Operation Manual

Ti-1000 Thermal Transfer Printer, Ver 1

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Ti-1000 Inline Thermal Transfer Printer

Operation Guide, Ver 1

Setup and Operation guide

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Warranty & Disclaimer

Warranty period is one year or 1,000,000 linear inches of print, whichever comes first. The warranty commences on the date of delivery of the equipment.

APPI warrants to the Purchaser that the equipment is free from defects in workmanship or material under normal use and service. During the warranty period, APPI agrees to repair or replace, at its sole option, without charge to Purchaser, any defective component part of the equipment. To obtain service, Purchaser must return the equipment or component to APPI or an authorized APPI distributor or service representative in an adequate container for shipping. Any shipping charges, insurance, or other fees must be paid by Purchaser and all risk for the equipment shall remain with Purchaser until such time as APPI takes receipt of the equipment. Upon receipt, APPI, the authorized distributor or service representative will promptly will promptly repair or replace the defective component and then return the equipment or component to Purchaser, shipping charges, insurance and additional fees prepaid. APPI may use reconditioned or like new parts or units, at its sole option, when repairing any component or equipment. Repaired products shall carry the same amount of outstanding warranty as from original purchase. Any claim under the warranty must include dated proof of delivery. In any event, APPI's liability for defective components is limited to repairing or replacing the components.

This warranty is contingent upon proper use of equipment by Purchaser and does not cover: expendable component parts such as print heads, rollers, bushings, or if damage is due to accident, unusual physical, electrical or mechanical stress, neglect, misuse, failure of electrical power, improper environmental conditions, transportation, tampering with or altering of the equipment, packaging of corrosive or contaminating products or other products damaging to components, and equipment or components not owned or in the possession of the original Purchaser.

APPI will not be liable for loss of production, profits, lost savings, special, incidental, consequental, indirect or other similar dmages arising from beach of warranty, advised of the possibility of such damages or for any claim brought against the Purchaser by another party.

This warranty allocates risks of equipment failure between Purchaser and APPI. APPI's pricing reflects this allocation of risk and the limitations of liabilities contained in this warranty. This warranty set forth above is in lieu of all other express warranties, whether oral or written. The agents, employees, distributors and dealers of APPI are not authorized to make modifications to this warranty, or additional warranties binding on APPI. Accordingly, additional statements such as dealer advertising or presentations, whether oral or written, do not constitute warranties by APPI and should not be relied upon.

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Identification Checklist & Registration Information:

Item:	APPI Inspector:	Purchaser's Inspection:
Serial Number		
PCB S/N		
IF Board S/N		
PS Board S/N		
4" / 5" / 8" Head		
Optional Equipment: _____ Verifiers _____ Software Version _____ PrintPad _____ Scanners _____ Laptop Computer	Model, S/N:	
Other:	□	

REGISTRATION INFORMATION:

This section must be completed and returned to Advance Poly Packaging, Inc. to register the RAP 1400 for Warranty Protection. (See warranty contained in this manual for specific warranty information)

Company Name & Address	Contact Name(s) / Title(s) / Phone Number
_____ _____ _____ □	_____ _____ _____

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Operation Guide

Chapter 1, Introduction

Welcome
Overview
Capabilities and Performance
Options and Accessories
Printer Specifications
Electronics Specifications
Print Specifications
Ribbon Specifications
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1.1 Welcome

Thank you for selecting the TI-1000 IN-LINE THERMAL TRANSFER PRINTER™, manufactured by ADVANCED POLY-PACKAGING, INC. We know you will be satisfied with its durability, functionality and performance.

1.2 Overview

Through increased production and decreased inventory, thermal transfer printing can save thousands by lowering packaging costs.

Print directly onto the bag or film surface and eliminate non-printed label stock and preprinted label inventories. Increase production and reduce labor codes; stop hand applying costly paper labels to your product.

1.3 Capabilities & Performance

GRAPHIC CAPABILITY

Print with a selection of 60 types of characters (fonts), 20 types of bar codes (including European specification bar codes), lines, boxes, and graphic images. Print labels up to 4 inches wide (or 5" wide with optional 305 dpi, 5" head) and up to 35 inches long!

HIGH QUALITY PRINT

Printing at speeds of 10 inches per second with high resolution 203 dots per inch (or optional 305 dpi head) is now possible, allowing you to take advantage of the fastest autobagger (T-1000 Advanced Poly-Bagger™) automatic L-Sealer of FFS machine. The high dot density produces clear, clean print required for perfect scannability of bar codes and readability of finely printed text.

DURABILITY

Rugged, durable construction provides protection in heavy industrial manufacturing environments. Floating-edge head revolution allows for extended print head life. Since the print head heat element is positioned at the edge of the print head, print quality is significantly improved without the need to adjust the head for varying media thickness.

HIGH SYSTEM PERFORMANCE

High throughput can be obtained with "on-the-fly" formatting. And realize faster downloading of large labels of scanned input PCG or PCX files due to an onboard 16-bit CPU.

1.4 Options & Accessories

THERMAL TRANSFER RIBBON

We stock thermal transfer ribbon in all available widths. Colors are also available upon request.

SPARE PARTS KITS

Level 1 Spare Parts Kit (P/N T-TISP10) includes a cleaning and lubrication kit, a spare print head and other items required for normal wear and preventable maintenance. Level 2 Spare Part Kit (P/N T-TISP20) includes items in the Level 1 Kit plus items which may fail not due to normal wear.

WIDER, HIGH RESOLUTION PRINT HEAD

Upgrade the TI-1000 with the optional 305 dpi, 5" wide print head with no loss of production.

BAR CODE VERIFIERS

In-line verifiers guarantees that every bar code is readable and/or the correct code. Programmable to halt printing or signal the operator for bad reads, no reads and also marginal read bar codes. Hand-held verifiers allow for periodic reading of orders for quality control of the finished product.

PC'S (LAPTOP)

IBM or other major brand laptop computers specifically designed for manufacturing environments with the latest performance specifications at exceptional values. All major computers come pre-loaded with the latest Windows version and label software so you simply plug in and download.

PRINTER CONTROLLERS

Instead of having a PC on the shop floor, we offer a rugged controller which single purpose and ease of use minimize training of shop floor personnel. No software training required.

SCANNERS

Hand-held "trigger" scanners offer scanned input versus operator input to eliminate operator error. Simply scan the bar code of the last printed sample and all of the information is down- loaded automatically! Also verifies the readability of bar codes.

LABEL SOFTWARE

We offer several software packages which allows you to select the best solution to fit your process. Integrate to virtually any database files and avoid having to re-input your data. Software available for DOS, Windows 3.11 or Windows 95.

MEMORY MODULE
Increase downloading performance, extend buffer up to 512K and store larger files into memory.

FLASH MEMORY CARD
Save logos, writable characters and print formats to this 1MB card.

HIGH SPEED INTERFACE CARD
Increase performance of down-loading of data from databases (address lists, part numbers, incrementing serial files, etc.) on a first-in, first-out command transfer method.

1.5 Printer Specifications

Weight:	60 Lbs.
Dimensions:	18" wide x 18" deep x 14" high
Supply voltage:	AC 100V-120V +10%, -15%, 60HZ
Power consumption:	190W/2.2A max
Stand by:	22A, 15W
Operating temperature:	41 degrees F- 104 degrees F
Relative humidity:	25%-85% RH, no condensation
Print head:	203.2 dots per inch or optional 305 dots per inch
Print method:	Thermal transfer
Print speeds:	3 inch/sec, 6 inch/sec, 10 inch/sec
Optional head:	3, 6, 8 inches/sec
Maximum print width:	4.09 inches or optional 5 inches
Dispensive modes:	Batch (continuous, tear-off)
Message display:	16 characters + 1 line

NOTE: Specifications may change without notice.

1.6 Electronics Specifications

1) CPU	PD70236AGD-16-588	
2) Memory		
	a) Program:	EP-ROM 128KB
	b) Character generator:	Mask ROM 512KB
	c) Backup:	EE-PROM 128 Bytes
	d) Image buffer + Work	D-RAM 512KB (max 2MB-Option)
3) Interface (RS-232C)	Straight through Cable	
	a) Communication mode:	Full-duplex
	b) Transmission speed:	2400, 4800, 9600, 19200 BPS
	c) Synchronization:	start-stop synchronization
	d) Transmission parameter:	
	*Parity:	None, EVEN, ODD
	* Start bit:	1-bit
	* Stop bit:	1-bit or 2-bit
	* Word length:	7-bit or 8-bit

1.7 Print Specifications

TYPES OF BAR CODE

1) UPC-A, UPC-A + 2 digits, UPC-A + 5 digits
2) UPC-E, UPC-E + 2 digits, UPC-E + 5 digits
3) EAN128
4) EAN 8, EAN 8 + 2 digits, EAN 8 + 5 digits, EAN 13, EAN 13 + 2 digits EAN 13 + 5 digits
5) JAN 8, JAN 13
6) NW-7
7) CODE 39 (standard/full ASCII)
8) CODE 93, CODE 128 (auto code switch with/without)
9) ITF
10) MSI

TYPES OF CHARACTERS
1) Times Roman medium (12,15 point)
2) Times Roman bold (15, 18, 21 pt)
3) Times Roman italic (18 pt)
4) Helvetica medium (9, 15, 18 pt)
5) Helvetica bold (18, 21 pt)
6) Helvetic italic (18 pt)
7) Presentation bold (27)
8) Letter Gothic med (14.3 pt)
9) Prestige Elite med (10.5 pt)
10) Prestige Elite bold (15 pt)
11) Courier med (15 pt)
12) Courier bold (18 pt)
13) OCR-A,B (12 pt)
14) Outline font (Helvetica bold)
15) Writable characters (40 types) (224 char./types)

MAGNIFICATION OF BAR CODE
UPC/EAN/JAN/CODE 93/128 Up to 4 modules can be automatically calculated using 1-module width designation (1to 15 dots).

Dots/Module Bar Code	2	3	4	5	6	7	8
UPC-A/E Min Module Width (mm) EAN 8/13 Magnification (times) JAN 8/13	0.25 0.75	0.38 1.14	0.50 1.51	0.63 1.91	--------- ---------	-------- --------	--------- ---------
CODE 93 Min Module Width (mm)	0.25	0.38	0.5O	0.63	0.75	0.88	1.OO
EAN 128 Min Module Width (mm) CODE 128	0.25	0.38	0.5O	0.63	0.75	0.88	1.OO

Dots/Module Bar Code	9	10	11	12	13	14	15
UPC-A/E Min Module Width (mm) EAN 8/13 Magnification (times) JAN 8/13	--------- ---------	--------- ---------	---------- ----------	--------- ---------	--------- ---------	-------- --------	--------- ---------

CODE 93 Min Module width (mm)	1.13	1.25	1.38	1.5O	1.63	1.75	1.88
EAN 128 Min Module Width (mm) CODE 128	1.13	1.25	1.38	1.5O	1.63	1.75	1.88

NW-7/CODE 39/ ITF/MSI The width of narrow bars, wide bars and spaces can be optionally changes in a range of 1 to 99 dots.

MAGNIFICATION OF CHARACTERS
1) Regular font: 0.5 - 9.5 times (magnified by 0.5 times in each direction)
2) Outline font: 2.0 - 85.0mm (magnified by 0.1mm in each direction)

CHARACTER ROTATION
0,90,120,270 degrees

TYPE OF LINE
1) Horizontal
2) Vertical
3) Slant line
4) Square

MAGNIFICATION OF LINES
2 to 8 dots in units of .1mm

1.8 Ribbon Specifications

ITEM	DESCRIPTION
Shape	Spool type
Width	68 - 112mm
Max. length	600 m
Max. OD	*O*90mm
Back treatment	Coated
Core material	Cardboard
Leader tape	Polyester film (Opaque), 300 ± 5mm long
End tape	Polyester Film (Opaque), 250 ± 5mm long
Winding method	The ink side is outside ribbon winding

Do not store ribbon for longer than the manufacturers recommended shelf life. Store the media on its flat end, not on the curved sides. Store partially used ribbon rolls in plastic bags: Unprotected or dirty ribbon causes extra abrasion on the print head and will shorten print head life.
Avoid exposure to direct sunlight, high temperatures, high humidity, dust or gas.

1.9 System Integration

The Ti-1000 is specifically designed to perfectly integrate to the T-1000 Advanced Poly Bagger ™ and other Advanced Poly-Packaging baggers, but will integrate to packaging equipment (vertical or horizontal FFS machines, other brand baggers and other packaging equipment. Please contact APPI technicians and sales staff for assistance in integrating the Ti-1000 printer to your equipment.
FREE CONSULTATION AND PRODUCT EVALUATION
We invite you to discuss your packaging requirements and our free product packaging analysis.

1.10 Using this manual - Typographical Conventions

The following manual conventions are frequently used to assist in understanding important information, alerting the operator of potentially dangerous or damaging practices, and the normal functions of the Ti-1000 Inline Thermal Transfer Printer ™.

Text	Normal text
<RESET>	Used to show KEY FUNCTIONS / KEYS
Italics	Used for emphasis
BOLDFACE	Used to identify heading names
!	Used to identify important information
CAUTION:	Warning messages: To avoid physical harm, damage to equipment or damage to the product. Be sure to read these messages carefully.

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Operation Guide

Chapter 2, Getting Started

Installation Procedures
Assembly Instructions
Air & Power Hookup
Auxiliary Port Connection
Remote Panel Connection
Main Power
Film/Bag Threading
Printer Ribbon Threading
Print Registration and Alignment
Notes on Adjustments of the Ti-1000

Chapter 2 Getting Started

This chapter describes in detail procedures to receive and setup the Ti-1000 Inline Thermal Transfer Printer, mounting, environmental, air and power requirements.

Additionally, this chapter describes how to turn on power to the Ti-1000 and properly thread bags through the machine.

2.1 Installation Procedures

The Ti-1000 is transported as a single unit in a carton designed to protect the machine during shipment or mounted to a bagger (if sold as an option to a bagger). It is shipped completely assembled except for a few items which are easily attached during installation with final adjustment. Refer to inspections, operation, packing and crating checklists in Appendix A for options included, accessories included and location of components shipped.

Unpacking / Inspection

After removing the printer from the container, inspect the unit for damage. If the printer is mounted to a bagger, remove the outer wrapping and ensure the cables are plugged in securely.

Operating Environment

The Ti-1000 should be placed in an area free of excessive heat, moisture, dirt and dust. Operating room temperature should range from 41 to 104 degrees Fahrenheit at 25 to 85% relative humidity with no condensation.

Power Requirements

Provisions must be made for 110-120V +10%, 60 Hz line current with ground.
Power consumption for the Ti-1000 is 190W / 2.2 A max.

CAUTION: A qualified electrician should ensure that the Ti-1000 power outlet is properly grounded, voltages are as required and amperage capacity is sufficient.

Note: APPI recommends a dedicated 20 Amp circuit for the T-1000 w/ Ti-1000 Printer option.

Air Requirements

At least .5 CFM free air is required, regulated to 40 PSI.
Note: Air should be dry and oil-free.

2.2 Assembly Instructions

Choose an operating location, considering traffic flow, availability of film and printer supplies, supply of product to be packaged, take-a-way of finished packages and placement of auxiliary infeed and outfeed equipment.

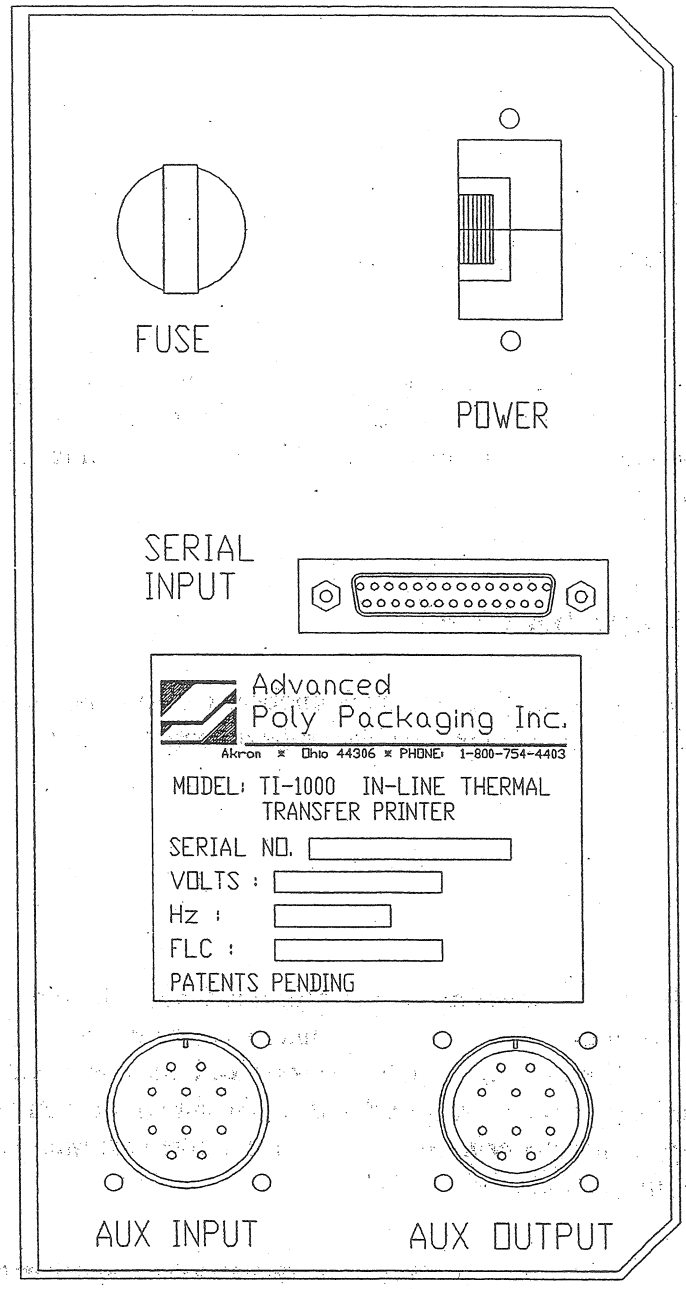

FIGURE 2 - 2

Advanced
Poly Packaging Inc.

DRAWING TITLE

ELECTRIC PANEL DETAIL

DRAWN BY: W.K.R./J.C.S	DATE 11-1-96		
CHKD. BY: S. BAKER	DATE 11-1-96	DRAWING NO.	SHEET: 1 OF 1
APPRD. BY: S. BAKER	SCALE N.T.S.		

Message Display / Panel Position

The Message Display / Operator Panel is either mounted inside the cover of the printer unit or provided for remote mounting to the bagger operator panel. If shipped with the T-1000 Bagger, the panel will already be remotely mounted in the I.O.P. for immediate operation.

2.3 Air & Power Hookup

This sections describes in detail how to hook up air and power and the air and power requirements.
Note: A qualified electrician should ensure power outlets are the required 110 - 120 VAC and properly grounded before hooking up the power.

Air Hookup

The air supply should be fed to the Ti-1000 with 1/4 I.D. flexible tubing; this tubing affixes to the coupler adapter. Connect the air to the regulator by holding the regulator and coupler firmly in one hand and pushing the air line into the female fitting. After connecting air, the regulator should be adjusted so the gauge reads 40 PSI.

Power Hookup

Insert the Ti-1000 power cord into a 110-120 VAC, 60 Hz, grounded power outlet. If shipped with the T-1000, the printer will be connected to the power outlet located on the left rear panel of the T-1000.

2.4 Auxiliary Port Connection

The Ti-1000 connects to baggers via a 9 pin I/O port (military connector). If integrated to the T-1000, connect the I/O aux. port to the Aux 3 port located on the rear left panel of the T-1000. (Fig 2-1)

Note: If shipped with the T-1000, the Ti-1000 will already be connected the Aux 3 port. (Fig 2-1)

2.5 Remote Panel Connection

The operator panel / message display is either internally mounted in the cover of the printer or remote mounted. If remote mounted, connect the serial port connector to the printer and tighten the screws with a small flat head screwdriver.

2.6 Main Power

The main power switch is located on the rear panel (Fig. 2-2). Press the switch to the ON position so that the Red main power light is illuminated.

When the power is in the ON position, the Message Display panel be backlit and will display the "ON LINE" message.

Note: If the Message Display screen does not power up to the "On Line" message, see Chapter 6, Trouble-shooting steps.

2.7 Film / Bag Threading

Since the Ti-1000 can be mounted to virtually any bagging machine, threading requirements will change according to each configuration of machine and special mounting requirements.

For autobagging equipment, the threading requirements are fairly consistent from one model to another. (Fig. 2-3, Threading Diagrams)

T-1000 / Ti-1000 Threading Procedures: Roller Shaft

The first step to threading the machine is to place a roll of bags on the shaft. Remove one of the chucks from the shaft by loosening the chuck knob and slide the roll of bags over the shaft, locking the chuck pin in the small hole in the core plug. Retighten the chuck knob. Replace the second chuck also locking the chuck pin to the core plug. Remove the tape from the bags so that the bags fall freely and hang down from the top of the roll towards you or at the "front" of the roll. Insert the right side of the roll shaft in the right side of the shaft holder (circular holder). Insert the left side of the roll shaft in the left slot of the shaft holder (square open holder) (Fig 2-4).

Center Roll of Bags on Shaft

Center the bags on the shaft by loosening the chuck knobs and sliding the roll of bags along with the chucks to the desired location. Ensure the chuck pins remain in the core plug holes when siding left or right.

Rollers

Pull the bags over the roller immediately above the dancer assembly, then down between the roll of bags and the outer dancer roller. Pull the bags around the outer dancer roller, over the rear *guide roller* on the Ti-1000. Before threading the bags beneath the *pinch roller* and the *print head*, first pull the web of bags through the *handle* off to the side of the print head assembly. Then slide the web of bags under the *print head*. Then thread the web under the *alignment roller* and into the bag of the T-1000. (Fig. 2-3).

Lower Frame Handle

From the front of the T-1000, lower the frame by slowly pulling the frame handle forward and downward. Carefully reach inside and pull the bags through the front of the T-1000 so that one bag is centered on the roller. Ensure only one (1) bag extends through the front of the machine. (Fig 2-5)

! *Caution: Roller "Fingers" may be sharp. To avoid injury when reaching into the T-1000, ensure that you do not come in contact with the roller "fingers."*

Slowly raise the frame by pulling forward and upward on the handle while holding the bag in position. When the handle locks into position, a *portion* (approximately 1 inch) of one bag should be extended from the front of the machine
(Fig 2-5).

Note: When the inner frame is lowered, the T-1000 is automatically placed in the STOP mode. To reset the I.O.P., raise the frame and press the <START> button.

Excess Slack

From the rear of the T-1000, remove any "slack" in the web of bags by reversing the direction of the roll of bags. Reverse the roll until the dancer bar lifts above parallel and release the roll of the bags. The dancer bar should slowly drop without hitting the legs of the T-1000.

Roller Guides

Holding the guide roller, slide the Roller Guides within approximately 1/8" from the sides of the bag to assist the tracking of the web of bags.

Note: The Roller Guides are for fine adjustment only, after proper tracking has been achieved. If the web of bags are not properly tracking, make proper adjustments. If not tracking properly, the web of bags may "ride" up the side of the guides causing the bags to fold over.

Note: Web of bags may track left or right for a few feet until "settled" on the web path. The roll of bags or the roller guides may require readjustment or realignment after the first few feet of bags are fed.

If web is not tracking properly (moving more than 1/8"), see Chapter 4.4 of T-1000 Manual , Tracking & Alignment Adjustments.

2.8 Printer Ribbon Threading

The Ti-1000 Printer heat transfers the ink of thermal ribbon to the surface of the bag. The ink is wound to outside of the ribbon.

First, remove the smoked Plexiglas printer cover by lifting the cover off the securing pin and sliding it along the metal shafts.

With plenty of slack between the spools, slide the full spool of ribbon on the rear shaft to the ribbon stopper and the empty spool on the front shaft. *(Do not remove the leader from the spools.)* Ensure the ribbon is positioned inside the ribbon out sensor. (Fig. 2-6) Remove the excess ribbon by turning the rear shaft counterclockwise.

Note: If the leader becomes detached from the empty spool, use tape to secure the ribbon to the spool.

When using a narrow width ribbon, slide the ribbon stopper along the shaft to a position where the ribbon will be centered. To change the position of the ribbon stopper, rotate the stopper 90 degrees, then rotate it back to lock. (Fig. 2-7)

2.9 Print Registration and Position Alignment

Prior to moving the print position, ensure that the web is properly threaded and is tracking left to right. Also ensure that the web is properly registered so that the web stops in the correct position.
If the web is not properly tracking or not registering with the bagging machine's tolerances, consult the bagger manual for proper adjustments to tracking and registration.

On the T-1000, ensure the roller guides are properly positioned within 1/8" from the edge of the bags, both on the printer *guide roller* and the T-1000 *guide roller*. (Fig. 2-8, item 5)

Left to Right Print Position

Positioning and alignment may be achieved by moving the print head assembly left or right and moving the *alignment roller* up or down. (Fig. 2-8)

To move the print position left or right (side to side against machine direction), pull or push the *handle.*

The weight of the print head assembly and the friction of the bushings on the shafts is sufficient to hold the assembly in position.

Note: If the printer is mounted to print on film running vertically through the print head, shaft clamps may be added to secure the print head assembly in position.

Top to Bottom Print Position

To initially align the print close to the position desired, simply press the *alignment roller* assembly downward to lift upward moving the desired print position immediately beneath the *print head*. When the bagger is cycled, slightly lower or raise the alignment roller moving the print to the desired location. (Fig. 2-8) The *alignment roller* should move up and down freely by hand. However, the cycle operation of the bagger should not allow the alignment roller to move. To increase tension on the alignment roller to prohibit the roller to move during cycling, rotate the *tension knob* clockwise. (Fig. 2-8)

Note: If the web of bags threaded through the machine breaks prematurely, further adjustment may be required. (See Chapter 7, Trouble-shooting)

Note: If the seal position of the bagger is adjusted, the print position must also be adjusted to compensate.

2.10 Note on Adjustments of the Ti-1000

Upon receipt by the purchaser, it is not unusual for the Ti-1000 to be out of alignment due to shipping and excessive handling. Unless physically damaged, the T-1000 will function properly after minor adjustments are accomplished.

Read Chapter 4 for information on adjustments of the Ti-1000.

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Chapter 3, Parts Identification

Chapter 3 Parts Identification

This section describes in detail, component and assemblies identification.

3.1 Message Display

The Message Display (LCD) is a sixteen character by one line screen and displays the language selected by DIP switch. When power is turned on and it is ready to print, "ON LINE" is displayed. Messages will be displayed on this screen indicating the status of the printer, number of labels downloaded and error codes.

3.2 Display Panel Identification

LEDs & Panel Keys

Front view (Fig 3-1)

1	POWER	Green LED, lights when the power is turned on.
2	ONLINE	Green LED; flashes when communicating with a host computer.
3	ERROR	Red LED; lights when the operator presses the <PAUSE> key, when a communication error occurs, when the ribbon ends, or the printer does not operate correctly.
4	<FEED>	Key; feeds and tensions ribbon.
5	<RESET>	Key; resets the printer when paused or when an error occurs.
6	<PAUSE>	Key; Pauses printing. Message displays "Pause". Message displays the number of labels yet to print.

Back View

1	TP-T2MA0162	Keys / LEDs PC Board
2	TP-2033601	LCD / Display PC Board

3.3 Electronics Panel - Major Components & Right Side

(Fig.3-3)

1	TP-T2MA0155	Cover
2	TP-T2MA0160	Interface PC Board
3	TP-T2036401	CPU PC Board w/ ROM
4	TP-T2087001	Power Supply PC Board
5	TP-205108	Corcom
6	TP-212167	Motor Connector
7	TP-212248	Display Connector
8	TP-406259	Regulator Assembly (reg., gauge, bracket)
9	NA	NA
10	TP-T2MA10114	Mounting Brackets

3.4 Back Panel - Parts Identification

(Fig. 3-4)

1	Power	Red lights when power is turned on.
2	Serial Input	RS232, 32 pin male connector for host computer communications.
3	Auxiliary Output	Output to auxiliary equipment requiring same signal as printer.
4	TP-207015	2 Amp Main fuse. Amber light indicates blown fuse.
5	Auxiliary Input	10 Pin connector; input signal from bagger to signal printing; output to bagger to signal when finished printing.

3.5 Printer Major Components (top view)

Fig 3-5

1	TP-T2100961	Takeup ribbon roller, winds printed/used ribbon.
2	TP-T2100962	Full ribbon roller, holds unused ribbon
3	TP-111010	Web Guides: Guides film / bags through printer
4	TP-T2MA0106-1	Roller, first roller contacting bags from dancer assembly
5	TP-T2MA0145	Handle; push handle inward to move print right, pull to move print position left (against machine direction).
6	TP-T2MA0140	Turn clockwise to increase tension on print alignment roller
7	TP-T2MA0153	Print Head Knob; manual knob to lower print head.
8	TP-T2033704	Print Head; Edge-type, 4" wide 203 dpi or 5" wide 305 dpi head.
9	TP-T2MA10114	Mounting Brackets; standard mounting brackets to T-1000 Bagger
10	TP-T2MA0106-2	Alignment arm. Pull upward or downward to position print location in machine direction.

3.6 Printer Component Identification - Print Head Assembly (Upper and Lower)

(Fig. 3-6)

1	Assembly	Lower print head assembly
2	Assembly	Upper print head assembly
3	TP-T2035301	Stepper motor
4	TP-T2030701	Platen Roller
5	TP-T2030702	Feed Roller
6	TP-T2075001	Timing Belt
7	TP-T2081001	Timing Belt
8	TP-T2MA0133-1	Lever arm: Head down lever
9	TP-T2MA0133-2	Lever arm: Upper drive roller lever
10	TP-T2MA01030	Linkage
11	TP-T2MA0150	Sensor Flag, Head Down
12	TP-T2MA0161	Head Down Sensor Board
13	TP-403144	Cylinder
14	TP-402255	Solenoid Valve
15	TP-T2030502	Ribbon motor; feed / unwind
16	TP-T2030501	Ribbon motor, rewind
17	TP-T2031000	Ribbon drive assembly
18	TP-T2MA0144	Lexan Cover (not shown)

3.7 Power Supply Component Identification

(Fig. 3-7)

1 F1	6.3 Amp Fuse
2 F2	1 Amp Fuse
3 CN1	Connector to 125VAC
4 CN2	Connector to CN18, CPU PC Board

3.8 CPU PC Board Component Identification

(Fig. 3-8)

1 CN1	Connector to Display Keypad
2 N3	Connector to LCD
3 CN6	Connector to H10, Interface Board
4 CN7	Ribbon cable - to print head
5 CN9	Connector to head sensors
6 CN11	Connector to Ribbon Drive Assembly
7 CN13	Connector to Stepper Motor
8 CN15	Connector to H3, Interface Board
9 CN17	Connector to print head (power)
10 CN18	Connector to Power Supply PC Board

Dip Switch Settings

Turn POWER OFF before changing switch settings.

DIP SWITCH #1

NO.	ON/OFF			FUNCTION	
1	OFF			Without	Auto ribbon save
	ON			With	function
	2	3	4		
2	OFF	OFF	OFF	English	Language to display
	ON	OFF	OFF	German	LCD error message
	OFF	ON	OFF	French	
3	ON	ON	OFF	Dutch	
	OFF	OFF	ON	Dutch	
	ON	OFF	ON	Spanish	
4	OFF	ON	ON	Japanese	
	ON	ON	ON	Not used	
5	OFF			Without	Not used
	ON			With	
6	OFF			Without	Not used
	ON			With	
78	OFF			Must be set to OFF	

DIP SWITCH #2

NO.	ON/OFF		FUNCTION	
3	OFF		1 stop bit	Stop bit length
	ON		2 stop bits	
4	OFF		7 data bits (only for 128 character ASCII)	Data bit length
	ON		8 data bits	
5	OFF		without parity check	Parity check
	ON		with parity check	
6	OFF		EVEN parity	Parity type
	ON		ODD parity	(*effective when DIP SW #5 ON*)
	7	8		
7	OFF	OFF	XON/XOFF (No XON is output at the power on time.) (No XOFF is output at the power off time.)	
	ON	OFF	READY/BUSY (DTR) (No XON is output at the power on time.) (No XOFF is output at the power off time.)	Data protocol
8	OFF	ON	XON/XOFF+READY/BUSY (XON is output at the power on time.) (XOFF is output at the power off time.)	
	ON	ON	XON/XOFF (No XON is output at the power on time.) (No XOFF is output at the power off time.)	

Note: Shaded settings are the factory default settings.

3.9 Interface Board

LED Indicators

Refer to Figure 3-9 for the location of the following LEDs.

TYPE	LED No.	DESCRIPTION	
	D1	Head down sensor	ON when head is down
	D2	Bag out sensor	ON when bags are out
	D3	Printer printing signal	OFF when printer is printing
INPUTS	D4	Printer printing signal	OFF when printer is printing
	D5	Auxiliary input signal	ON when AUX signal present
	D6	Verifier input signal (optional)	ON when verifier signal is present
	D7	Verifier attached (optional)	ON when verifier attached
	D8	Input 5	NOT USED
	D9	Printer Busy Signal	OFF when printer is cycling
	D10	Printer Stop Signal	ON when printer error occurs
	D11	Verifier Synchronization signal (optional)	ON when synchronizing verifier
OUTPUTS	D12	Output 2	NOT USED
	D13	Output 3	NOT USED
	D14	Output 4	NOT USED
	D15	Head down signal	ON when energizing head down valve
	D16	Print start signal	OFF when sending start pulse

Connectors

Connectors, LED lights, and other components are identified on the Interface boards illustrated in Fig. 3-10.

TYPE	No.	DESCRIPTION	HARNESS LOCATION
	H2	Head down sensor / Bag out detector input connector.	Connects to the head down sensor and Bag out detector through the umbilical line to the head assembly.
INPUTS	H3	Printer printing input signal connector	Connects to CN15 on the main controller Board[1].
	H4	Verifier input / presence signal input connector (optional)	Connects directly to the bar-code verifier[2] via a 15 pin D-sub connector.
INPUT / OUTPUT	H5	Auxiliary I/O, printer busy, printer stop connector	Runs beneath the interface board down to the AUX INPUT connector.
INPUT	H6	Power / printer sensor interface connector	Connects to CN9 and CN18 on the main controller Board[1]. +5V can be found on pin 6 of CN18.
	H7	Verifier synchronization signal connector (optional)	Connects directly to the bar-code verifier[2] via a 15 pin D-sub connector.
OUTPUTS	H8	NOT USED	
	H9	Head down valve signal	Connects to the head down valve

3.12 Harness Description and Location

PART#	DESCRIPTION	HARNESS LOCATION
TP-T2MA0200	Cutter pulse harness	Connects H10 on the interface board[1] to CN6 on the main controller board[2].
TP-T2MA0201	Printer printing input signal harness	Connects H3 on the interface board[1] to CN15 on the main controller board[2].
TP-T2MA0202	Stepper motor harness	Connects CN13 on the main controller board[2] to CN401 (6 pin motor connector).
TP-T2MA0203	Ribbon drive harness	Connects CN11 on the main controller board[2] to the ribbon drive assembly.
TP-T2MA0204	Sensor interface harness	Connects H6 on the interface board[1] to CN9 and CN18 on the main controller Board[2].
TP-T2MA0205	Auxiliary I/O harness	Connects H5 on the interface board[1] to CN801/802 (10 pin auxiliary connector).
TP-T2023201	Power input harness	Connects CN2 on the power supply[3] to CN18 on the main controller board[2].
TC-TI-PRINT-HD	Print head power harness	Connects CN17 on the main controller board[2] to the print head.
TC-TI-RIBBON-CA	Print head data harness	Connects CN7 on the main controller board[2] to the print head.
TP-T2MA0208	Internal remote display harness	Connects CN1, CN3 on the main controller board[2] to the DB25 connector on front mounting bracket.
TP-T2MA0209	External remote display harness	Connects the DB25 male connector on the front mounting bracket to the keypad/LED board and the LCD display.

1. *See Figures for location of connectors on the interface board.*
2. *See Figures for location of connectors on main controller board.*
3. *See Figures for location of connectors on the power supply.*

3.13 Recommended Spare Parts List - 203 dpi printer

Quantity	Part Number	Description
5	TP-207015	2.0 Amp Fuse
1	TP-T2032301	Ribbon Out Emitter
1	TP-T2032401	Ribbon Out Detector
1	TP-402255	4 Way Valve
1	TP-403144	Head Cylinder
1	TP-T2MA0161	Head Down Sensor
1	TP-T2033704	Print Head, 203 dpi

3.14 Recommended Spare Parts List - 305 dpi Printer

Quantity	Part Number	Description
3	TP-207024	3.0 Amp Fuses
1	TP-T2032301	Ribbon Out Emmiter
1	TP-T2032401	Ribbon Out Detector
1	TP-402255	4 Way Valve
1	TP-403144	Head Cylinder
1	TP-T2MA0161	Head Down Sensor
1	TP-T2033704	Print Head, 305 dpi

Chapter 4, Operation

Sequence of Operation
Test Printing
Signalling Between Bagger & Printer to Print In-Line
Display Operation
Label Counters
Clearing the Printer Memory
Parameter Settings
In-Line Bar Code Verifier Setup & Operation

Chapter 4, Operation of the Printer

This section describes in detail, the operation of the Ti-1000 including test printing, message display operation and basic software considerations.

4.1 Sequence of Operation

The Ti-1000 completes the following sequence of operation when printing: Downloaded label is stored in the printer buffer ready to print once a signal is received to print. When signaled, the print head lowers. The print head down sensor detects that the head is down and the platen roller and rear drive roller begin turning. Heat is then transferred to pixels in the head. After the label has been printed, the print head raises and signals the bagger that the printing sequence is complete.

4.2 Test Printing

To test print the Ti-1000, a label must first be loaded in memory of the printer. A wide variety of published software may be used to operate with the Ti-1000, including custom written programs or integration or third party software.

The mode of operation which must exist in a software program or be programmed is demand / batch printing. Printing on demand a batch of labels is accomplished by properly configuring or writing software to work with the printer driver.

To perform a test print, air must be attached to the printer, a label must be downloaded via a serial cable from a PC or printer controller (PrintPad). Without air, the print head will not lower to the platen roller and the print head down sensor will cause no heat to transfer across the head. The printer must then be signaled electronically to begin printing.

When test printing, generate a label which is wide enough to print across the entire head (dependent upon the print head with: 4" or 5" wide dependent upon model). Download only a few labels at a time, altering the speed and heat settings to obtain satisfactory print quality.

If the printer does not print after the above conditions have been met, ensure the software is properly configured or consult the software manual, chapter 7 of this manual, the T-1000 manual, or contact technical support at: US 330/785-4000.

4.3 Signalling Between Bagger & Printer

The Ti-1000 is designed to operate in a "closed loop" system and must receive a signal to begin printing. The print head is programmed to lower onto the platen roller; if the head does not lower, a fault signal is sent to the bagger stopping the sequence of operation. Other conditions which will send a fault signal stopping the operation include no labels in memory, ribbon out, unreadable bar-code (if optional bar-code printer is equipped), bag or film out (if equipped with bag/film out sensor).

You may also refer to the T-1000 Manual on the signaling between the T-1000 and the Ti-1000.

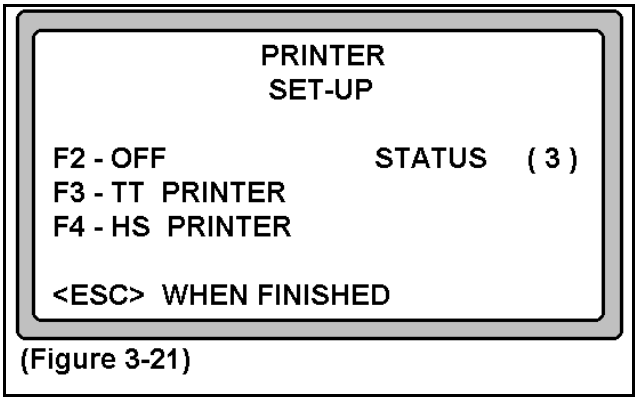
Select >> PRINTER << from the Options Menu Printer option is not included in the standard T-1000 package and must be purchased separately. Used for product identification, a Printer option prints information, graphic images or bar codes directly to the surface of the film.

APPI offers two types of printing methods as an option to the T-1000 or other bagger: 1) Thermal Inline Transfer Printer - prints text, graphics and bar codes, formatted in a separate software program. The label formats, saved in a database structure can be recalled and "down- loaded" to the printer. 2) Hot Stamp Printer - prints text (part numbers, date codes, lot numbers, etc.). Individual characters are placed onto a "grooved plate" which, when heated will transfer the ink (ribbon) directly onto the bag. Also, magnetic plates are offered.

Both the Thermal and Hot Stamp printers use ribbon to transfer ink to the surface of the bag.

To turn ON the *signal* to a printer, press <ENTER> at the highlighted >> PRINTER << menu option (Fig 3-16).

Press <F3> to enable operation of the Thermal Transfer (TT) printer. Press <F4> to enable operation of the Hot Stamp (HS) printer and press <F2> to disable the operation of the printer (Fig 3-21).



(Figure 3-21)

4.4 Display Operation

The operator panel of the Ti-1000 includes an LED screen which display messages identifying the current status of the printer. Status message include error messages which when displayed must be cleared to continue printing, following the basic guidelines of Chapter 7, Trouble- Shooting. When an error is displayed, the Error LED (red) will be displayed when an error occurs. One the error is cleared, simply press the <RESTART> key to begin printing.

When the <FEED> key is pressed, the ribbon will advance, winding non-printed ribbon onto the take-up roll. This is used to retention the ribbon or advance the ribbon due to cuts, dust, or other conditions of the ribbon.

The <PAUSE> key is used to halt the printing operation.

4.5 Label Counter

When the printing is halted with the <PAUSE> key, the number of remaining downloaded labels of the current que is displayed. Since several label formats can be downloaded into the memory at one time, the display only shows the number of labels yet to print of the current format. Once all labels of the current que have been printed, the next format will reset the counter to the number of downloaded label of the new format.

Labels can be downloaded while the printer is printing ("on the fly") without loss of production. After the last label of the current print has printed, the next label starts to print immediately.

4.6 Clearing the Printer Memory

After printing has been halted using the <PAUSE> key, the memory may be cleared so that the current job in memory will no longer print. To clear the memory so that another label may be downloaded, simply turn the power to the print OFF, wait 5 seconds and turn the power to the ON position.

Note: When the power is turned OFF, all downloaded label formats will be erased from memory.

4.7 Parameter Settings

In order to activate the parameters menu, press and hold the FEED and PAUSE buttons while turning the power ON. Hold the buttons until the following message appears:

```
<1> DIAGNOSTIC
```

To scroll through the menu, press the FEED button to advance forward and press the RESTART button to advance back. The menu options are as follows:

```
<1> DIAGNOSTICS
<2> PARAMETER SET
<3> TEST PRINT
<4> SENSOR ADJUSTMENT
<5> RAM CLEAR
```

Once the desired menu option has been located and is highlighted, press the PAUSE button to select the option. The first parameter for that option will appear.

Press the FEED button to increase the value of the selected parameter, press the RESTART button to decrease the value of the selected parameter. To select the next parameter press the PAUSE button again.

The following table describes the values and default settings of each menu option.

MENU OPTION	PARAMETER	VALUE LIMITS	DESCRIPTION	DEFAULT
DIAGNOSTICS	WARNING: THIS FUNCTION IS FOR FACTORY TESTING ONLY. DO NOT USE!			
	FEED ADJUST	-50.0 to +50.0mm	NOT USED	+0.0mm
PARAMETER SET	CUT ADJUST	-50.0 to +50.0mm	NOT USED	+0.0mm
	BACK FEED ADJ.	-9.5 to +9.5mm	NOT USED	+0.0mm
	X ADJUST	-99.5 to +99.5mm	Adjust X axis starting position	+0.0mm
	TONE ADJUST <T>	-10 to +10	Adjust tonal quality	-10
	TONE ADJUST <D>	-10 to +10	Adjust tonal quality	10
	FONT CODE	PC-8, PC-850	Selects character code	PC-850
	ZERO FONT	O,Ø	Sets slash / no slash in zero	O
	CODE	(AUTO),({,I,}), (ESC,LF,NULL)	Selects Automatic or manual control code	AUTO
	RIBBON	TRANS, NON-TRANS	Ribbon type, transmissive or non-transmissive	TRANS.
TEST PRINT	WARNING: THIS FUNCTION IS FOR FACTORY TESTING ONLY. DO NOT USE!			
SENSOR ADJUST	WARNING: THIS FUNCTION IS FOR FACTORY CALIBRATION ONLY. REFER TO MANUFACTURER FOR PROPER SETTINGS.			
RAM CLEAR	WARNING: THIS FUNCTION IS FOR FACTORY USE ONLY. DO NOT USE!			

Note: In order to save any changes to the parameters, you must return to the main option. Press the PAUSE button several times until the main option is displayed.

Caution: Changing the following settings may cause the printer to malfunction.

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Chapter 5, Adjustments & Replacement of Components

Threading Adjustment (Bag Web Guides)
Constant Film / Bag Tension
Bagger Film Tracking / Alignment
Print Head Replacement
Note on Print Quality
Print Head Course Alignment
Print Head Fine Adjustment
Lever Arm Adjustment
Head Down Sensor
Inserting the Optional Flash Memory Card

Chapter 5, Machine Adjustments & Replacement of Components

This section describes how to perform mechanical adjustments to the Ti-1000 and how to replace normal wear components.

Note: The following section supplements factory training. A qualified technician should perform these steps.

5.1 Threading Adjustment (Bag Web Guides)

Web guides are located on the upper rear roll of the Ti-1000 (Fig.5-1). These guides are used to direct (guide) the web of bags or film through the Ti-1000. The aluminum web guides should be positioned approximately 1/8" from the edge of the bag web.

NOTE. Use of these guides for minor adjustment only. Attempting to guide film through the printer which is not tracking properly will cause the film the "walk" up the web guide causing the film to fold over.

5.2 Constant Film / Bag Tension

A dancer or tension assembly should be used for proper printing through the Ti-1000. Maintaining proper bag or film web tension throughout a stop-start feed motion bagger is necessary to consistently print in the same location per cycle.

On the T-1000 Advanced Poly-Bagger TM, the amount of web tension is controlled by the brake tension strap and dancer assembly. Thinner bags require less tension than thick bags. The brake tension is adjusted by relocating the brake strap spring to an alternate mounting hole on the dancer rail (consult T- 1000 manual). To increase tension locate the spring to a hole farther away from the machine. To decrease, move the spring closer. The brake tension should never be adjusted such that the dancer bottoms out. Additionally, the bag roll shaft must be positioned over the brake strap to achieve proper tension and tracking.

5.3 Bagger Film Tracking / Alignment

If the film / bag is not tracking properly or is weaving back and forth across the print head, the print head will not print consistently left to right on the film / bag. If the web guides are not sufficient to guide the film straight through the printer, bagger adjustments will be necessary.

Drive roll compression is the force that exists between the two feed rolls. Consistent pressure across the feed rollers causes the film to track properly. See the bagger manual for adjustment information. (See T-1000 Manual, Chapter 4.4 for Nip Roll compression adjustments.

5.4 Print Head Replacement

Replacement of the print head is necessary when the print quality is not satisfactory.

Prior to removing the print head, turn the power off unplug the cord from the power source and disconnect the air.

Remove the handle screws and remove the handle end to separate the upper head assembly from the lower head assembly (Fig. 5-3).

Slide the bottom assembly to the left and the top assembly to the right so that the top assembly and bottom assembly are separated and you have access to the print head.

Turn the knob (Fig 5-2) clockwise and with a magnetic Phillips head screwdriver, remove the screws which hold the print head to the print head. The print head will then drop, remaining connected to the connectors (Fig. 5-2). Turn the knob counter clockwise and disconnect the connectors to detach the print head from the print block.

Caution: Never touch the element when handling the print head. Never touch the connector pins to avoid a breakdown of the print head by static electricity. Never remove the six screws on the side of the print block. Never remove the print block, otherwise it requires the adjustment of the position when reassembling.

Reconnect the connectors, position the print head and secure the screws. Test the print following the steps in section 5.5.

5.5 Note on Print Quality

Print quality is achieved through proper pressure, head temperature and print speed. Barring any equipment excess wear or failure of components, insufficient pressure or poor alignment, too much or too little temperature or too fast print speed may cause poor print quality (skipping, smearing).

5.6 Print Head Course Alignment

With the air disconnected, but the power turned ON, rotate the knob (Fig. 5-4, Item 5) clockwise so that the print head just barely touches the platen roller.

Looking at the gap between platen roller and print head, inspect to see if the head is parallel with the roller. Raise and lower the print head very slowly by turning the knob clockwise and counter clockwise. The head should contact the roller evenly. If the head is not parallel more than 30 thousands on either side, than course alignment is necessary.

To align the print head to the platen roller that is more than 30 thousands out of alignment, loosen the screws on Course Adjustment Plate (Fig. 5-4, Item 4) and reposition plate to make the print head parallel to the platen roller. Retighten screws on the course adjustment plate.

Caution: Never remove the screws on course adjustment plate.

Reconnect air to the printer and test print. If print quality is satisfactory, continue printing. If print quality is not sufficient, fine adjustment of the print head is necessary. See section 5.9 for fine adjustment steps.

5.7 Print Head Fine Adjustment

With the air connected, labels loaded into memory and power ON, loosen slightly the fine adjustment plate (Fig. 5-4, Item 3).

Note: When screws are loose, the plate should move with some difficulty.
Caution: Never remove the screws on fine adjustment plate.

If the print is skipping or absent on the right side of the film (side closer to the handle), slightly LOWER the fine adjustment plate.

If the print is skipping or absent on the left side of the film (side farther from the handle), slightly RAISE the fine adjustment plate.

Retighten the screws and test print.

Repeat the above steps until the print quality is satisfactory across the entire with of film.

5.8 Lever Arms Adjustment

Lever arms (Fig. 5-5) and linkage require adjustment when cylinders, platen roller, rear nip roller or linkage is replaced.

Note: Lever arms should not need adjustment when print head is replaced.

Head Down Lever Arm Adjustment

Disconnect air and turn power OFF. Remove top cover of the upper print head assembly (Fig. 5-6, Item 1). Loosen head down lever collar set screw (Fig. 5-5. Item 1) so that arm moves freely on the shaft.

Note: Two persons may be required to perform the following steps.

Push the CONNECTING LINK forward (Fig. 5-5, Item 6) to the maximum forward position and hold with some force exerted in the forward direction shown.

While holding connecting link forward, turn KNOB (Fig. 5-6, Item 2) clockwise lowering print head onto the platen roller so that the CAM (Fig. 5-6, Item 6) deflects the SPRING PLATE (Fig. 5-6, Item 7) approximately 1/8". (See Fig. 5-7 for proper CAM position).

While holding the CONNECTING LINK forward and the PRINT HEAD down with the force described above, retighten the collar set screw.

To test for proper position push the CONNECTING LINK forward; the PRINT HEAD should be all the way down and the CAM should be deflecting the SPRING PLATE.

Rear Nip Lever Arm Adjustment

Disconnect air and turn power OFF. Remove top cover of the upper print head assembly (Fig. 5-6, Item 1). Loosen rear nip lever arm collar set screw (Fig. 5-5. Item 5) so that arm moves freely on the shaft.

Note: Two persons may be required to perform the following steps.

Turn the KNOB (Fig. 5-6, Item 2) clockwise and hold so that print head barely touches the platen roller. There should be no pressure exerted on the roller; there should be no spring plate deflection.

While holding the PRINT HEAD down with the KNOB, lower the rear upper NIP ROLLER assembly (Fig. 5-6, Item 12) so that it contact the DRIVE ROLLER (Fig. 5-6, Item 11). Retighten the set screw.

5.9 Head Down Sensor Adjustment

Head down sensor assembly (Fig. 5-5, Items 3-4) may require adjustment when cylinders, platen roller, rear nip roller or linkage is replaced.

Note: Head down sensor should not require adjustment when print head is replaced.

Disconnect air, turn the power OFF and remove the side panel cover. After the panel has been removed, turn the power ON.

! *Caution:* While power is ON and panel is removed, do not contact wires, PC boards, connectors or any other component inside panel with hands or other objects. Electrical shock or component damage may occur.

While observing the HEAD DOWN LED on the Interface PC Board (Fig. 5-8, Item 1) perform the following steps:

Turn KNOB (Fig. 5-6, Item 2) clockwise until PRINT HEAD (Fig. 5-6, Item 4) contacts print head. If the head down LED turns ON at the instant that the print head touches the platen roller, the HEAD DOWN SENSOR FLAG collar (Fig. 5-5, Item 4) is set properly.

Test again and ensure that the LED turns on at the instant that the print head contacts the platen roller.

If the LED lights PRIOR TO or AFTER the print head contacts the platen roller, loosen the HEAD DOWN SENSOR FLAG COLLAR set screw (Fig. 5-5, Item 4) so that the flag turns on the shaft but does not swing free.

If the LED lights PRIOR TO the print head contacting the platen roller, rotate the collar CLOCKWISE in small increments so that when the print head contacts the platen roller, the print head down LED lights.

If the LED lights AFTER the print head contacting the platen roller, rotate the collar COUNTER CLOCKWISE in small increments so that when the print head contacts the platen roller, the print head down LED lights. Once properly adjusted, retighten the set screw.

5.10 Inserting the Optional Flash Memory Card

Prior to inserting the optional flash memory card, turn the power off. Remove the panel cover. Insert the flash memory card into the memory card slot on the PC board.

! *WARNING:* Turn the power OFF prior to inserting or removing the flash memory card to avoid damaging the printer or card.

Note: Protect the flash memory card when it is not in use in the printer by putting it into a protective cover. Doe not subject the card to any shocks or excessive forces. Do not expose the card to excessive heat or place it in direct sunlight. Do not wipe card with wet cloth or store it in a damp place.

Chapter 6, Preventive Maintenance & Trouble-Shooting

Key Maintenance Data
Recommended Tools / Accessories
Equipment Cleaning / Cleanliness of Materials
Print Head Cleaning
Roller Cleaning
Preventative Maintenance Checklist
Scheduled Maintenance Chart
Preventative Maintenance (PM) Performed (Additional)
Maintenance Record (Other Maintenance Performed)

Chapter 6 Preventative Maintenance & Scheduled Maintenance

To extend the life of the Ti-1000 Inline Thermal Transfer Printer ™, qualified maintenance personnel must perform all required maintenance tasks. Failure to perform scheduled and preventative maintenance may cause excessive wear to components and will void the warranty.

For the purpose of this manual, preventative maintenance (PM) tasks are considered periodic tasks which should be performed on a daily, weekly or monthly basis. Scheduled maintenance tasks are performed after a certain number of hours of production and therefore are not considered "periodic" tasks.

6.1 Key Maintenance Data

MTBF (mean time between failure): 10,000 hours
MTBSC (mean time between service calls): 18 Months
MTTI (main time to install): 45 minutes
PM (preventative maintenance): cleaning and lubrication
PL (product life): 50 Million Print Inches *
HL (head life): 2 Million Print Inches *
* Note: based upon average environmental and operational conditions

6.2 Recommended Tools / Accessories

The following list contains the required tools to perform cleaning, and most maintenance tasks.

DESCRIPTION: (APPI P/N TP-T2TOOLS)
Alcohol (bottle), Q-tips, Clean cotton cloths
Head alignment jig
Small brush
Short medium length Phillips head screwdriver
Wrench(s); required sizes
Allen keys; required sizes

Legend for Preventative Maintenance Checklist

D	Daily
W	Weekly
M	Monthly

6.3 Equipment Cleaning / Cleanliness of Materials

To help retain quality and performance of the printer, it should be cleaned regularly, after each ribbon change or daily, whichever is sooner. The printer should be cleaned more often, dependent upon environmental conditions.

Additionally, to extend the print head life, ensure proper storage of the ribbon rolls and film or bag rolls. Ribbon should be stored in individual bags to keep dust and dirt off. Rolls of bags should be stored in boxes are in bags.

If the ribbon and bags are not stored properly, dust will cling to ribbon and bags and will be deposited on the rollers and print head.

Since dust and dirt is extremely abrasive to the print head, the print head will not last as long without the properly cleaning of components and storage of materials.

! Caution: Turn the power OFF and disconnect air prior to cleaning components of the printer. Then remove the lexan cover.

6.4 Print Head Cleaning

With the print head raised (Fig. 6-1, Item 1), using a clean cotton swab soaked with alcohol (or a print head cleaner), wipe gently across the heat element of the print head with the "head" of the cotton swab. Wipe the swap back and forth across the head until no residue is seen on the swab.

6.5 Roller Cleaning

Using a clean cotton cloth soaked with alcohol, clean all three rollers: Platen Roller (Fig 6-1, Item 2), Drive Roller (Item 4) and Upper Nip Roller (Item 3). Turn the rollers while wiping the full length and circumference of the rollers. Continue wiping back and forth across the roller until no residue is rubbing off onto the cotton cloth.

6.6 Preventative Maintenance Checklist

ITEM	DESCRIPTION	PERIOD
Air regulator	Adjust pressure from 40 to 60 PSI (dependent upon print quality)	D
Rubber rollers	Clean with alcohol (clean cloth rag), daily or after each ribbon roll change (more often in dirty environmental conditions	D
Print head	Clean with alcohol (cotton Q-tip), daily or after each ribbon roll change (more often in dirty environmental conditions	D
Aluminum rollers	Clean with alcohol	D
Wiring / Connectors	Inspect for loose wiring / connectors, tighten as needed	M
Air lines / Valves / Cylinders	Inspect for loose air lines, listen for leaks, tighten or replace poly tubing as needed	M
Compartments / Covers	Remove all covers, clean and blow out compartments with compressed air to remove dust and dirt	M
Side-plates	Clean and wipe down with lightweight oil (based upon environmental - humidity conditions)	M
Drive belts	Inspect for wear / fraying, replace if needed	M
Gears	Inspect for particulate matter and remove if necessary.	M

! *CAUTION: Unplug power cord and disconnect air line prior to removing guards or print head. Failure to do so may result in electronic failure.*

Preventative Maintenance must be performed by qualified maintenance personnel.

6.7 Scheduled Maintenance Chart

ITEM	DESCRIPTION	1	2	3	4	5	6	7	8	9	10
Drive belt (right panel)	Adjust/Inspect for wear replace when necessary	O	O	O	O	O	O	O	O	O	O
Drive belt (left panel)	Inspect for wear, replace when necessary	O	O	O	O	O	O	O	O	O	O
Print head	Inspect print for skips (missing pixels)	O	O	O	O	O	O	O	O	O	O
Drive mechanisms	Disassemble, clean, inspect for wear, breakage (frequency dependent on environment and product)	O		O		O		O		O	
Alum. rollers	Inspect for free movement	O	O	O	O	O	O	O	O	O	O
Roller bearings	Inspect for free movement	O	O	O	O	O	O	O	O	O	O
Rubber rollers	Inspect for cuts, unevenness	O		O	O	O	O	O	O	O	O
Printed circuit boards	Blow off with clean, dry air, inspect for loose wires, connectors	O	O	O	O	O	O	O	O	O	O
Head down cylinder	Listen for air leakage, replace or repair as required	O	O	O	O	O	O	O	O	O	O
Air lines & connectors	Inspect for wear, cuts, leaking, replace as required	O	O	O	O	O	O	O	O	O	O
	INITIALS										

Note: Each chart change represents 1MM linear inches.

6.8 Preventative Maintenance (PM) Performed (additional)

(Options / Auxiliary Equipment)

ITEM	DESCRIPTION	1	2	3	4	5	6	7	8	9	10
□											
□											
□											
□											
□											
□											
□											
□											
□											
□											
□											
□											
	Inspected by: (Initials)										

(Note: Each chart change represents 1MM cycles or linear inches)

Chapter 7, Trouble-Shooting

Trouble-Shooting Checklist
Trouble-Shooting - Error Messages

Chapter 7 Trouble-Shooting

The items included in this section cover the common causes of trouble which an operator might encounter during the operation of the Ti-1000 Inline Thermal Transfer Printer ™.

When operating difficulties occur, the best procedure is to observe what is happening; then search out the causes; and effect the correction. Make only one adjustment at a time, checking the results of each adjustment. If an adjustment does not help or escalates the problems, return the settings back to the former position.

CAUTION: These tests and repairs should be performed only by qualified mechanics or electricians and at their own risk.

NOTE: When trouble shooting the Ti-1000 functioning on a bagger, first ensure that the bagger is operating properly.

7.1 Trouble Shooting Checklist

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION

1. Message screen does not display	1. Power off 2. Loose connection 3. Fuse blown	✓ Plug in power cord / turn on ✓ Tighten connections ✓ Replace fuse(s)
2. How do you check parameters on display?	Refer to problem "Ribbon advances after down load" option 3.	✓ See Section 7.3 on changing parameters.
3. Lights on PC boards do not light	1. Blown fuse 2. Cables not seated Correctly 3. Short in cables 3. Damaged PC boards	✓ Replace fuse(s) ✓ Reset cables ✓ Replace cables ✓ Replace PC boards
4. Display has square lines instead of saying "On line"	Check display connections to assure that all connections are tight.	✓ Check Display for correct voltage. Should be around 5V. Red/White/Black to Orange. ✓ Replace display ✓ Replace orange & white cable from the display plug to board. (Red/White/Black to Orange will be 5V).
5. Print Head does not lower when bagger cycles	1. Air to printer disconnected/low 2. Printer Option not enabled 3. Defective Valve	✓ Air line / increase pressure ✓ Turn printer on in T-1000 "Options Menu". ✓ Check LED's on Solenoid Should go out to lower print head.
6. No main power light	1. Blown fuse 2. Defective switch 3. Input voltage is not within the rated voltage 4. CPU/PC board not receiving voltage from power supply. 5. Defective CPU board.	✓ Replace fuse ✓ Replace power switch ✓ Check voltages; replace power cable. ✓ Check for 5V on unit connector on CPU board. ✓ Replace CPU board
7. Screen Readout is scrambled or all lines.		✓ This reading is a bad orange CN3 - White CN-1 cable. ✓ IOP cable could be bad. ✓ Display should read "On Line"
8. Bagger power "on" Ti-1000 option "ON", but Ti-1000 power is off.		✓ When you turn Ti-1000 "ON" screen on T-1000 came up with "Are labels leaded Error," and you could not eliminate screen error when pushing screen. Replace If board -- printer readout LED was blinking.
9. With all the correct settings in software. When customer downloads label format into Ti-1000, LED flashes, then stops flashing, No Labels were accepted when you press pause.	Using Software other than Labelview	✓ Do a parameter clear to solve the problem.

10. Print Head lowers when bagger cycles but does not print (no error messages on display) Print head goes down but won't print.	1. No label downloaded 2. Pressure low 3. Label formatted incorrectly 4. DIP switches not set properly 5. Bad print head connection. 6. Print head failure 7. Failure in the rewinding/ feeding of the ribbon. 8. Defective printer cable 9. Failure of the software 10. Defective CPU PC board	✓ Download label from PC ✓ Increase air pressure ✓ Shut off printer for 5 seconds, reload label after checking format. ✓ Check DIP switch settings, replace print head. See Page 36 ✓ Reset print head connectors ✓ Replace the print head ✓ Replace motor assembly. ✓ Replace printer cable ✓ Reload software ✓ Replace CPU PC board
11. Print head goes down but won't come back up and bags tear on T-1000.K	1. Defective valve or connection. 2. Incorrect cam position (refer to item 6 on pg. 61 3. Ribbon	✓ Check to see if LED on valve is turning off. Push manual orange button or valve to see if head is going down, then release to come back up. □ ✓ With the air off on the bagger the Ti-1000 air is now off. Turn the print head knob clockwise, if it doesn't move, the cam pushing down on the spring plate moved to far forward. Turn the knob counter clockwise to allow the cam to reset on the spring, then reinstall the air. ✓ Ribbon could be sticking to bag, refer to Problem "Ribbon sticking to bags when printing". □
12. Print head won't go down.	1. Check air pressure 2. Check air valve connection 3. Check air valve 4. Defective I.F. Board	✓ Check to see if pressure is on 80 PSI on the T-1000, and 50 PSI on the printer regulator. ✓ Check LED on valve under small cover, the light will go out when the foot switch is depressed. If the light doesn't go out, check 24V on terminal to solenoid. ✓ Push manual operate button on valve (orange button) up & down. At this time the print head should move, if not replace the valve. ✓ Replace I.F. board.
13. After replacing the print head, how do you clear print head "Linear Inches" to determine warranty. If new print	Defective Print Head Warranty	I. Turn power off while holding feed and pause, turn the power on, dialog screen should say: <1> on the display. II. Press the feed key (4) times to

head fails within 90 days or 1,000,000 linear inches?		say: <5> Ram Clear III. Press pause key once to say : "No RAM clear". IV. Press feed to say: Maint.Cnt. Clear. V. Press pause key once to say: Complete. VI. Turn power off, wait 5 seconds. VII. Turn power on, display will say "On Line".
14. Print head is locked down, won't come back up.	1. Cam passed center of spring.	✓ Remove air & turn knob counter clockwise until cam is centered on spring, instead of forward on spring.
15. Print head goes down, won't print and the T1000 goes into the stop mode.	No labels loaded	✓ Do we have labels loaded? Press pause Key, to the right of the word "pause" will be the number of labels loaded. NOTE: If there is nothing to the right of pause, the down load was not accomplished. Push the restart key and re-down load. If nothing was excepted. Check the software and serial cable.
16. How do you align print head after installing head?	Poor print quality	✓ Refer to instructions on "How to align print head". Page 57-59 of the Ti-1000 manual.
17. Printer does not cycle with bagger when printer option is "on" and labels are loaded.		✓ H4 plug on IF board not plugged in all the way or bad connection on plug.
18. Print head goes down but ribbon rollers don't advance ribbon.	Head down sensor adjusted incorrectly.	✓ Remove air, remove large cover, turn print head knob clockwise. Look for the "Head Down Sensor" LED to come on (I.F. Board). If not, adjust sensor flag so that when the head touches the black roller, LED comes on. Refer to pg. 64 in Ti-1000 manual.
19. Black platen roller has silver shavings on it.	Cam not lubricated.	✓ Remove top cover on print head aluminum extrusion. ✓ Clean spring and CAM under cover and grease both the CAM and spring, with lithium grease, replace cover.
20. Print head goes down intermittently.		✓ Replace IF board.
21. How do you clean print head?	Poor print quality	✓ Take a "Q" tip, and saturate it with Isopropyl alcohol, and run "Q" tip along white edge of the print head until clean. Also, clean black platen roller with alcohol and a rag.

22. Print quality is light on one side and dark on the other.	Check to see if head is square to platen roller.	✓ Remove air, ribbon and bag beneath head, and lower head by turning knob clockwise so the head is approximately 1/32 of an inch from head to black roller. Is the gap the same on both sides of the head to the roller? If not, refer to fine adjust on pg. 59 of the Ti-1000 manual. ✓ Lower head to black platen roller, the head should touch the roller towards the center on both right and left sides. If not, loosen one of the Phillips head screws that holds the head to the bracket, adjust then re-tighten.
23. Print quality is light on both sides.	1. Print head out of alignment. 2. Dirty roller and edge of head. 3. Incorrect ribbon or defective ribbon. 4. Check air pressure 5. Check software.	✓ Refer to manual "Fine and Coarse Adjustment" on pg. 57 - 59. ✓ Clean print head and roller. ✓ Replace ribbon. ✓ Regulator, must be set at 50 psi, print speed usually 6 or 10 inches per second, temp. set at 4.
24. Missing parts of the label printed.	1. Dirty print head and/or platen roller. 2. Defective print head. 3. Print head alignment problem	✓ Clean print head and roller. ✓ Defective print head, replaced. See pg. 55-59. ✓ Refer to pages 57-59.
25. Bag is not printed between two printed bags□	1. Bagger cycled two bags in one sequence (bag may have been spliced)	✓ Perf not detected: lower inner frame and straighten perf sensor. ✓ Clean / replace perf sensor ✓ Contact APPI for High Voltage Board Adj.
26. Poor registration - print in various location from bag to bag□. Print on bag is moving up or down.	1. Bagger perf is sensing hole in bag 2. Tracking problems on bagger 3. Bagger not registering / stopping bag in same place 4. Dancer/tension problems	✓ Reposition bag ✓ Consult T-1000 manual See Page 28 in the T-1000 Manual. ✓ Look at seal on bag, is the seal point on the bagger moving to cause print position to move. If so, adjust High Voltage board, clean perf sensor, clean grounding sensor below steel grooved roller, and clean rubber drive roller on T-1000. ✓ Tighten print adjust bar by turning handle clockwise.
27. Ribbon has to much slack after printing.		✓ Change ribbon forward in parameters from 0 to -2 ✓ Tighten clutch on rear ribbon (Feed) Roller.
28. Poor print quality□	1. Head or roller is dirty. 2. Temperature is too low in	✓ Clean head and/or roller ✓ Turn power off and on again TD

	software. 3. Print speed not set properly. 4. Not enough pressure. 5. Print head cables not seated properly. 6. Head out of alignment. 7. Print head or platen roller worn excessively. 8. Ribbon is of poor quality. 9. Dot/Pixels missing. 10. Blurred print. 11. Ribbon wrinkle.	Printer, then adjust heat temperature in Label View. Redownload. ✓ Turn power off and on again, then adjust print speed in software. ✓ Adjust air pressure to 50 PSI. ✓ Reset cables on print head. ✓ Align head, refer to pg's 57-59. ✓ Replace print head or roller. ✓ Replace with quality ribbon. (contact APPI sales staff for quality ribbon) ✓ Replace print head and/or replace print head harness, replace PC board. ✓ Remove inside of rear ribbon roller and tighten clutch.
29. Print head fails	Print Head Fails	✓ Temperature in Labelview software or customer's software temperature is set to high.(Labelview should be set at 3) ✓ To much pressure is supplied to the print head while printing. (Set Regulator to 50 PSI). ✓ Platen roller beneath print head has an accumulation of debris causing premature wear to the print head during the printing cycle. ✓ Cleaning the head/platen roller with anything other than Isopropyl alcohol will cause damage to the roller head. ✓ Cleaning the print head/roller infrequently will cause premature wear on both the print head and rollers. ✓ Using incorrect ribbon will cause premature wear on the print head edge.
30. Bags web breaking prematurely in machine	1. Improper web tension. 2. Print head not lifting. 3. Print head spring damaged.	✓ Adjust tension on T-1000 Dancer assembly. ✓ Adjust air pressure, check head down cylinder valve for proper operation. Refer to Problem #14. ✓ Replace spring
31. Bags wrinkling when printing.	1. T-1000 dancer/brake spring loose, dancer hitting frame. 2. Clutch loose on rear ribbon roller. 3. Incorrect print speed.	✓ Adjust brake tension on dancer assembly to allow more tension on bag. ✓ Tighten clutch on ribbon roller (rear roller). ✓ Go into label view "edit label

		setup" and change print speed.
32. Bag won't advance forward when head is down and there's no print on the bag.	1. Bad connection to print head. 2. Defective stepper motor, belts, CPU board. 3. Check print head alignment. 4. Turn option (printer) off to determine if it is the printer or a bagger problem.	✓ Check both cables going into the print head. ✓ Check to see if the black roller is turning when the print head touches the roller. If not, replace the stepper motor, CPU board or belts. ✓ Refer to Problem "Print quality is light on both sides". Turn printer option off, will the bag advance now? If so, check the above steps.
33. Ribbon has to much slack.	1. Clutch in rear ribbon roller to loose.+ 2. Check parameters in display.	✓ Remove clutch assembly on rear ribbon roller and turn plastic thumb knob clockwise.U ✓ Make sure parameters are set correct, refer to page 48.
34. Ribbon sticking to bags when printing.	1. Check software. 2. Check pressure on EQPT. 3. Dirty print head or platen roller. 4. Incorrect ribbon. 5. Print head out of alignment.	✓ Go to label view, edit label setup, and adjust heat setting (decrease). ✓ Adjust regulator to 50 PSI. ✓ Clean print head and black platen roller with Isopropyl alcohol only. ✓ Change ribbon ✓ Refer to PG. 57, 58, 59 for corrective action.
35. Ribbon advances after down load.	1. Loose connections on CPU board. 2. Incorrect setting in software. 3. Incorrect setting in parameters, refer to pg. 48.	✓ Remove large side cover and push down on all connectors with the power off. ✓ Go into label view, label setup options. Ribbon should say "yes", and sensor type needs to be "peel off continuous". Using TEC 472 and 572 only. ✓ Do a parameter clear. A. Power off B. Hold feed & Pause at the same time, turn power to on then release buttons. C. Display will read: <1> Diag D. Press feed key (4) times E. Will say <5> RAM Clear. Press the pause key once. Will say No RAM clear. F. Press feed key twice. G. Will say parameter or clear Press pause key once. H. Will say complete. I. Turn the power off, wait 5

		seconds, turn on the power and re-download. If the ribbon takes off running, replace the CPU board. 4. J. Reset parameters refer to pg. 48 (parameter settings).
36. How many labels can you download at (1) time?	Based on demo or liscensed label view software.	✓ 9999 when sentinel key plugs into LPT1 port. ✓ 99 when software is in "Demo Mode". ✓ You can do consecutive downloads to achieve the correct number of labels needed to print.
37. Software I have (other than labelview) doesn't have tec drivers, where do I get them from?	Software used does not have TEC drivers.	✓ Go to "www.Seagull Scientific.com", and down load the TEC 472 or 572 driver. Click on "File" select printer. Click on install, go to available print drivers and highlight specific driver and click on OK. Click on connect, and choose available COM port, click OK, click OK, now you have your correct driver.
38. When printing a label with a graphic, graphic gets eliminated after printing format on poly bag.	Software setting incorrect.	✓ Go to "configuration" and make sure that graphic overwrite has a check mark in the box.
39. Ti-1000 when down loading a label with a picture or PCX file, etc., Label downloads but omits the picture and comes up with error when printing.	Incorrect Software Settings.	✓ Go to "configuration" and make sure that scalable font on conversion and graphic overwrites have a check mark in the box.
40. Printer on COM1 is not "on-line".	1. Incorrect setting in windows. 2. Defective or incorrect COM port. 3. Incorrect setting.	✓ Go into windows print manager and check to see if COM1 or 2 ports are available. If not, add com port in "My Computer". ✓ Try COM2, COM3, to determine the correct COM port. ✓ Go to "My Computer", double click, double click on "Control Panel", double click on "Systems", click on "Device Manager". Double click on ports (COM & LPT) double click on your Com port, go to port settings & click once, the screen should read: E I. Bits per second - 9600 II. Data bits - 8 III. Parity - none

	4. Defective serial cable from computer to printer.	IV. Stop bits - 1, V. Flow Ctr. - XON/X off VI. Then click on "OK". ✓ Defective serial port cable will also come up with this error, replace the serial cable.
41. "Tear 1001" Error when installing LVWIN CD.	1. Incorrect port. Software incorrectly installed.	✓ 1. LBV boot.log in txt editor file has 30 steps and it tells you where the error is in one of those steps. Then when you find the error rename everything to "LPT1" to look at the sentinel key. ✓ 2. Go to www.teklynx.com and go into "File and Utilities" reseller demo label view and down load this version. Go into explorer and delete previous version before reinstalling label view.
42. Receive Quantity of Labels (Checked by pressing pause) and after printing one label, T-1000 screen comes up with "Are Labels Loaded Error." Hit Pause, quantity is erased.		✓ Faulty connection on display board causing labels to be erased. Reset connection and redownload labels.
43. A required DLL File WS23Z.Dll was not found.		✓ Can't use V6.05 LBV Pro with Windows 95. Use with Windows 98 or higher.
44. (5) User network software on 3rd PC stuck in demo mode. (Main Server has Key and all other computers looking at that server for the Key.)		✓ Uninstall Labelview and delete any other labelview software that did not uninstall. Redownload Labelview software. PC should now recognize the key on the server.
45. String Length is 15 Characters but P/N is only 14 characters. Labelview requires 15 characters to print.p		✓ Highlight the text field and double click on it. Go to options, look at "When Printed Options" and change Must Fill from yes to no.†
46. Font Command Error "PV _ _ _ _ _ _."		✓ Using scalable fonts when this error happens. ✓ Change Fonts.
47. When downloading a label with a picture, PCX file, etc..., Label downloads but omits picture and does not come up with Error when printing.		✓ Go to "Configuration" and make sure that scalable font on cenversion and graphic overwrite are checked in box.

48. Ti-1000 When printing on bags, You get a ribbon wrinkle mark on the bag.		✓ Head is to far from platen rouer. Lower head and readjust linkage and adjust print head.
49. Big Black triangular block printing on bag.		✓ Defective ribbon (Data) cable. ✓ Ribbon on take up has to much slack. □
50. Print head does not lower when bagger cycles.	1) Printer "OPTION" not enabled 2) Air to printer disconnected / air pressure too low. 3) Print head connections loosen. 4) LED's print signals "OFF" 5) Print head cylinder / Valve.	✓ Turn "ON" printer from option screen. ✓ Check air regulator / air pressure 50 PSI minimum. ✓ Check print head connectors. ✓ Check LED's D3 / D4 if "OFF": Check connection between H3 on the I.F. Board & CN15 on the CPUBoard. ✓ Check cylinder #8 by activating valve #10 manually. Check valve #10: 24V DC.
51. Print head lowers when bagger cycles but does not print (no error message is displayed)	1) No labels are downloaded. 2) Air pressure too low. 3) Label formatted incorrectly. 4) Di pswitches not set properly. 5) Head down sensor. 6) Print head failure. 7) Failure from the rewinding / feeding motors. 8) Lever / arm mechanism. 9) Failure of the CPU board. 10) Failure of the Printer cable.	

7.3 Trouble Shooting Checklist - Error Messages

Error Message	Possible Cause	Action

1. PAPER JAM	1. Improperly formatted label.	1. Shut off printer for 5 seconds, turn on again, reformat and reload label
2. RIBBON ERROR	1. The ribbon has run out. 2. Ribbon improperly threaded. 3. IR comp board.	1. Replace ribbon. 2. Check threading. (see Fig. 2-3) 3. Set potentiometers to 13 Hz.
3. HEAD OPEN	Feed or printing has been attempted while the print head is raised.	Connect / check air and press restart.
4. REWIND FULL	Too much ribbon wound on the take-up spool.	Remove used ribbon and rethread ribbon.
5. EXCESS HEAD TEMP.	The print head is set too hot.	Turn the power off and decrease the print head temperature in Labelview.
6. RIBBON ERROR	There is a fault with the ribbon sensor.	1. Wrong type of ribbon installed. 2. Display settings are incorrect - contact APPI.
7. FLASH WRITE ERROR	An error has occurred when loading data onto a flash memory card.	1. Turn the power off, remove and re-insert the flash memory card. 2. Use another card.
8. FORMAT ERROR	An error has occurred while formatting a flash memory card.	1. Turn the power off, remove and reinsert the flash memory card. 2. Use another card.
9. FLASH CARD FULL	No more data can be saved in the flash memory card.	1. Replace the card with a new one. 2. Resend from the beginning of the unfinished data. Note: Max capacity of the card is 1MB.
10. COMMS ERROR	A communication error has occurred with the host.	1. Turn the power off then on again or press the RESTART key. 2. Check the program data. Call an APPI technician if necessary.
11. COM. ERROR after download		1. Bad rate on Computer is set incorrect. 2. Board #2 dip switch set incorrect. 3. Defective comport on computer, change to a different comport.
12. PRINTER FAULT	1. Printer head goes down and comes up but does not print. Still has labels loaded. When this happens sometimes it does signal bagger and sometimes it doesn't.	Replace IF board after checking head down sensor adjustment.
13. Other Error Messages	Hardware or Software Trouble	1. Turn the power off, then on again. 2. Check software and reload label. 3. Check wiring connections. 4. Contact an APPI technician.
14. "DIVIDE ERROR"		Bad CPU board. Replace CPU Board.

Changing Parameters

Changing Parameters TEC-472 (203 DPI) TEC-572 (305 DPI) Year 1999 and up	1. Turn Printer off.	(2) Par. Set Hit Pause
Hit feed for down Hit reset for up	2. Hold Feed and Pause and turn on power while holding buttons.	Feed ADJ. +0.0mm Pause
	3. Hit Feed or Reset until you see "(2) Parameter set"	CUT ADJ. +0.0mm Pause
	4. Hit Pause until you "Tone ADJ. [T] + 0"	BACK ADJ. +0.0mm Pause
	5. Hit Feed Button until +0 is - 0.	X ADJ. +0.0mm
	6. Hit Pause, you'll see tone ADJ. [D] + 0.	Tone ADJ. [T] - 0 Pause
	7. Hit Reset until it reads + 0.	Tone ADJ. [D] + 0 Pause
	8. Hit Pause till you get back to [2] parameter set	Font Code PC-850 Pause
	9. Turn off power to Ti-1000.	Zero Font 0 not Ø Pause
	10. Turn on power.	Code Auto Pause
		Ribbon Trans. Pause
		Ribbon ADJ. [Forward] + 0 Pause
		Ribbon ADJ. [Back] + 0 Pause
		Status Type Pause
		Turn Ti-1000 off to save parameter

OPERATIONAL SEQUENCE OF TI-1000

The following passage will describe the normal operation sequence of the TI-1000 and some of the problems that might prevent normal operation.

STEP 1: Before you try to cycle the TI-1000 please verify that the following LED's are on. D3, D4 (print signals) and D9 (print busy) should be illuminated when the TI-1000 is idle. If D3 and D4 are not on, check the connection between H3 on the interface board and CN15 on the main CPU board. If the harness is good, then replace the interface board and/or the main CPU board. If D9 is not illuminated, then replace the interface board.

STEP 2: To initiate the print sequence, you must send a momentary print signal through the auxiliary cable from AUX 3 on the bagger to the AUX IN port on the TI-1000. If the TI-1000 starts the print cycle when the bagger is cycled go to STEP 4. Otherwise, See STEP 3.

STEP 3: If the TI-1000 does not initiate a print sequence, check the following:
Make sure T-1000's print option is turned on and ensure that it is in the TT mode. Verify that you have a good connection between the T-1000 and TI-1000 Assuming the T-1000 is providing the proper 24V signal out, check D5 (AUX IN) for a momentary on pulse of approximately 0.25 second. If D5 is not illuminating, replace the TI-1000 interface board.
STEP 4: After D5 illuminates, D9 (print busy signal) should turn off and D15 (head down output) should illuminate. If D9 turns off and D15 illuminates then go to STEP 6. Otherwise, see STEP 5.
STEP 5: If D9 does not turn off or D15 does not illuminate, then replace the interface board.
STEP 6: The head should now lower and activate D1 (head down sensor). If the head does not lower, then check the following:
Do you have air going to the valve?
Can the valve be activated manually?
Is the LED on the valve illuminating?
If the valve can be activated manually, check the harness between H9 in the interface board and the head down valve. If the harness is good, replace the interface board.
STEP 7: After the head has lowered, D1 should be illuminated. If D1 is illuminated, then go to STEP 9. Otherwise, see STEP 8.
STEP 8: If D1 is not illuminating check the sensor flag to ensure that it is passing through the head down sensor. If the flag is positioned properly, check the harness between H2 on the interface board and the head down sensor board. If the harness is good, replace the head down sensor board and/or the interface board.
STEP 9: Once D1 is on, D16 should turn on for approximately 0.25 second. This should cause D3 and /or D4 to turn off and the printer should start printing. If the printer starts printing, go to STEP 11. Otherwise see STEP 10.
STEP 10: If the printer is not printing, check the following:
Verify that D16 is illuminating.
If D16 is illuminating momentarily, check the harness between H10 on the interface board and/or the main CPU board.
Additionally, if D16 is illuminating, check the harness between H3 on the interface board and CN15 on the main CPU board.
STEP 11: When the printer is not printing, D3 and/or D4 will return to an illuminated state. This will disengage the head-down valve and return D9 to an illuminated state. At this point, the bagger should finish indexing the bag and complete the cycle.

APPENDIX A Pre-shipping Checklist

Identification Checklist & Registration Information:

Item:	APPI Inspector:	Purchaser's Inspection:
Serial Number		
PCB S/N		
IF Board S/N		
PS Board S/N		
4" / 5" / 8" Head		
Optional Equipment: _____ Verifiers _____ Software Version _____ PrintPad _____ Scanners _____ Laptop Computer	Model, S/N:	
Other:	□	

REGISTRATION INFORMATION:

This section must be completed and returned to Advance Poly Packaging, Inc. to register the RAP 1400 for Warranty Protection. (See warranty contained in this manual for specific warranty information)

Company Name & Address	Contact Name(s) / Title(s) / Phone Number
_____ _____ _____ □	_____ _____ _____

The following checklist is completed and filed by APPI technicians and supervisors to ensure the quality of every printer shipped.

APPI Inspection Items:	Tech. Initials	Insp. Initials
IF Board Tested : Passed PS Board Tested: Passed PLC Board Tested: Passed		
Electronics: Board connections grounded, secure		
Electronics: Wiring connectors securely fastened		
Electronics: EEPROM/Program installation/test		
Mech Assembly: Valves/Cylinders, no leaking air		
Mech Assembly: Tracking, compression/alignment adj.		
Mech Assembly: Belts, tension adj.		
Mech Assembly: Screws & fasteners secured, no loose mech components		
Mech Assembly: Roller Spin Freely		
Mech Assembly: All fasteners secured tightly		
Mech Assembly: Print head, rear nip rollers adjusted		
Total hours run/tested: _____		
Total cycles printed: _____		

Note: To receive a copy of the completed checklist, contact an APPI sales representative.