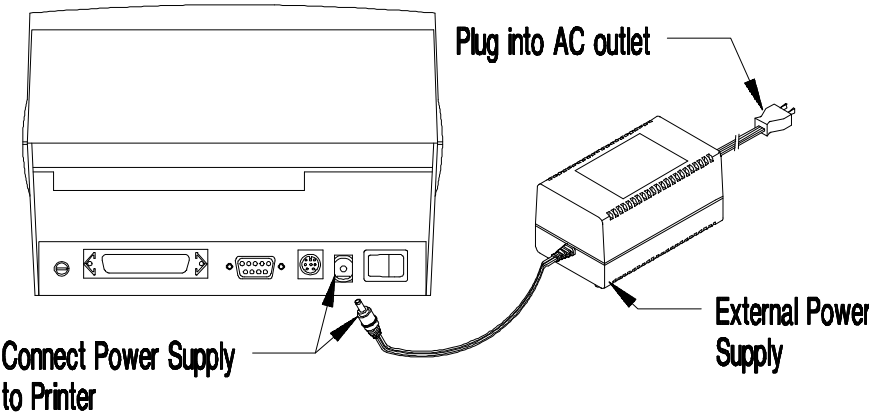


Figure 1-2 External Power Supply

1.4 Switches and Indicators

Descriptions and locations of the Printer's switches and indicators are shown below.

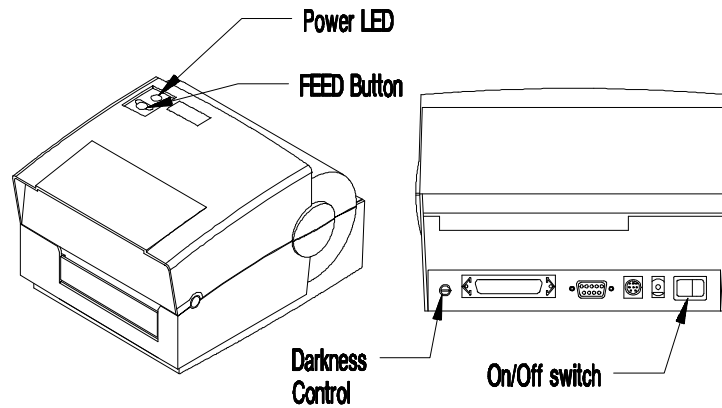


Figure 1-3 Switches and Indicator Locations

Switch/Indicator	Function
On/Off switch	Controls power to the Printer.
Feed Button	
Printer in ready state - (LED On)	
Press twice	Printer feeds media to first print position of next label.
Press once	Pauses Printer, press again to resume.
Printer in alarm state - (LED fast flash)	
Press once	Clears alarm, feeds one label.
Darkness Control	Used to balance a new Printhead so that it prints at the same level of darkness as the previous head.
Power LED	
Solid On	Indicates power is supplied and the Printer is on.
Slow Flash	Indicates the Printer is in a 'paused' condition.
Fast Flash	Indicates the Printer is in an 'error' condition such as Media Out, Ribbon Out (if equipped), or Jam.

1.5 Interfacing to the Printer

The Printer can be connected to the host via a **serial** or **parallel** cable.

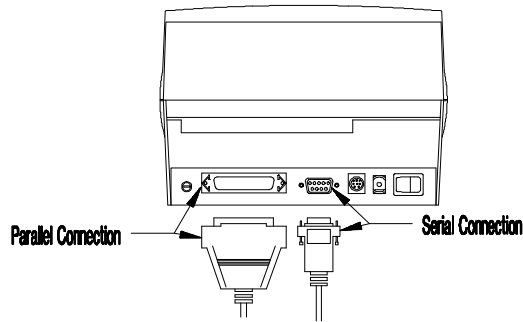


Figure 1-4 Interfacing

For most applications, the interface between the Printer and the Host will be serial (RS-232C). An interface cable is needed to connect the Printer to the host. Cable configurations for typical interfaces are shown below, (contact your reseller for part numbers and ordering information).

HOST DB-9S	PRINTER DB-9P	HOST DB-25S	PRINTER DB-9P
TX 3	2 RX	TX 2	2 RX
RX 2	3 TX	RX 3	3 TX
	7 RTS		7 RTS
CTS 8	4 DTR	CTS 5	4 DTR
DSR 6	8 CTS	DSR 6	8 CTS
GND 5	5 GND	GND 7	5 GND
DTR 4		DTR 20	
SHIELD	SHIELD	SHIELD	SHIELD

Figure 1-5 Interface Cables

Other applications may require a parallel connection from the Printer to the host. The Printer can be connected to the host with a standard parallel printer cable.

1.6 Loading Media

Due to its design, loading the Printer with media is a simple task. The following steps outline the procedure.

Note: If your Printer is equipped with the External Media Supply Option then you would load the media from the rear of the Printer.

1. Open the Printer's Top Cover.
2. Release the Printhead Carrier Assembly by pushing the Printhead Latch. Raise the Assembly to its up position.
3. Place a roll of the chosen media on the Media Hub and place it in the Printer. Ensure that the Media Hub is flush against the media.
4. Pull the media forward and out of the Printer. Ensure that the media's labels are facing up.
5. Slide the Media Guide over until it is against the side of the media.
6. Close the Printhead Carrier Assembly, press down until it latches.

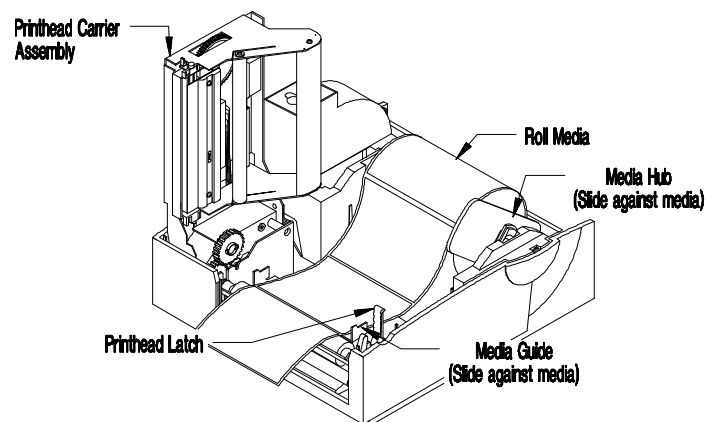


Figure 1-6 Media Loading

7. Close the Top Cover. Press the Feed Button several times to ensure proper tracking.

1.7 Loading Media for Peel Configuration

1. Open the Printer's Top Cover.
2. Release the Printhead Carrier Assembly by pushing the Printhead Latch. Raise the Assembly to its up position.
3. Place a roll of the chosen media on the Media Hub and place it in the Printer. Ensure that the Media Hub is flush against the media.
4. Move the Peel Off Lever forward to its open position.
5. Peel off eight inches of labels. Route the backing over the Tearbar and behind the Peel Off Shaft as shown below:

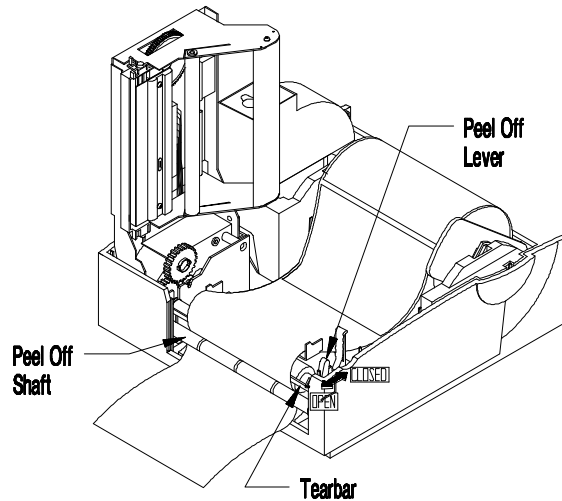


Figure 1-7 Peel Off Media Loading

6. Slide the Media Guide over until it is against the side of the media.
7. Move the Peel Off Lever back to its closed position.
8. Close the Printhead Carrier Assembly, press down until it latches.
9. Close the Top Cover. Press the Feed Button several times to ensure proper tracking. The labels should separate as the Printer feeds.

1.8 Loading Ribbon

1. Open the Printer's Top Cover.
2. Remove the two Ribbon Hubs.
3. Slide the ribbon onto the hub ensuring that the ribbon comes off the roll as shown below.

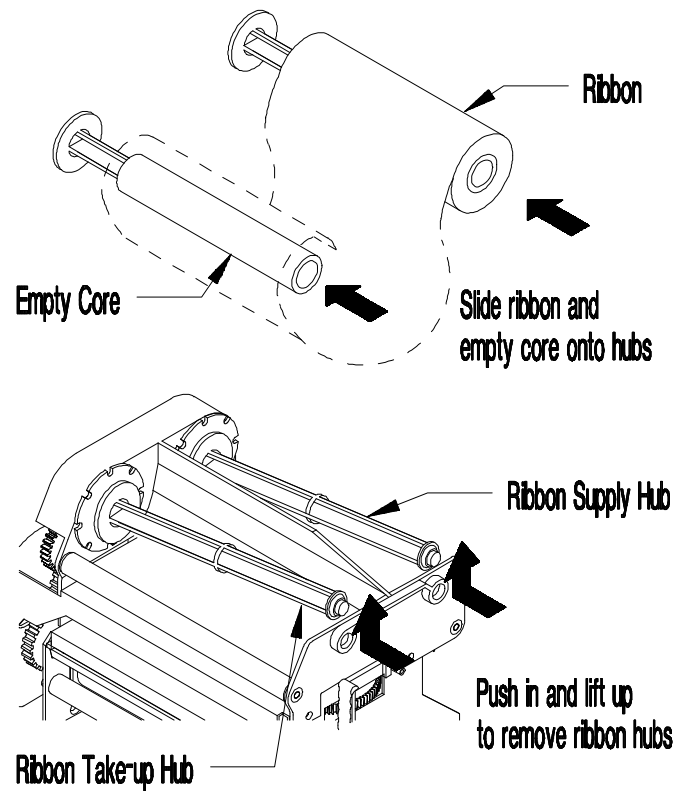


Figure 1-8 Ribbon Hub Removal

4. Place the Ribbon Supply Hub back into the Thermal Transfer Assembly.

5. Make sure that the Direct/Thermal Transfer Switch is set to the 'Transfer' position for thermal-transfer printing.

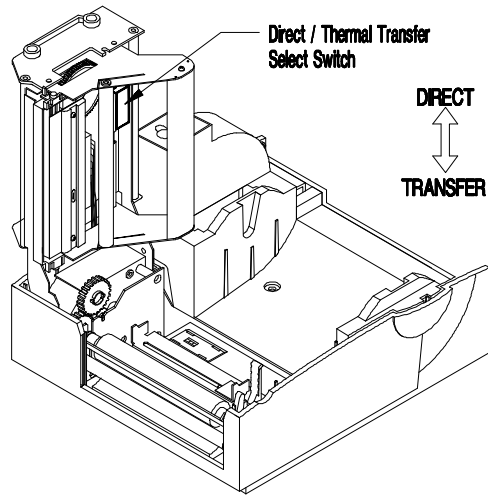


Figure 1-9 Selecting Print Type

6. Route the ribbon through the Printhead Carrier Assembly as shown.

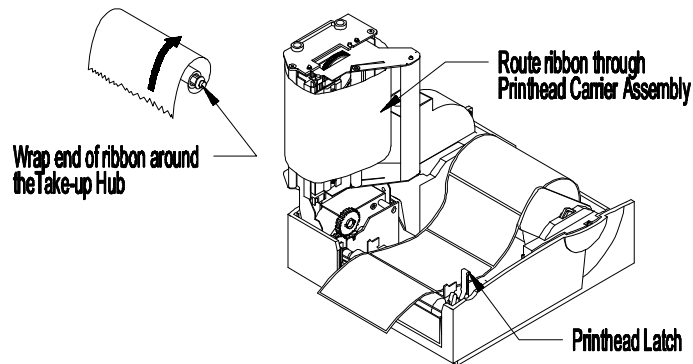


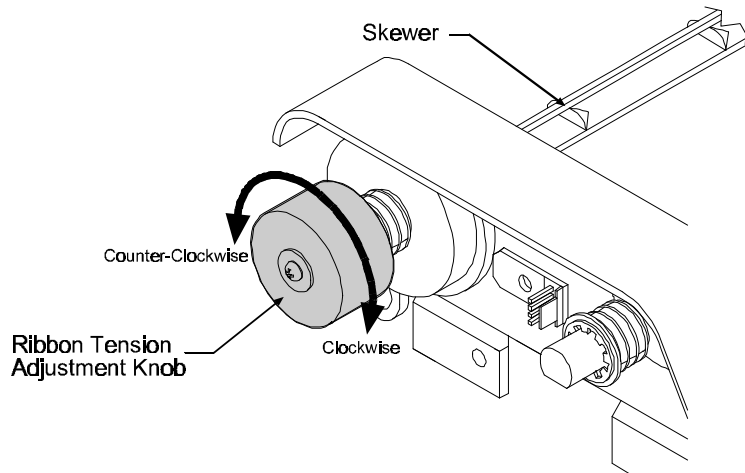
Figure 1-10 Ribbon Routing

7. Close the Top Cover. Press the Feed Button several times to ensure proper tracking.

1.9 Adjusting for Wide or Narrow Ribbons

The Ribbon Handler has a built in adjustment for controlling tension on the Ribbon Supply Hub. This adjustment provides for better results when using different width ribbons.

1. Turn 'off' the Printer.
2. Hold the Ribbon Supply Spindle and rotate the Ribbon Tension Adjustment Knob to meet your printing needs based on the table below. Ensure that the Ribbon Tension Adjustment Knob is turned fully to the Clockwise or Counter-Clockwise position.



1-11 Adjustments for media

Direction of Rotation	Effect
Clockwise	Use this position for narrow ribbons
Counter-Clockwise	Use this position for wide ribbons

1.10 Power-up Configuration and Self-Test

With the Printer off, load the media to be used (at least 4 inches wide) and ribbon (if equipped and/or desired). Press and hold the Feed Button and turn the Printer on, continue holding the Feed Button until the media begins to move then release the Feed Button. The Printer will automatically detect if a ribbon has been installed, and the Printer will then print the two test labels.

Note: After performing a Power-Up and Self-Test, the Printer will be in 'Character Dump Mode'. Turn the Printer off momentarily, then back on to restore normal operation.

To reset the Printer to 'Factory Defaults':

With the Printer off, press and hold the Feed Button while turning the Printer ON. Continue to hold the Feed Button for 60 seconds and then release. The Printer will now be set to the 'Factory Defaults'.

The first label printed will be the Configuration Label, which lists the Printer's configuration and status.

```
FRI SEPTEMBER 026, 1995 19:29 244

ROM CHECKSUMS
U09
U10
SYSTEM RAM CHECKS_____ GOOD  SYSTEM RAM SIZE__ 512
KBYTES

CONFIGURATION
9600,8,N
DIRECT

INPUT VALUES
PAPER: 228  EDGE: 179  REFL: 0  TEMP: 89
POT  : 212  TOFA: 133  RIBN: 0

COUNTER INFORMATION
ABSOLUTE VALUES 9-18-1994  RESETABLE VALUES 9-18-
1994
LENGTH_____ 773 INCHES  LENGTH_____ 576
INCHES
TIME_____ 10 HOURS  TIME_____ 4
HOURS

MEMORY CONFIGURATION
```

INTERNAL MODULE_____ 12 SCALABLE FONTS_____
10

Figure 1-11 Configuration Test Label

The second of the two labels is the Test Pattern Label. This label is used to determine whether the Printhead is in need of replacement. 'Good' and 'Bad' Test Pattern labels are shown below:

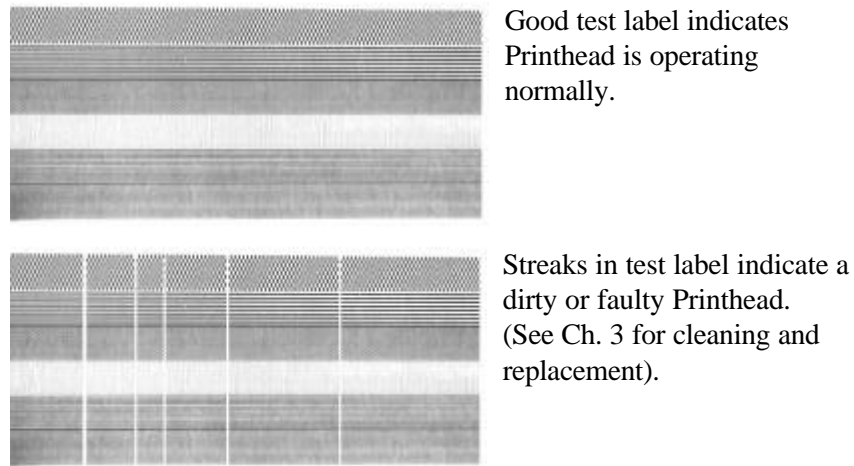


Figure 1-12 Printhead Test Label

1.11 Available Options

External Cutter

The Printer can be ordered with an Optional Cutter Mechanism, (for cutting tags and labels), and can be installed by the user. The Cutter Option easily attaches to the front of the Printer and its modular cable plugs into the back. When properly installed the cutter will cut each label as it is printed.

Present Sensor

The Printer can either be ordered with the Present Sensor Option or the option can be purchased and installed at a later date. The Present Sensor allows the Printer to be configured for "one up" printing. With the sensor installed, the Printer will not print the next label until the previous printed label has been removed from the Printer.

Memory Cartridges (Modules)

The Printer has one 16 bit memory cartridge slot. FLASH Memory Cartridges are available in 256K and 512K sizes for storage of images, fonts, or label formats. An Internal Batch Labeling Software Cartridge is available that contains 256K of FLASH Memory on-board for direct storage of label formats. A variety of Font Cartridges are also available.

DRAM Expansion

The DRAM memory in the Printer is expandable to 1 MB. Additional memory allows for larger label formats to be loaded into the Printer's memory, thereby making it possible to print longer labels.

Wall Mount Assembly

The Wall Mount Assembly Option allows the Printer to be mounted to a wall or other vertical surface using a special mounting plate.

Time/Date

The Time/Date Option allows the Printer to retain the current time and date. This is useful when printing labels that require the current time or date to be included within the label.

External Media Supply

The External Media Supply Option allows for larger rolls of media, (up to 8 inch O.D. rolls), to be used with the Printer. Using a larger roll of media allows greater quantities of labels to be printed without installing new media.

◆ **Printing Labels**

2.0 Introduction

This chapter explains how to generate labels using several different methods and how to print different bar codes. An optional Internal Batch Cartridge is available for generating label formats using the Printer as a standalone device.

A LINK MC2 or compatible CRT is required if the optional Internal Batch Cartridge is used. The optional Internal Batch Cartridge works much like a PC-compatible software package, but uses Cartridges instead of hard or floppy disk drives to store and retrieve label formats.

Labels can also 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” which 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>AwmmdddyhhMMjjj</i> 16 digits total. <i>w</i> = 1 digit week, 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
c	Set continuous paper length	<i>cnmmn</i> = length of paper to feed per label
d	Set Printer to double buffer mode	Use to print a label while a second is formatting in memory
E	Set quantity for stored label	<i>Emnnn</i> = Set Quantity for stored label
e	Select edge sensor	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	
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
i	Download scalable font	
J	Set pause for each label	
K	Extended System Commands	<i>Kn n</i> = Q - For query D - Database Configuration S, W, or M - Set configuration R - Reset <i>fxxx</i> - 4 digit number, Distance between TOF sensor and stop position r - Resettable counters reset
k	Test RS-232 Port with a Y if OK	Sends character "Y" to RS-232 port
L	Enter Label Formatting Mode	
M	Set maximum label length	<i>Mnnnn</i> = 4 digits Max. 12. inches

Table 2-3 System Level Commands

Char	Description	Format
m	Set metric flag, enter metric mode	All references set to metric until reset
n	Clear metric flag, return to inch mode	
O	Form edge offset (start of print position)	O $nnnn$ = 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	gx = 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	Sx x = A -C (1.0 to 2.0 ips)
s	Set up for one print buffer	Set for 1 dot buffer processing. Use for full length dot buffer processing.
T	Printhead dot pattern test label	
t	Test RAM memory module (Must be in Test Mode)	a bbbK Module Good bbb = 256 or 512, for size of module
U	Label format field replacement	
V	Software switch settings	Vn n = 4-Label Present, 2-Internal Batch, 1-Cutter Enable
v	Firmware version information	Sends version string to Host
W	Request memory module information	Wx x = F-font, G-graphic, L-label
w	Test FLASH module memory	Takes about 90 seconds
x	Delete module file	xMFname M=Module I.D, F=file type
X	Set default module bank	Xa a - A = Memory Module A
Y	Output sensor values	Dumps sensor values status to RS-232 port
y	Select Font Symbol Set (Optional scalable fonts only)	y S xx y = ASCII (0x79) S = ASCII (0x54) xx = symbol selection
z	Pack module	
Z	Print internal information and dot pattern	Zx x= Module I.D

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. 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
A	Set format attribute	<i>An</i> <i>n</i> =1-XOR, 2-Transparent, 3-Opaque, 5-Inverse
C	Set column offset amount	<i>Cnnnn</i> <i>nnnn</i> = in/100 or mm/10
c	Set cut by amount (2 digits)	<i>cnn</i> <i>nn</i> = 2 cut amount
D	Set height and width dot size	<i>h</i> = Horiz. dot size; can be 1 or 2 <i>v</i> = Vert. dot size; can be 1,2, or 3 (0.005" steps) Default is "D22"
E	Terminate field generation 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</i> <i>nn</i> = 2 digits. 1 - 30 10 is nominal and default
m	Set metric mode	The Printer must be reset in order to return to standard measure
M	Set mirror image mode (<i>'Mirror Images'</i> current formatted label)	<i>'M'</i> must be re-sent to cancel. * Will not mirror polygons.
P	Print speed	<i>Px</i> <i>x</i> <i>x</i> = A -C (1.0 to 2.0 ips)
p	Set label backup speed	<i>px</i> <i>x</i> <i>x</i> = A -C (1.0 to 2.0 ips)
Q	Enter quantity of labels to print	<i>Qnnnn</i> <i>nnnn</i> = quantity
R	Set row offset amount	<i>Rnnnn</i> <i>nnnn</i> = in/100 or mm/10
r	Recall stored label format	<i>rnn...n</i> <i>nn...n</i> Label name of up to 16 char. terminated by CR.
S	Slew (feed) speed	<i>Sx</i> <i>x</i> <i>x</i> = A -C (1.0 to 2.0 ips)
s	Store label format in module	<i>sann...n</i> <i>a</i> - destination module A Memory Module A <i>nn...n</i> - label name (16 char. max)
T	Set field data line terminator	<i>Tnn</i> <i>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	
y	Select font symbol set (optional scalable fonts only)	y S xx y = ASCII (0x79) S = ASCII (0x54) xx = symbol selection
z or Z	Zero (0) conversion to "O" eliminates slash (/)	
+	Make last field entered increment numeric	+pii Make last entered field incrementing p = Zero fill character ii = Data added to field
-	Make last field entered decrement numeric	-pii Make last entered field decrementing p = Zero fill character ii = Data subtracted from field
>	Make last field entered increment alphanumeric	>pii Make last entered field incrementing 0 - Z p = Zero fill character ii = Data added to field
<	Make last field entered decrement alphanumeric	<pii Make last entered field decrementing 0 - Z p = Zero fill character ii = Data subtracted from field
^	Set count by amount	^nn Set count by amount nn = 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 Format 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.

The following sample program is included for reference. The ASCII text file below will generate the label shown in Figure 2-1.

Command Character	P	PR	Description
*c###D	N	N	Assign Font ID Number ### = ID Number 100 to 999

P = Must Supply Parameters?(Y/N)

PR = Printer Responds? (Y/N)

Table 2-6 Font Loading Commands

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

2.3 Configuration Command String

The Configuration Command String sets the operating parameters of the Printer. The Command Strings are described below.

<STX>KDwxy <CR>

where w:

Bit #	Function	Value
0-2	Baud Rate	0=9600, 1=600, 2=2400, 3=19200, 4=4800, 5=N/A, 6=1200, 7=9600 Test Mode
3	Word Length	0=8 bits, 1=7bits
4&5	Unused	Set to 0
6	Always 1	Set to 1
7	Always 0	Set to 0

where x:

Bit #	Function	Value
0	Print Method	0=direct, 1=transfer
1	Present Sensor	0=not equipped, 1=equipped
2	Alternate Char. Set	0=standard, 1=main frame
3	Cutter	0=disabled, 1=enabled
4&5	Unused	Set to 0
6	Always 1	Set to 1
7	Always 0	Set to 0

where y:

Bit #	Function	Value
0&1	Paper Type	0=gap(edge), 1=reflective, 2=continuous (3")
2	Linerless	0=not equipped, 1=equipped
3-5	Unused	Set to 0
6	Always 1	Set to 1
7	Always 0	Set to 0

Example:

<STX>KD @A@ <CR>

- @ Sets the Printer to: 9600 baud; 8 bit word length/no parity.
- A Sets the Printer to: thermal transfer; no present sensor; standard character set; no cutter.

@ Sets the Printer to: gap (edge) media; no linerless.

2.4 Printing Bar Codes

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.

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



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

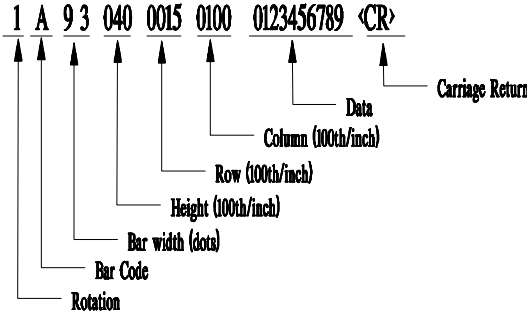


Figure 2-2 Example line 3

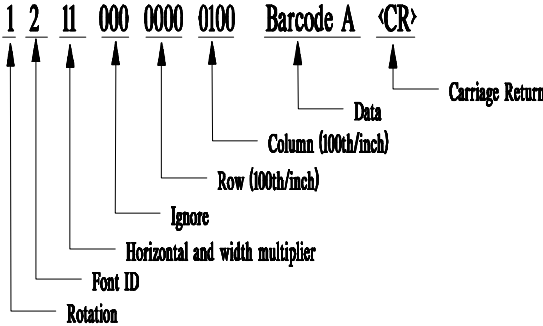



Figure 2-3 Example line 4

2.5 Memory Cartridges (Modules)

The Printer has one 16 bit Memory Cartridge Slot. There are four storage uses for Memory Cartridges: graphic images; smooth formed fonts; label formats that can be recalled by host computers; and internal batch formats.

	<p>Caution! The use of Memory Cartridges other than those specifically designed for the Printer can cause damage to both the Cartridge and the Printer.</p>
---	--

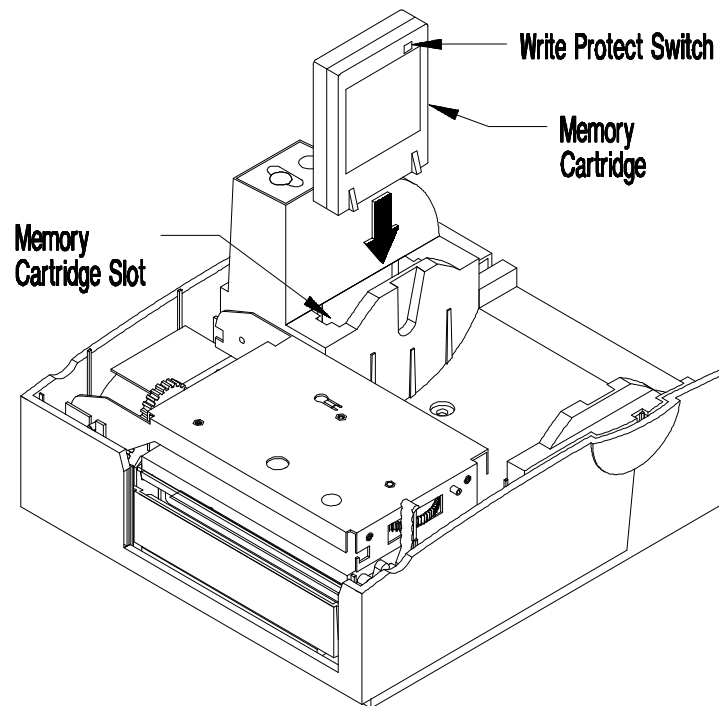


Figure 2-4 Inserting Memory Cartridge

When turned on the Write Protect Switch will not allow data to be written to the Cartridge, ensuring that important data is not overwritten.

◆ Maintenance

3.0 Introduction

This chapter will cover the cleaning, adjusting, and some troubleshooting tips involved with your Printer.

3.1 Cleaning the Printhead

Warning: Turn 'off' the Printer and unplug the unit from the outlet before cleaning the Printhead.

The Printhead should be cleaned every time a new roll of media is installed. Follow the instructions below for proper cleaning.

1. Turn OFF the Printer, open the Top Cover.
2. Unlatch the Printhead Assembly, raise it to its up position.
3. Using a cotton swab dipped in isopropyl alcohol, clean the Printhead by rubbing the cotton swab along the Printhead.

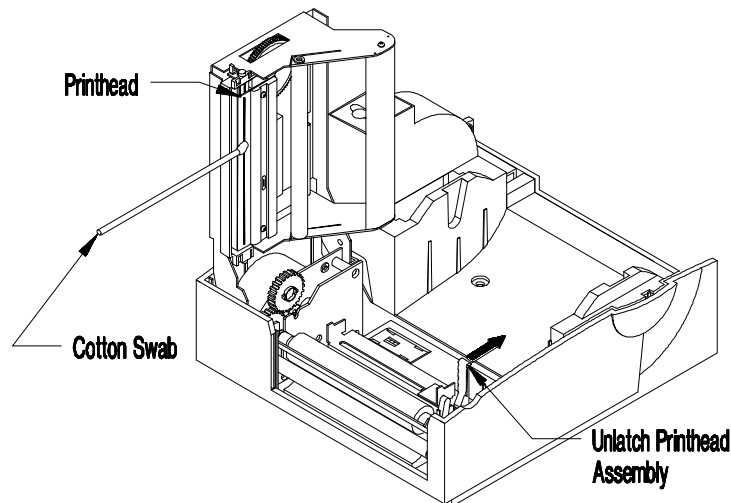


Figure 3-1 Cleaning Printhead

3.2 Media Width Adjustment

The Thumbwheel on the side of the Printhead Carrier allows the Printhead to be adjusted for media narrower than the width of the Printhead. The numbers on the Thumbwheel do not correspond to a particular media width but serve only as a reference point.

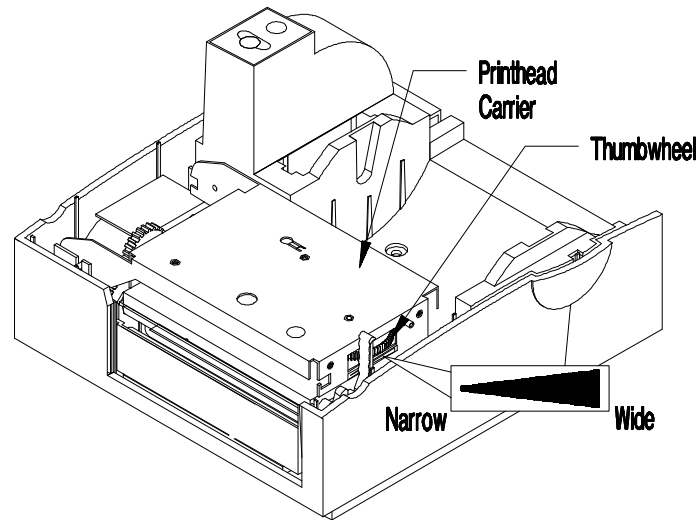
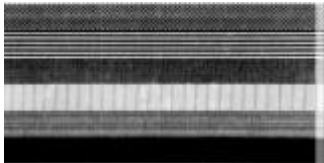
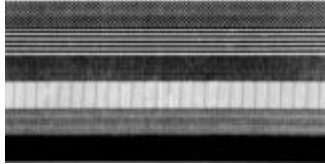


Figure 3-2 Adjusting Media Width

1. Load the Printer with the chosen media.
2. Begin printing labels. The internal Test Pattern Label can be used or any other label sent from the Host.
3. Rotate the Thumbwheel left until the print quality along edge starts to lighten.The test pattern consists of several horizontal bars of varying shades of gray. The bars are darker in the center and lighter towards the edges, indicating uneven print quality.
4. Then rotate the Thumbwheel right just enough to achieve uniform print quality across the label.The test pattern consists of several horizontal bars of varying shades of gray. The bars are uniform in color across the entire width, indicating uniform print quality.

3.3 Fine Printhead Adjustment

An Allen set screw is located on top of the Printhead Carrier Assembly that can be adjusted for controlling print quality. This adjustment is set at the factory and should not need further adjusting, however with different types and thickness of media some adjustment may be necessary.

To adjust the Printhead, turn the set screw until optimum print quality is obtained, (some trial and error may be necessary).

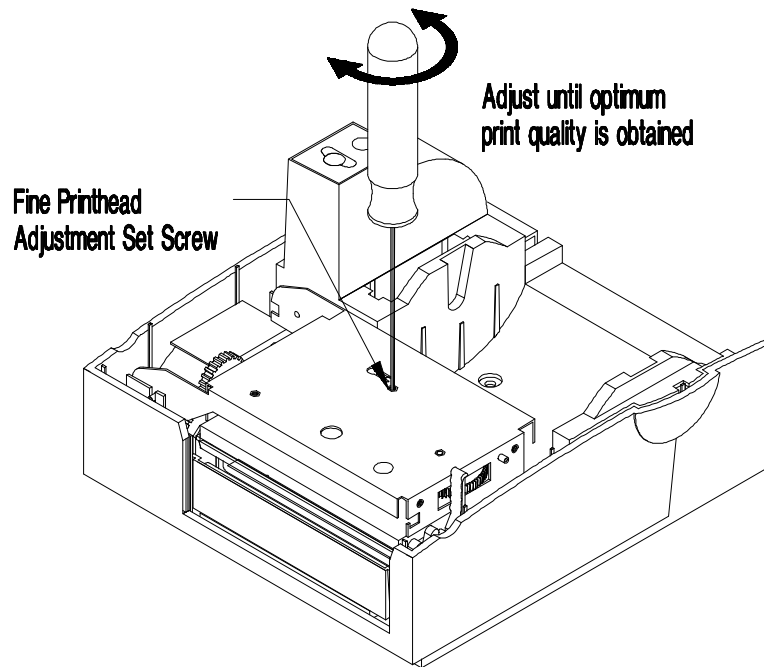
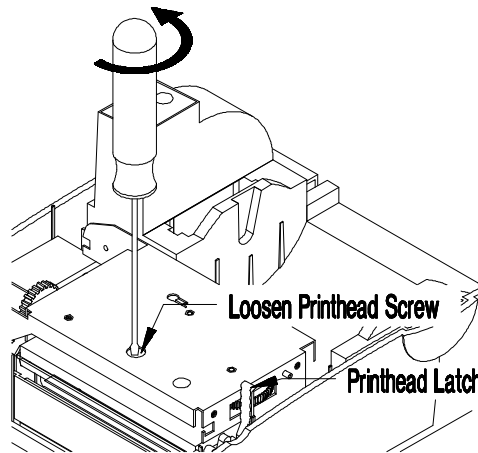


Figure 3-3 Fine Printhead Adjustment

3.4 Printhead Replacement

Removal:

1. Turn OFF the Printer and unplug it from the AC outlet. Open the Top Cover.
2. Unlatch the Printhead Assembly, loosen the Printhead Screw until the Printhead is free.



3. Carefully disconnect the Printhead Cable from the back of the Printhead.

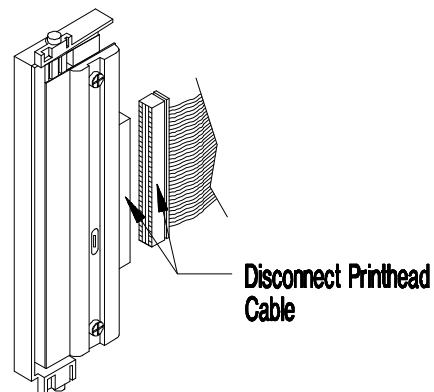


Figure 3-4 Printhead Replacement

Replacement:

1. Connect the Printhead Cable to the new Printhead.
2. Position the Printhead on the Printhead Assembly, (using guide pins), and tighten the Printhead Screw.
3. Ensure that the Printhead Cable is not pinched and that the Printhead is clean.

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	Ö	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	Ö	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

Note: For the software handshake XON/XOFF commands:
XON=(DC1) **XOFF** =(DC3)

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	Ů	233	E9
è	138	8A		170	AA		202	CA	Ũ	234	EA
ï	139	8B	½	171	AB		203	CB	Û	235	EB
î	140	8C	¼	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	Ë	210	D2		242	F2
ò	147	93	³	179	B3	Ë	211	D3	¾	243	F3
ö	148	94	´	180	B4	Ë	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	º	248	F8
Ö	153	99	¹	185	B9		217	D9	ˆ	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

Available Fonts and Bar Codes

All character fonts and bar codes available with the Printer are described in this section. Each font and bar code has a name associated with it for use in programming. Human-readable fonts have numeric names while bar code fonts have alpha names. Uppercase alpha names will print bar codes with human readable interpretations. Lowercase alpha names will print bar codes 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. This is helpful when using variable data in a fixed area. The sizes of these fonts are shown in Table B-1.

The Triumvirate font number 9 is a proportional font; each character will take up a different amount of space when printed. For example, the letter W will be larger than the letter I.

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 B-1 Valid Human Readable Font ASCII Characters

Table B-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 B-2 Font Sizes

Font 0 96-character alphanumeric, upper and lower case.

```
Font 0
!"#$%&'()*+,-./
0123456789:;<=>?@
ABCDEFGHIJKLMN
OPQRSTUVWXYZ[\]^_
`abcdefghijklmnopqrstuvwxyz
{|}~
```

Font 1 145-character upper and lower case alphanumeric w/ descenders and ascenders.

```
Font 1:
!"#$%&'()*+,-./0123456789:;<=>?@
ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_
`abcdefghijklmnopqrstuvwxyz{|}~
ÇüéáàåäçèéëïïíîËÆøŒóôö
ùúÿÜöø£Ø×fa iouñÑ²³¼½¾ß
```

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

```
Font 2:
!"#$%&'()*+,-./0123456789:;<=>?@
ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_
`abcdefghijklmnopqrstuvwxyz{|}~
ÇüéáàåäçèéëïïíîËÆøŒóôö
ùúÿÜöø£Ø×fa iouñÑ²³¼½¾ß
```

Font 3 62-character alphanumeric, uppercase.

```
FONT 3:
!"#$%&'()*+,-./0123456789:
ABCDEFGHIJKLMN OPQRSTUVWXYZ
ÇAÆÖÜ£ØÑ¿ß
```

Font 4 62-character
alphanumeric, uppercase.

FONT 4:
#%&()*+.-/0123456789:
ABCDEFGHIJKLMNPOQRSTUVWXYZ
ÇÀÁÈÖÜ£ØÑ¿ß

Font 5 62-character
alphanumeric, uppercase.

FONT 5:
#%&()*+.-/0123456789:
ABCDEFGHIJKLMNPOQRSTUVWXYZ
ÇÀÁÈÖÜ£ØÑ¿ß

Font 6 62-character alphanumeric, uppercase.

FONT 6:
#%&()*+.-./
0123456789:
ABCDEFGHIJKLM
MNOPQRSTUVWXYZ
ÇÀÁÈÖÜ£ØÑ¿ß

Font 7 OCR-A, size I.

Font 8 OCR-B, size III.

Font 7:
 ! " # \$ % & ' () * + , - . /
 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:
 0 1 2 3 4 5 6 7 8 9
 < > C E N S T X Z I

Font 9 Internal Triumvirate font.

Point sizes are selected by the number in the bar code height.
 Larger point sizes can be obtained by increasing the height and width
 multipliers (see the Programmer's Manual for more information).

4 pt ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789
 5 pt ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789
 6 pt ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789
 8 pt ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789
 10 pt ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789
 12 pt ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789
 14 pt ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789
 18 pt ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789

Bar Codes

Font	Length	Cksum	Valid ASCII Characters	Bar widths
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	2:1 - 4:1
C	6	Yes	48-57 Numeric only	2:1 - 4:1
D	Varies	No	48-57 Numeric only	2:1 - 3:1
E	Varies	M-103	32-127	2:1 - 4:1
F	12	Yes	48-57 Numeric only Option V used in the 7th & 8th position	2:1 - 4:1
G	7	Yes	48-57 Numeric only	2:1 - 4:1
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	2:1 - 4:1
N	5	Yes	48-57 Numeric only	2:1 - 4:1
O	Varies	No	0 - 127 ASCII characters	2:1 - 4:1
p	Varies	Yes	48-57 Numeric only	Same as fonts
Q	19	Yes	48-57 Numeric only	2:1 - 4:1
R	18	Yes	48-57 Numeric only	2:1 - 4:1
S	34 +	Yes	48-57 Numeric only	2:1 - 4:1
T	Varies	Yes	0 - 127 ASCII characters	2:1 - 4:1
u	84	Yes	Alpha numeric	N/A
v	1	No	A, B, C, D	Same as fonts
z	Varies	Yes	All	Any Ratio

Table B-3 Bar Code Characteristics

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

Bar Code A Code 3 of 9



Bar Code B UPC-A



Bar Code C UPC-E



Bar Code D Interleaved 2 of 5



Bar Code E Code 128



Bar Code F EAN-13



Bar Code G EAN-8



Bar Code H Health Industry Bar Code (HBIC)



Bar Code I Codabar



Bar Code J Interleaved 2 of 5
w/modulo 10 checksum



Bar Code K Plessey



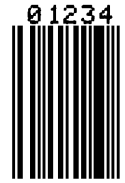
Bar Code L Interleaved 2 of 5
w/modulo 10 checksum and
shipping bearer bars



Bar Code M 2 Digit UPC
addendum



Bar Code N 5 Digit UPC
addendum



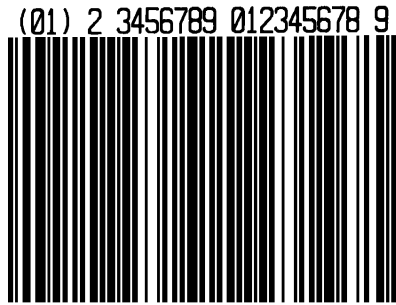
Bar Code O Code 93



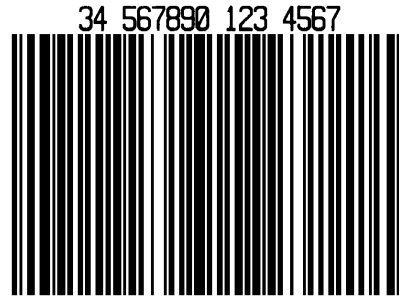
Bar Code p Postnet



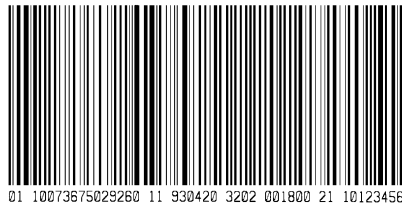
Bar Code Q UCC/EAN Code 128



Bar Code R UCC/EAN Code 128
KMART NON EDI



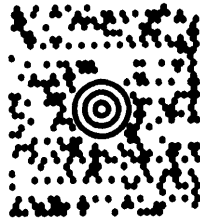
Bar Code S UCC/EAN Code 128
Random Weight



Bar Code T Telepen



Bar Code u UPS MaxiCode



Bar Code v FIM



Bar Code z PDF-417



Appendix C

Error Codes

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

Lowercase "v"

There is an input buffer overflow situation.

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.

Appendix D

Warranty Information

Brady

Limited Warranty Statement

Bradyprinter THT Model 1024

Printer

Brady warrants to Purchaser that under normal use and service, the Bradyprinter™ THT Mode 1024, (with the exception of the thermal Printhead) purchased hereunder shall be free from defects in material and workmanship for a period of (365) days from the date of shipment by Brady.

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 ninety (90) days, or 1,000,000 linear inches of use, whichever comes first, for the Bradyprinter THT Model 1024. This ninety (90) day warranty is valid only if Brady-approved thermal transfer label media is used. Failure to use Brady-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 Brady at: 6555 Good Hope Road, Milwaukee, WI 53223. An RMA (Return Material Authorization) number must be issued before the product can be returned. To open an RMA please call Brady's customer service department at 1-800-537-8791. 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. Brady shall not be responsible for any loss or damages incurred in shipping. Any warranty work to be performed by Brady shall be subject to Brady's confirmation that such product meets Brady's warranty. In the event of a defect covered by its warranty, Brady will return the repaired or replaced product to the Purchaser at Brady'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

Brady 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 herein, 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 Brady's products.

Limitation of Liability

In no event shall Brady be liable for any indirect, special, or consequential damages or lost profits arising out of, or relating to Brady's products, or the performance or nonperformance thereof, even if Brady has been advised of the possibility thereof. Brady's liability, if any, to its purchaser or to any customer(s) of its purchaser shall in no event exceed the total amount paid to Brady by the initial purchaser of the defective product.

In the event any implied warranties, (including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose), are found to exist, such warranties are limited in duration to the period of the warranties set forth above.

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.

**Insert Free Roll of Labels
reply card for the 1024
Printer.**

(Do not print this page with the manual! Replace
this reminder note with the reply card)