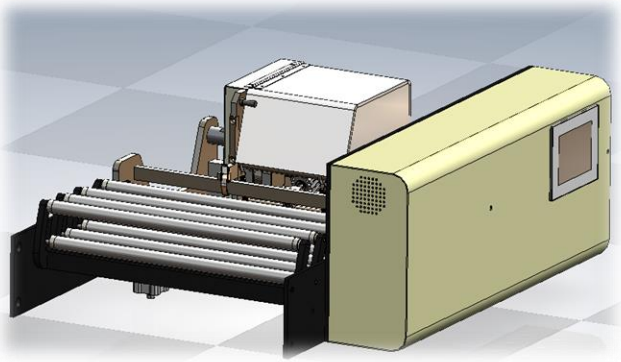
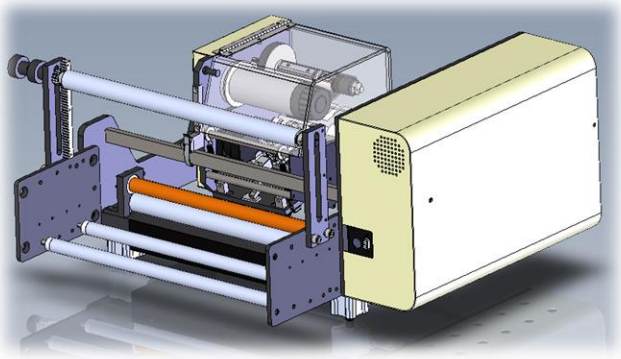
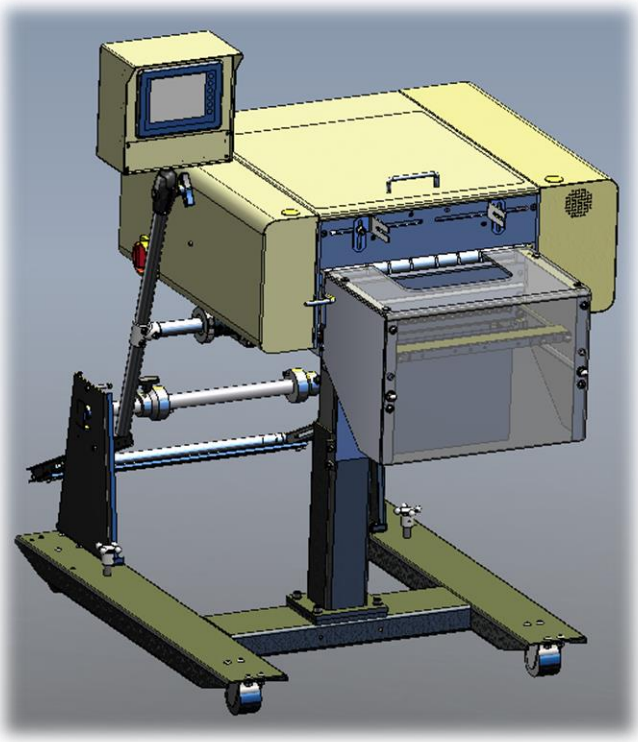
Ti-1000Z Inline Printer
Ti-1000Z Roll-A-Print
T-1000-S14 Next Bag Out

Operation Guide, Version 1

Setup, Operation and Parts Manual







Advanced Poly-Packaging, Inc.

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Acknowledgments

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Limited Warranty and Disclaimer

Warranty period is 12 months or 1,000,000 cycles whichever comes first. The warranty commences on the date of delivery of the equipment to the Purchaser. Print head warranty period is 90 days (wear item). 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 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 a dated proof of delivery. In any event, APPI's liability for defective components or equipment is limited to repairing or replacing the components.
This warranty is contingent upon proper use of the equipment by Purchaser and does not cover: expendable component part such as Print Heads, thermocouple wire, heater cartridge, rollers, bushings, and the like; or if damage is due to accident, unusual physical, electrical or electromechanical stress, neglect, misuse, failure of electric power, water damage (from airlines), 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 original Purchaser. APPI will not be liable for loss of production, profits, lost savings, special, incidental, consequential, indirect or other similar damages arising from breach of warranty, breach of contract, negligence, or their legal action even if APPI or its agent has been 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 liability contained in this warranty. The 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.
Warranty on equipment is considered void when outstanding balances become delinquent (over 30 days late - 60 days after ship date). Equipment Integration to other Equipment: APPI assumes no responsibility for the integration of its products to other products or within a system unless APPI performs the integration, testing and provides the results of the tests to the purchaser in writing. Furthermore, APPI assumes no responsibility for bag sizing whether suggested or recommended.

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Chapter 1: Introduction

Welcome
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1.1 Welcome

Now that you have decided to upgrade your packaging facilities with the Ti-1000Z Inline Thermal Printer, the Ti-1000Z Roll-a-Print or the T-1000-S14 Next Bag Out Printer / Bagger from Advanced Poly-Packaging, Inc., we thank you for selecting our equipment, materials and service.

1.2 Overview

APPI printers are designed to lower your printing costs with high speeds, versatility, reliability and simplicity. A user-friendly, menu-driven touch screen program allows operators to set up the printer, save settings in memory and recall those settings for repeat runs.

1.3 Special Features

Ribbon Saver: Ribbon usage is based on the label download size in the software. The print head lowers to print onto the film.

Energy Conservation and Component Saver: To extend its life and conserve energy in your plant, the Ti-1000Z, the Ti-1000Z RAP and the T-1000-S14 NBO are programmed to sequentially shut down components when not in use for extended periods of time. A screen saver is provided to extend the life of the touch screen.

Pass Code Protection: This feature protects setting screens from alteration by unauthorized individuals. If enabled, a timer causes the pass code screen to be displayed from the Operation screen after a preset period of nonuse. Factory settings are protected by a Level 1 pass code. This pass code should only be provided to authorized maintenance personnel.

Predetermining Counter: Preset your printer to stop after a predetermined number of bags have been printed. Set the quantity of finished bags to complete a print job.

Totalizing Counter: Reset this counter at the beginning of each shift or day to record printing production over a period of time.

Next Bag Out Printing: The T-1000-S14 NBO features a patented method of printing the next bag out. This feature prevents the mislabeling of pharmaceuticals, prescriptions and other high cost items. The part number and other printing information can be changed for every bag without wasting materials.

Dual Printing: Special programming allows the T-1000-S14 to operate with both the Next Bag Out printer and an offline printer in order to print on both sides of the bag. The offline printer is mounted upside down on the back of the bagger.

1.4 Using This Manual

This manual describes the features and operation of three different APPI printers: the Ti-1000Z Inline Thermal Printer, the Ti-1000Z Roll-a-Print and the T-1000-S14 Next Bag Out Printer / Bagger. This manual functions as one manual for all three printers.

The operation section of this manual is divided into two chapters to differentiate between two different printer operation systems: Operation with the T-1000-S14 Advanced Poly-Bagger and Standalone Operation. When operating with the T-1000-S14 Advanced Poly-Bagger, APPI printer operation is contained within the bagger's operation program. When operating as a standalone machine or with a bagger other than the T-1000-S14, APPI printers use a separate, printer-specific operation program.

NOTE: Only the Ti-1000Z and the Ti-1000Z RAP can operate as standalone machines. The Next Bag Out printer only operates with the T-1000-S14. It cannot operate as a standalone machine.

Printers that operate with the T-1000-S14 are described in Chapter 3. Printers that operate as standalone machines or with other bagger models are described in Chapter 4. Chapters 1, 2, 5 and 6 contain information related to all printers. Some sections of those chapters will only apply to a specific printer. Those sections will be properly noted.

The following manual conventions are frequently used to assist in understanding important information, to alert the operator of potentially dangerous or damaging practices and to describe the normal functions of the Ti-1000Z, the Ti-1000Z RAP and the T-1000-S14 NBO.

- Text Normal text
- *Italics* Used for emphasis
- **Boldface** Used to identify heading names and touch screen buttons.
- ***CAUTION*:** Warning messages. To avoid physical harm, damage to equipment or damage to the product, be sure to read these messages carefully.
- *NOTE:* Identifies important information.

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1.5 Warranty Registration

This section must be completed and returned to Advanced Poly-Packaging, Inc. to register the printer for Warranty Protection.

Serial Number:

_____

(Serial Number located on the back panel)

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

Please fax or mail this page to:

Service Manager
Advanced Poly-Packaging, Inc.
1331 Emmitt Road
Akron, OH 44306
USA

Fax # (USA) 330-785-4010
Or email the information above to: sales@advancedpoly.com

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Chapter 2: Getting Started

Summary
Safety, Risks
Installation Procedures
Air and Power Requirements
Main Power
Rear Power Switch
Bag Threading
Ribbon Threading
Cycle Operation
Tension
Note on Adjustments

2.1 Chapter Summary

This chapter describes procedures to receive and set up the Ti-1000Z, the Ti-1000Z RAP and the T-1000-S14 NBO, including safety precautions, uncrating and assembly instructions, environmental, air and power requirements, and height adjustments. Additionally, this chapter describes how to turn on the printers and properly thread film and ribbon.

2.2 Safety, Risks

Many safety features have been included in the mechanical, electronic and pneumatic systems of this machine. Despite these safety precautions, operators may receive lacerations, minor burns, or crushed or broken bone injuries if they come in contact with any moving components. Improper use, improper adjustments and neglect of preventative maintenance may result in serious personal injury. No special personal protective equipment is required to operate the equipment, but eye protection, gloves or other protection should be worn, depending on the characteristics of the product being packaged and the method of loading product.

Please carefully read the following precautions to operate the equipment properly and avoid injury:

- Initial setup of the machine must be performed by specialized personnel. Qualified service engineers should uncrate the equipment, assemble the equipment (if required), test and connect power sources, test the equipment for proper operation and otherwise set up the equipment for use.

- Do not attempt to adjust the height without assistance and without supporting the weight of the machine. Attempting to make a height adjustment without assistance could cause the machine to drop suddenly, causing severe injury. APPI offers several optional accessories that can reduce the risk of injury during height adjustments. These accessories include carts, motorized height adjustment components and stabilizing bars.

- Ensure that any height adjustments allow for sufficient movement of the operator. Improper height adjustments could negatively affect operator movement, causing strain, added stress, discomfort and fatigue.

- To avoid injury, do not operate the equipment if funnels, guards, covers or other access panels have been removed. If any of these safety measures have been removed or modified or if any openings have been increased, the operator will have access to moving components and extreme temperatures that can cause crush, cut or burn injuries to hands or fingers.

- To avoid injury, do not reach under the equipment, guards or elsewhere under the machine. Do not place hands or fingers in the seal area or near the seal bar, heater bar, load shelf or other moving components.

- Do not remove or loosen fasteners on the frame. If loosened, the equipment may drop suddenly, causing injury or damage to the machine.

- Be careful when opening the seal frame as it may drop suddenly, causing injury or damage to the equipment.

- To avoid injury, avoid coming in contact with pinch points including rollers, automatic funnel doors or other moving components.

- To avoid injury, avoid contact with roller “fingers” as they may be sharp.

- Exercise care when adjusting or relocating the touch screen. Movement of the touch screen could cause unexpected movement of the machine and injury to the operator.

- If control or air pressure settings are set too high, higher noise levels may result from increased part on part contact or part on machinery contact. Limit these settings and add guards or covers to reduce airborne noise.

- Exercise extreme care when clearing jams, replacing materials, changing controls or mechanical settings, and cleaning internal parts. Be sure to de-energize energy sources prior to removing guarding. Failure to do so may result in unexpected movement or flying objects, which could cause crush, cut or eye injuries.

- Maintenance must be performed by specialized personnel. Qualified service engineers must remove guards or covers to gain access to electrical or mechanical areas.

- Maintenance must be performed regularly to ensure that the machine is operating properly and to protect against injury. Routine maintenance includes: periodic inspections, the replacement of worn or damaged components, the tightening of loose bolts or components, and regular cleaning and adjustments. Contact APPI and/or service centers for service support if there is not sufficient maintenance staff at your facility to perform regular maintenance.

2.3 Installation Procedures

The printer is transported completed assembled in a container designed to protect the machine during shipment. If the printer is operating with the T-1000-S14, the printer will be bolted onto the bagger.

After removing the stretch wrapping, remove the carton from the skid, open the top and cut all four corners using a safety knife. Then, transport the machine to the operating location.

CAUTION: Do not attempt to lift the machine from the carton without first cutting all sides open. To prevent injury, do not attempt to lift the machine without assistance.

Operating Environment / Location: The printer should be placed in an area free of excessive heat, moisture, dirt and dust. Operating room temperature should range from 50-100° Fahrenheit. (10-37.7°Celcius)

2.4 Air and Power Requirements

Ti-1000Z / Ti-1000Z RAP Power Requirements: Provision must be made for 110 VAC, 60 Hz line current with ground. Optional 220 VAC / 50 Hz voltage may have been supplied based on your local electrical requirements. The full load current for the Ti-1000Z is 3 Amps.

NOTE: APPI recommends a dedicated 15 Amp circuit for the Ti-1000Z and Ti-1000Z RAP.

T-1000-S14 NBO Power Requirements: Provisions must be made for a 115 VAC, 60 Hz line current with ground. Optional 220 VAC / 50 Hz voltage may have been supplied based on your local electrical requirements. The full load current for the T-1000-S14 NBO is 12 Amps.

NOTE: APPI recommends a dedicated 20 Amp circuit for the T-1000-S14 NBO.

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

Ti-1000Z / Ti-1000Z RAP Air Requirements: At least 0.5 CFM free air is required, regulated from 25 to 60 PSI (1.72 to 4.13 Bar), to obtain the best print quality and drive roller compression.
An air regulator is provided to adjust the pressure to the print head assembly. This regulator should be set from 35 to 50 PSI (2.41 to 3.45 Bar) to obtain the best print quality. A separate air regulator is provided to adjust the pressure to the compression rollers. The pressure should be sufficient to drive the film, but not high enough to cause the film to wrinkle. This regulator should be set from 20 to 30 PSI. (1.38 to 2.07 Bar)

An air line supply should be fed to the Ti-1000Z with 3/8" (0.95 cm) ID flexible tubing. This tubing affixes to the coupler adapter (quick disconnect not provided). Connect the air to the regulator by holding the regulator firmly in one hand and pushing the air line connector on the male regulator connector. Insert the Ti-1000Z power cord into an 110VAC, 60Hz, grounded power outlet.

T-1000-S14 NBO Air Requirements: At least 2 CFM free air is required, regulated to 60 PSI. (4.13 Bar)

NOTE: Air should be dry and oil free.

NOTE: Operating the printer at a higher PSI setting than 60 PSI (4.13 Bar) will cause excessive wear and may cause damage to components on the printer or parts being packaged.

The air supply should be fed to the T-1000-S14 NBO with 3/8" (0.95 cm) ID flexible tubing. This tubing affixes to the coupler adapter (quick disconnect not provided). Connect the air to the regulator by holding the regulator firmly in one hand and pushing the air line connector on the male regulator connector. After connecting air, the regulator should be adjusted so the gauge reads 60 PSI. (4.13 Bar) Insert the T-1000-S14 power cord into a 115 VAC, 60 Hz, grounded power outlet.

2.5 Main Power

If your printer is operating with the T-1000-S14, the main power switch that turns on both machines is located on the bagger's side cover. To turn the machines on, turn the switch from its vertical OFF position to its horizontal ON position. If you wish to turn on the printer only or if your printer is operating as a standalone machine or with a bagger other than the T-1000-S14, the printer's main power switch is located on the rear panel of the printer electronics box. To turn the machine on, press the red **Printer Power** switch.

When the machine(s) is turned on, the green Power light on the touch screen will illuminate and the Introduction screen will be displayed. The program version will also be identified. The Introduction screen will only appear for a few seconds until automatically changing to the Operation screen or Main Menu.

2.6 Rear Power Switch

The Rear Power Switch is located in the back of the machine and is used to turn on the power to the printer only, without affecting the PLC function. The power is separated to allow the printer to be reset, which will also clear the memory of the printer, or errors.

2.7 Bag Threading

Refer to Figures 2-1 and 2-2 for proper bag / film threading of the Ti-1000Z and Ti-1000Z RAP, respectively. Refer to Figures 2-3 through 2-5 for proper bag / film threading of printers operating with the T-1000-S14. Alternate threading may be required based on your bagger. Refer to your bagger's operation guide for additional information.

2.8 Ribbon Threading

Refer to Figure 2-6 for proper ribbon threading of the Ti-1000Z and Ti-1000Z RAP. Refer to Figure 2-7 for proper ribbon threading of the T-1000-S14 NBO. The print head assembly can be rotated up and back for easy ribbon changes. Release the locking mechanism and raise the print head assembly.

CAUTION: To avoid injury or damage to the print head, do not release the print head assembly. Lower the assembly carefully into position and lock the mechanism before operating the printer.

2.9 Cycle Operation of the Printer

If all prior installation procedures were performed properly, the printer should be in its operating location with air and power connected. All covers should be in position and securely fastened.

NOTE: The web of bags may track right or left for a few feet until "settled" on the web path. The roll of bags or the roller guide may require readjustments or realignment after the first few feet of bags are indexed.

To test cycle the printer with a test label that has been downloaded from APPI, load Label 001 from the Stored Labels screen (if the printer is operating as a standalone machine) or from the printer's Setup screen (if the printer is operating with the T-1000-S14). To load this label, press the **Label #** button, enter "001" and press the **ENT** button. Then, while in Setup mode, press the **Manual Cycle (MC)** button. This procedure will cause the compression (nip) roller to clamp onto the film. Then, the print head will lower and the nip rollers will pull the film through the print head while printing. Label 001 has graphics, small print and a line that provides a good test for print quality.

2.10 Adjusting Rear Tension

The printer is not designed to cause heavy rolls to unwind. Heavy rolls may require a driven unwind stand and dancer system. If the film cannot properly feed through the nip rollers, first try to increase or decrease the nip pressure by adjusting the air pressure. If the film does not feed properly through the nip rollers, increase or decrease film tension (rear tension).

2.11 Note on Adjustments to the Printer

Upon receipt, it is not unusual for the print head to be out of alignment due to shipping and excessive handling. Unless physically damaged, the printer will function properly after minor adjustments are made.

Ti-1000Z THREADING DIAGRAM

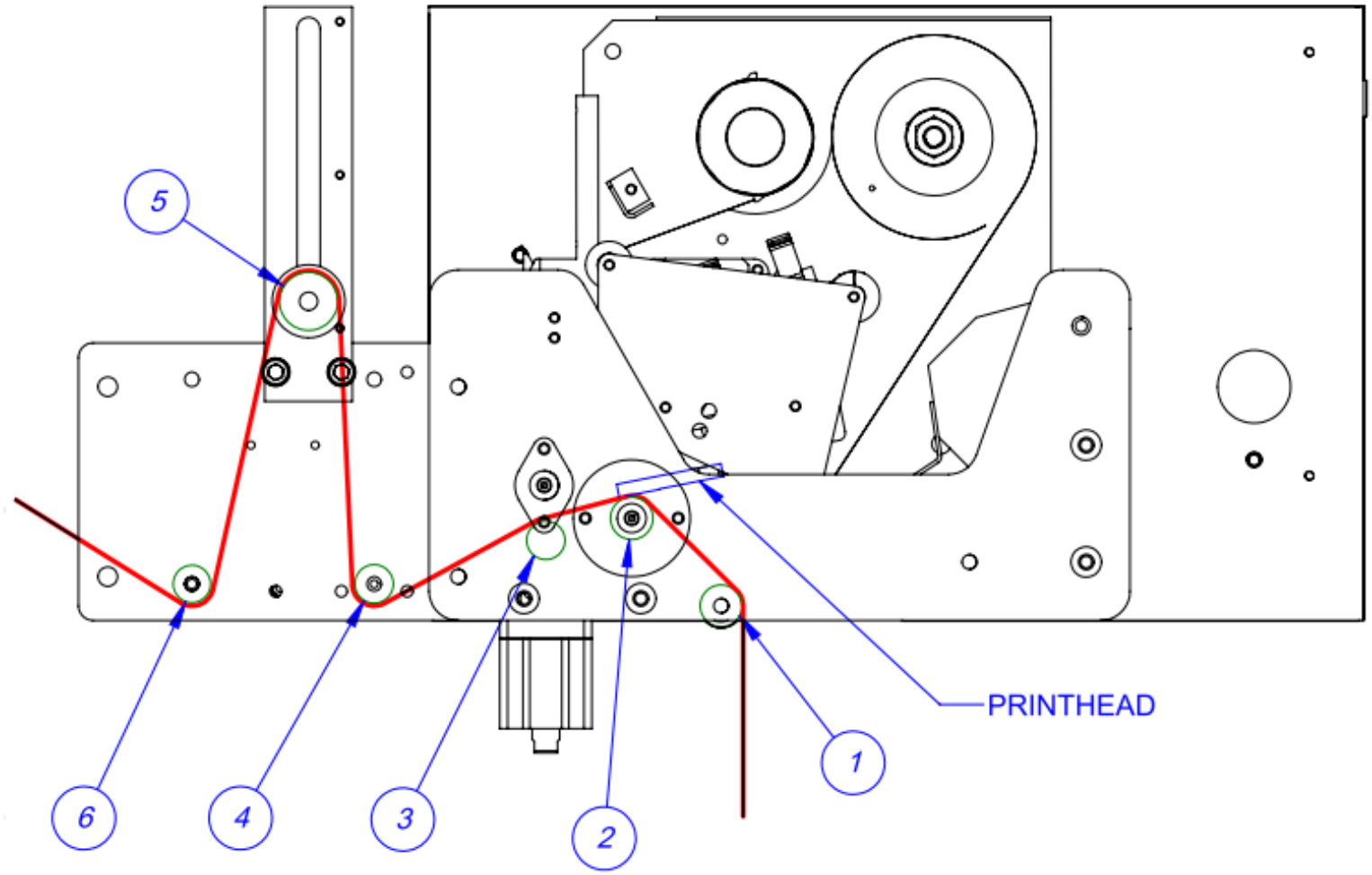

Figure 2-1

Ti-1000Z WITH T-1000-S14 THREADING DIAGRAM

SINGLE DANCER

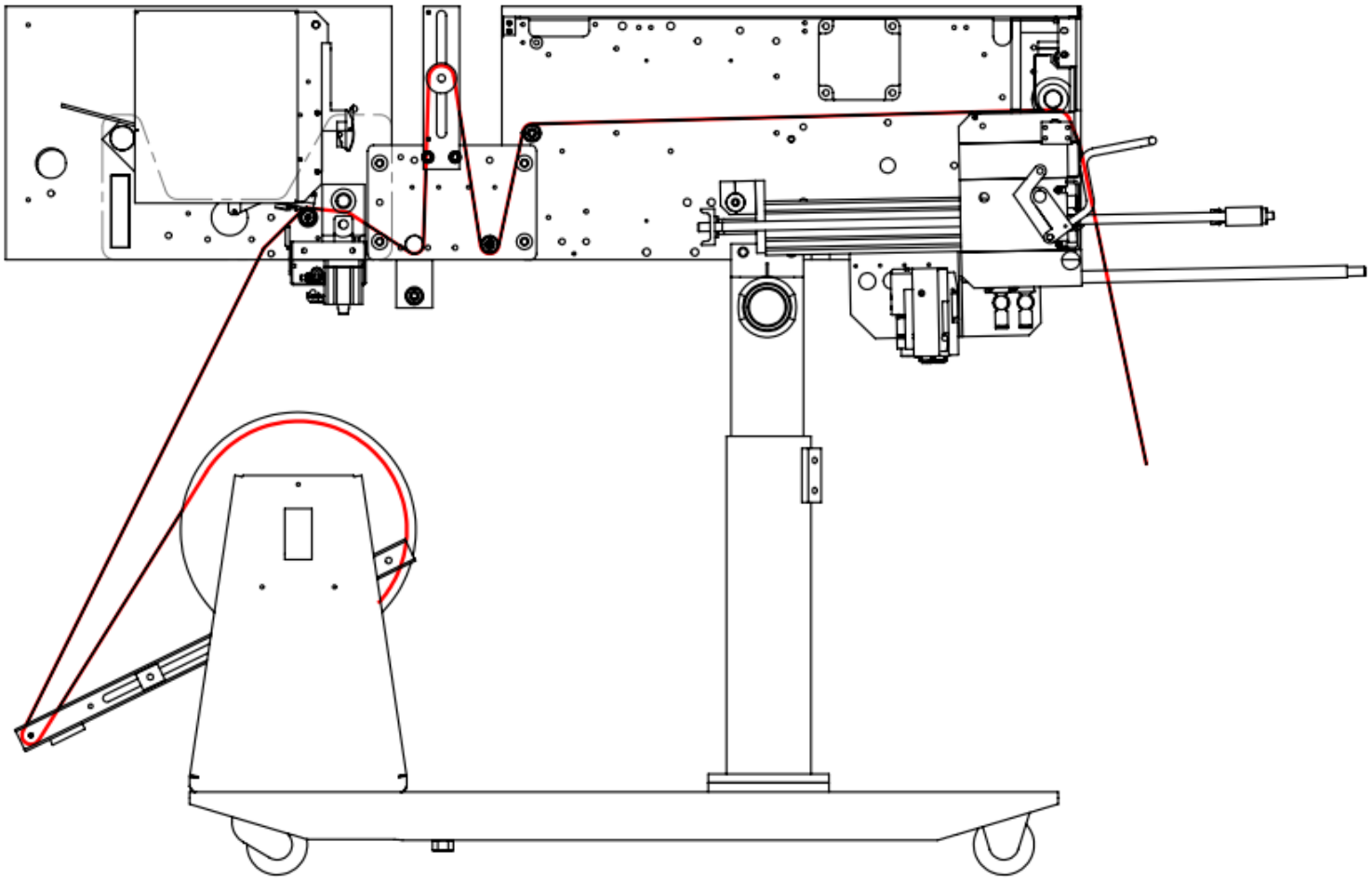

Figure 2-2

Ti-1000Z RAP WITH T-1000-S14 THREADING DIAGRAM

SINGLE DANCER

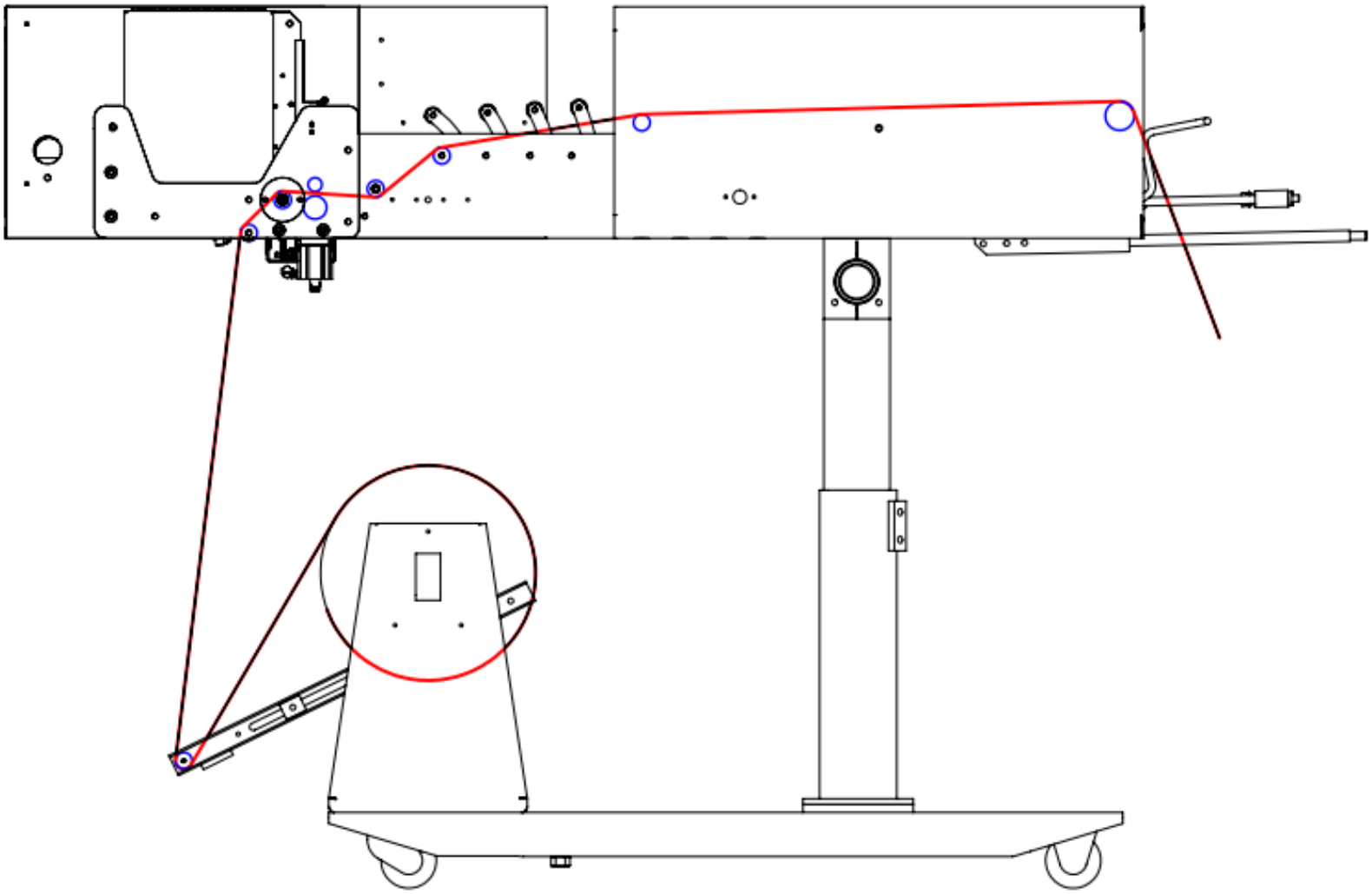

Figure 2-3

T-1000-S14 NBO THREADING DIAGRAM

SINGLE DANCER

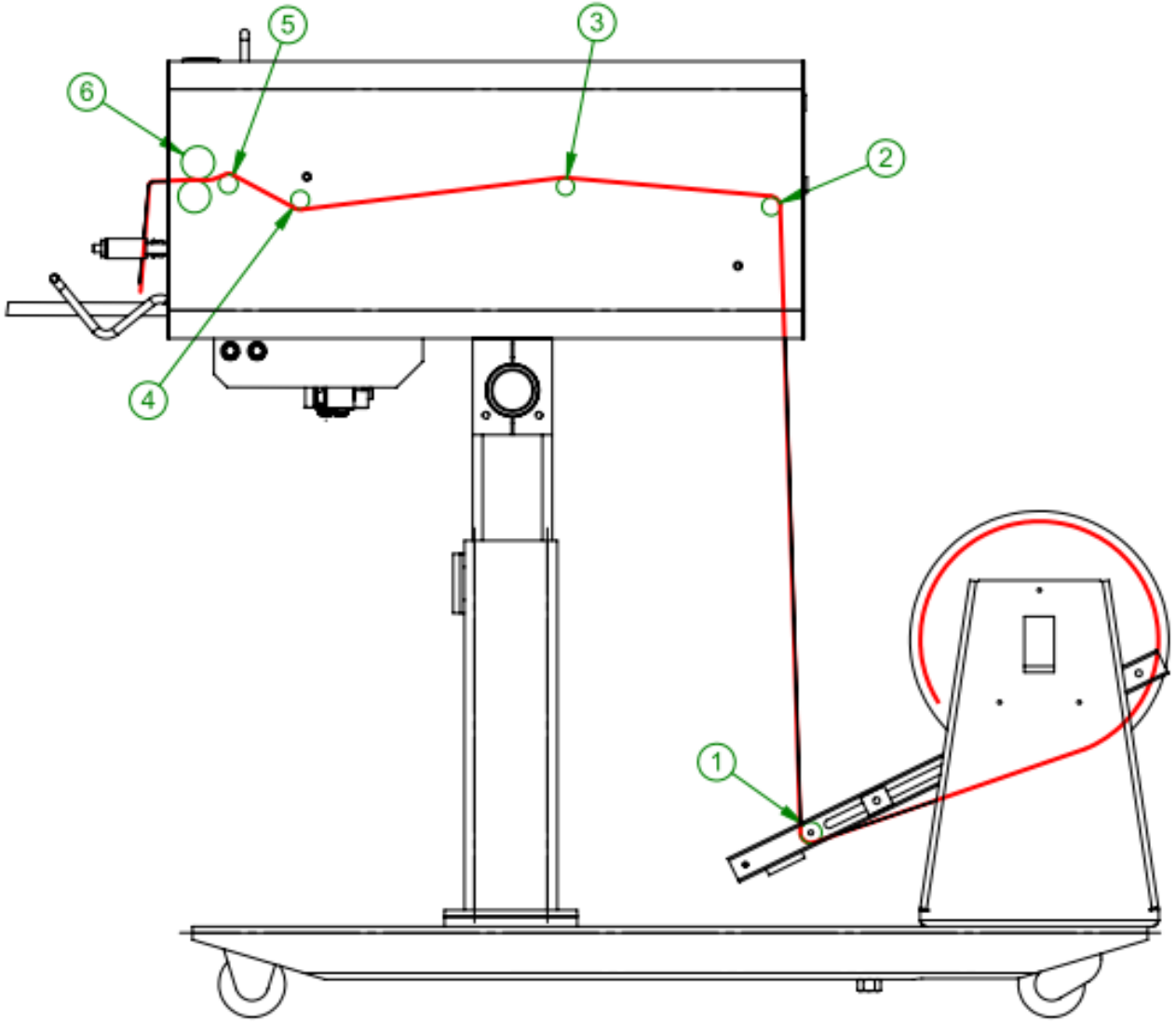

Figure 2-4

Ti-1000Z / Ti-1000Z RAP RIBBON THREADING DIAGRAM

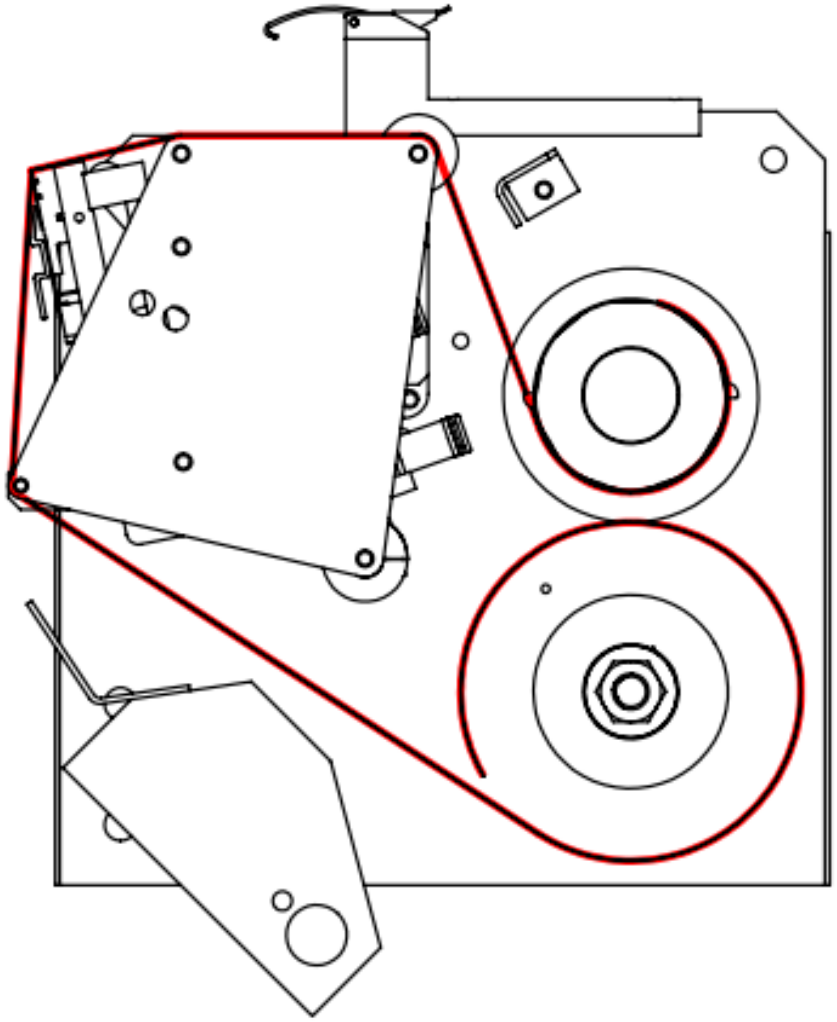

Figure 2-5

T-1000-S14 NBO RIBBON THREADING DIAGRAM

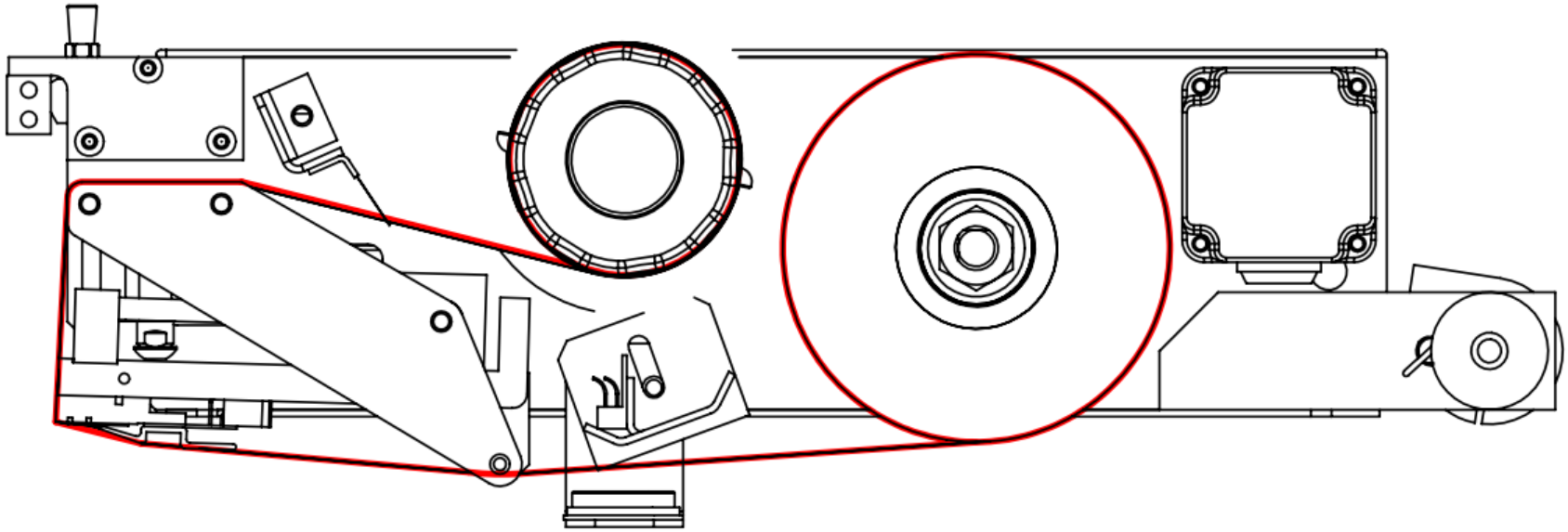

Figure 2-6

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Chapter 3: Operation with T-1000-S14

Summary
Touch Screen Identification
Touch Screen Specifications
Touch Screen Program
Ti-1000Z Operation
Ti-1000Z Roll-a-Print Operation
T-1000-S14 Next Bag Out Printer Operation

3.1 Chapter Summary

This chapter describes the identification, operation and settings of the touch screen program for three printers that operate with the T-1000-S14 Advanced Poly-Bagger. These models are the Ti-1000Z, the Ti-1000Z Roll-a-Print and the T-1000-S14 Next Bag Out Printer / Bagger. The operation of each of these printers is controlled within the T-1000-S14's programming. If you purchased the Ti-1000Z, please refer to Section 3.5 for operation information. If you purchased the Ti-1000Z Roll-a-Print, please refer to Section 3.6 for operation information. If you purchased the T-1000-S14 Next Bag Out Printer / Bagger, please refer to Section 3.7 for operation information.

While the T-1000-S14 usually operates with only one printer, special programming is available for dual printing. Dual printing allows the T-1000-S14 to operate with the NBO and an offline printer in order to print on both sides of the bag. If you purchased the T-1000-S14 with the dual printing option, refer to Section 3.8 for operation information.

3.2 Touch Screen Identification

FRONT PANEL:

- **System** button
- **F1** Displays the Help screen
- **F2** Increases brightness when **System** button is pressed
- **F3** Resets screen to midpoint brightness when **System** button is pressed
- **F4** Decreases brightness when **System** button is pressed
- **F5** Displays Job Save / Recall screen
- **Green LED** (Power): Lights up when touch screen is turned on

BACK PANEL:

- RS-232 Communication port to PLC
- Programming (For APPI use only)
- Power Supply: Power terminal for touch screen operation.

CAUTION: Do not attempt to reprogram the PLC or touch screen. Doing so may cause an unsafe operating condition and void the warranty. Additionally, do not change the DIP switch settings.

3.3 Touch Screen Specifications / Features

Power	24VDC (+/- 10%)
Operating Environment	32-122° F (0-50°C) ,85% RH or less
Screen, Resolution	5.7"(14.48 cm), 320 x 240 pixels
Display Area	174x131mm (6.85x5.15") (W, H)
Backlight, Hours	CCFL, Approx. 75,000
PLC Connection	RS232C

3.4 Touch Screen Program

The touch screen program is a user-friendly, menu-driven setup and operation program. Popup windows are incorporated for quick and easy setting adjustments. Each time a setting is changed, the settings are saved so that if power is lost, the "job" will be recalled automatically without the need for reprogramming. A general color scheme is used for operation consistency and to identify functions:

- **Blue:** Background color used for text information. No "buttons" or functions are blue.
- **Green**: Used for buttons that change settings. For example, pressing a green button may display a pop-up window or turn a function on / off.

- **Red**: Indicates that a function is off or stopped. For example, pressing a red button may turn a function on.
- **Yellow**: Used for menu buttons. Pressing a menu button displays another screen and allows for movement throughout the entire program.

3.5 Ti-1000Z Operation

If you purchased the Ti-1000Z with the T-1000-S14 Advanced Poly-Bagger, please refer to the following sections for information about the printer's operation.

The T-1000-S14 touch screen program controls the operation of the Ti-1000Z, an offline printer mounted behind the bagger. To access operation, settings and status screens specific to Ti-1000Z, press the **TI1000Z** button on the Bagger Options Menu. Refer to the T-1000-S14 Operation Guide for information about the bagger's program.

A. OFL Printer Setup

The OFL Printer Setup screen displays the printer's status and label parameters. It also allows for adjustment of the stored label settings. See Figure 3-1. This screen is accessed by pressing the **TI1000Z Printer** button on the Bagger Options Menu.

NOTE: OFL stands for Offline. An offline printer is a printer that is mounted behind the bagger and prints after the bag is stopped or during the loading period.

Press the **ON / OFF** toggle button to turn the printer on and off. To manually cycle one bag through the printer, press the **Print Cycle** button.

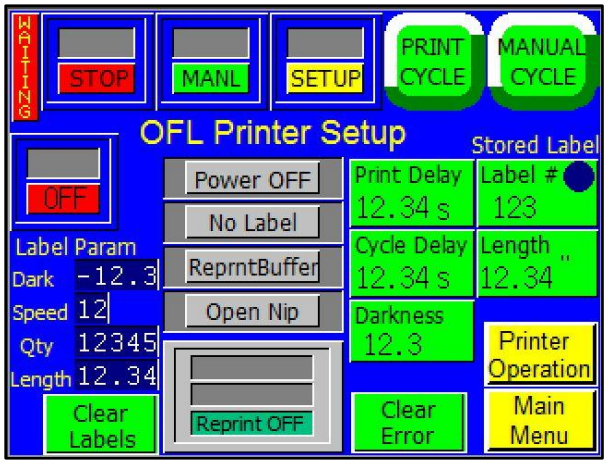

Figure 3-1

The OFL Printer Setup screen features a column of rectangular indicators that display the printer's status:

- **Power OFF** indicates that the printer is off. This box will also display "Self Test" when the printer is first turned on and "Ready" during startup if an error does not exist.
- **No Label / Label** indicates whether or not a label has been downloaded. This box will also display "Error," "Printing" and "No Ribbon" during various stages of operation.
- **ReprintBuffer**: If "ReprintBuffer" is displayed in green, the printer is continuously printing a preset amount of the same label. If "ReprintBuffer" is displayed in grey, the reprint function is not activated. If "New Label" is displayed, a new label has been downloaded. If "StoredLabel" is displayed, a label has been recalled from stored memory.
- **Open Nip / Closed Nip**: Indicates whether the nip rollers are in the closed or open position.

The second column on the OFL Printer Setup screen serves as a further indicator of the printer's status. This box will display **Reprint OFF**, if the reprint function has been turned off, **Reprint ON** if the reprint function has been turned on and **OverWrite** if previous label settings are overridden.

This screen also displays the downloaded label parameters, including the **Darkness** setting, the **Speed** setting, the **Quantity** setting and the **Length** setting. The Darkness, Print Speed, Quantity and Length parameters are set up in the label software. They are displayed on the OFL Printer Setup screen for informational purposes. However, the Darkness and Length settings can be changed on this screen.
Print Delay: This setting causes the nip rollers to compress first, thus delaying the print head from lowering. This will ensure that the film is captured and ready to start feeding before the print head lowers.

Increasing this delay time will cause loss of production. To change this setting, press the **Print Delay** button, enter a value on the numeric keypad and press the **ENT** button.

Cycle Delay: This setting is the amount of time, in seconds, before the machine cycles again after completing the previous cycle. To change this setting, press the **Cycle Delay** button, enter a value into the numeric keypad and press the **ENT** button.

Darkness: Darkness can be set between 1 and 30. Darkness settings can be set in your label software, but can also be overridden by adjusting the Darkness setting on the OFL Printer Setup screen. Increase the Darkness setting to improve print quality. A typical setting is 20. To change this setting, press the **Darkness** button, enter a value into the numeric keypad and press the **ENT** button.

Label #: This button allows the operator to recall a label. To recall a label, press the **Label#** button and type in a number from 001 to 999, depending on the label you would like to recall. Enter the desired label number into the numeric keypad and press the **ENT** button. From the factory, APPI has included at least one sample label format (001) for testing.

Length: This setting allows the operator to adjust the label length. Because the length of the label is not saved when downloading labels in memory, APPI recommends that stored labels are the same length. Otherwise, you must use a chart that describes the label format length for each stored label. To change this setting, press the **Length** button, enter a value into the numeric keypad and press the **ENT** button.

The **Clear Labels** button can clear the downloaded label format or the label format that is recalled from stored memory. However, if data records are downloaded from a database, this button will not erase stored labels unless there are less than 90 records remaining. Press the **Clear Error** button to clear an error with the printer and continue operation.

NOTE: APPI resells several software packages including: Labelview, Zebra Design Pro and Bartender. If you are using other software, APPI may not be familiar with the specific settings available in your software. Refer to your software manual for print speed and darkness settings.

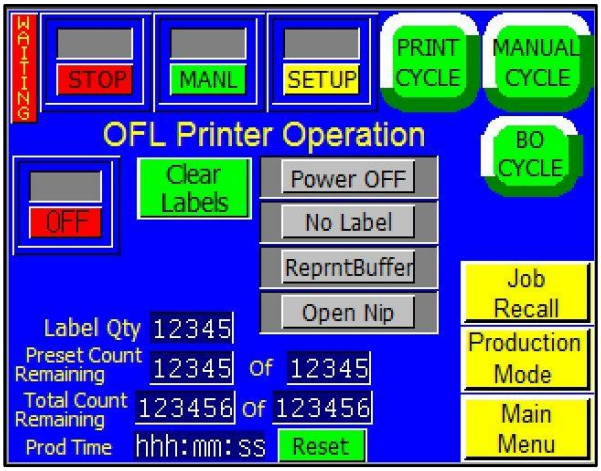

Figure 3-2

B. OFL Printer Operation

The OFL Printer Operation screen allows the operator to view the current printer settings and status. See Figure 3-2. This screen is accessed by pressing the **Printer Operation** button on the OFL Printer Setup screen. This screen displays the same status column that appears on the Setup screen, along with the label quantity, the preset and total count of bags processed and the production time.

Label Quantity: Displays the amount of labels remaining to be printed. This number will decrease as the printer cycles. The original label quantity value is set in the label software.

Preset Count Remaining: Displays the preset number of cycle operations left before the bagger will stop automatically. The Preset Count will count down from a preset number and stop the machine when the preset number of processed bags is reached. To adjust the Preset Count, press the right box and enter a number using the numeric keypad. The left box will then count down from that preset number.

Total Count Remaining: Displays the total number of cycle operations. To adjust the Total Count, press the right box and set it to zero. The left box will then count up and the machine will operate continuously.

If the operator enters a number other than zero into the right box, the Total Count will function just like the Preset Count and the left box will count down from that preset number.

Production Time: Displays the amount of time the machine has been turned on and operating. Press **Reset** to set this number to zero.

Press the **BO Cycle** button to manually cycle the Bag Opener, a T-1000-S14 option that enters a bag with one or more "fingers" and pulls the bag open.

3.6 Roll-a-Print Operation

If you purchased the Ti-1000Z RAP with the T-1000-S14 Advanced Poly-Bagger, please refer to the following sections for information about the printer's operation.

The T-1000-S14 touch screen program controls the operation of the Ti-1000Z Roll-a-Print, an offline printer mounted behind the bagger that features an accumulation of printing to speed up operation. To access operation, settings and status screens specific to Ti-1000Z RAP, press the **TIZ-RAP** button on the Bagger Options Menu. Refer to the T-1000-S14 Operation Guide for information about the bagger's program.

A. Roll-a-Print Setup Screen

The Roll-a-Print Setup screen displays the printer's status and label parameters. It also allows for adjustment of the stored label settings. See Figure 3-3. The Roll-a-Print Setup Screen is accessed by pressing the **TIZ-RAP** button on the Bagger Options Menu.

Press the **ON / OFF** toggle button to turn the printer on and off.

The Roll-a-Print Setup screen features a column of rectangular indicators that display the printer's status:

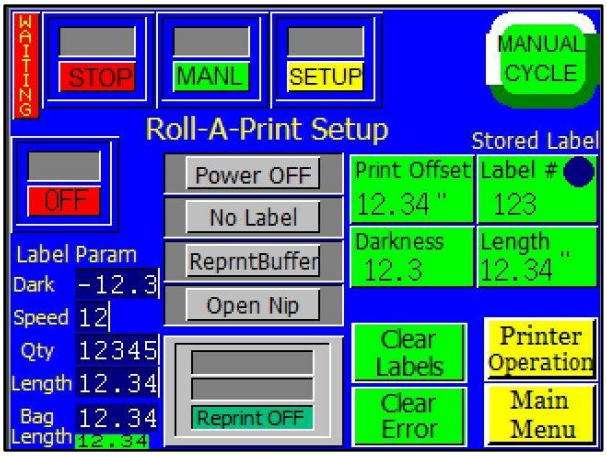

Figure 3-3

- **Power OFF** indicates that the printer is off. This box will also display "Self Test" when the printer is first turned on and "Ready" during startup if an error does not exist.
- **No Label / Label** indicates whether or not a label has been downloaded. This box will also display "Error," "Printing" and "No Ribbon" during various stages of operation.
- **ReprintBuffer**: If "ReprintBuffer" is displayed in green, the printer is continuously printing a preset amount of the same label. If "ReprintBuffer" is displayed in grey, the reprint function is not activated. If "New Label" is displayed, a new label has been downloaded. If "StoredLabel" is displayed, a label has been recalled from stored memory.
- **Open Nip / Closed Nip**: Indicates whether the nip rollers are in the closed or open position.

The second column on the Roll-a-Print Setup screen serves as a further indicator of the printer's status. This box will display **Reprint OFF**, if the reprint function has been turned off, **Reprint ON** if the reprint function has been turned on and **OverWrite** if previous label settings are overridden.

This screen also displays the downloaded label parameters, including the **Darkness** setting, the **Speed** setting, the **Quantity** setting, the **Length** setting and the **Bag Length** setting. The Darkness, Print Speed, Quantity, Length and Bag Length parameters are set up in the label software. They are displayed on the Setup screen for informational purposes. However, the Darkness and Length settings can be adjusted on

this screen. To adjust the Bag Length, press the numeric green button under the Bag Length display, enter a value on the numeric keypad and press the **ENT** button.

Print Offset: The Print Offset is a print delay setting that causes the print to be raised on the bag. To adjust this setting, press the **Print Offset** button, enter a value on the numeric keypad and press the **ENT** button.

Darkness: Darkness can be set between 1 and 30. Darkness settings can be set in your label software, but can also be overridden by adjusting the Darkness setting on the Roll-a-Print Setup screen. Increase the Darkness setting to improve print quality. A typical setting is 20. To change this setting, press the **Darkness** button, enter a value into the numeric keypad and press the **ENT** button.

Label #: This button allows the operator to recall a label. To recall a label, press the **Label#** button and type in a number from 001 to 999, depending on the label you would like to recall. Enter the desired label number into the numeric keypad and press the **ENT** button. From the factory, APPI has included at least one sample label format (001) for testing.

Length: This setting allows the operator to adjust label length. Because the length of the label is not saved when downloading labels in memory, APPI recommends that stored labels are the same length. Otherwise, you must use a chart that describes the label format length for each stored label. To change this setting, press the **Length** button, enter a value into the numeric keypad and press the **ENT** button.

The **Clear Labels** button can clear the downloaded label format or the label format that is recalled from stored memory. However, if data records are downloaded from a database, this button will not erase stored labels unless there are less than 90 records remaining. Press the **Clear Error** button to clear an error with the printer and continue operation.

B. Roll-a-Print Operation Screen

The Roll-a-Print Operation screen allows the operator to view the current printer settings and status. See Figure 3-4. This screen is accessed by pressing the **Printer Operation** button on the Roll-a-Print Setup screen.

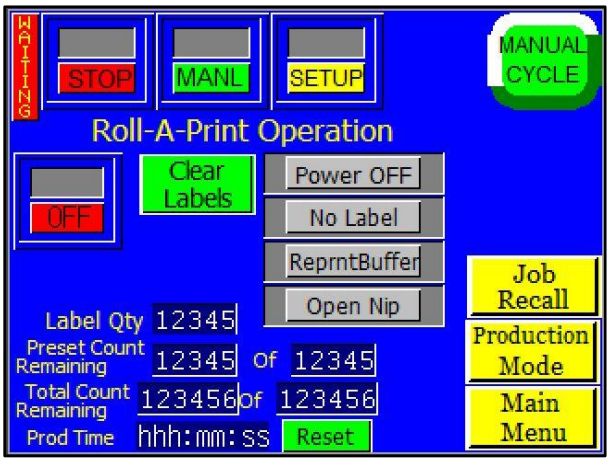

Figure 3-4

This screen displays the same grey status column that appears on the Setup screen, along with the label quantity, the preset and total count of bags processed and the production time.

Label Quantity: Displays the amount of labels remaining to be printed. This number will decrease as the printer cycles. The original label quantity value is set in the label software.

Preset Count Remaining: Displays the preset number of cycle operations left before the bagger will stop automatically. The Preset Count will count down from a preset number and stop the machine when the preset number of processed bags is reached.
To adjust the Preset Count, press the right box and enter a number using the numeric keypad. The left box will then count down from that preset number.

Total Count Remaining: Displays the total number of cycle operations. To adjust the Total Count, press the right box and set it to zero. The left box will then count up and the machine will operate continuously.

If the operator enters a number other than zero into the right box, the Total Count will function just like the Preset Count and the left box will count down from that preset number.

Production Time: Displays the amount of time the machine has been turned on and operating. Press **Reset** to set this number to zero.

C. RAP Factory

The RAP Factory screen contains additional printer settings that should only be adjusted by qualified technicians or the factory. See Figure 3-5.

Feed Error: The amount of acceptable variation, in inches, from the set bag length. For example, if the bag length is 15" (38.1 cm) and the Feed Error is set to 3" (7.62 cm), bags with 12-18" (30.48-45.72 cm) lengths would be accepted, but bags with a length of 19" (48.26 cm) would cause operation to stop and an error message would be displayed. To change this setting, press the **Feed Error** button, enter a value on the numeric keypad and press the **ENT** button. A suggested setting for Feed Error is 1 inch.

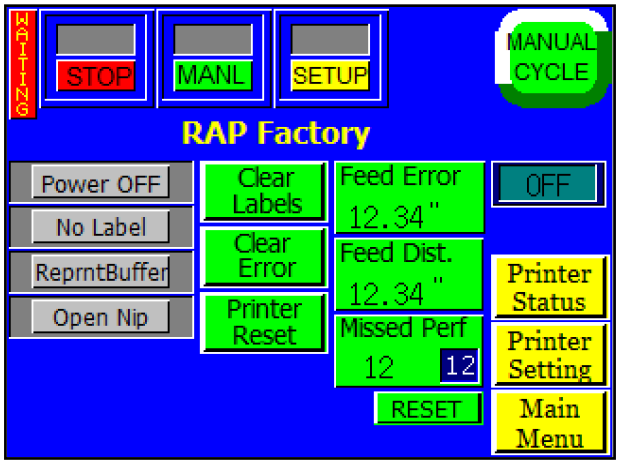

Figure 3-5

Feed Dist: The bag length distance, in inches, the perforation sensor does not look for a perforation in the bag when the machine is indexing the bag. To change this setting, press the **Feed Dist** button, enter a value on the numeric keypad and press the **ENT** button. A suggested setting for Feed Distance is 1 inch.

Missed Perf: The maximum number of perforations the sensor can miss before operation stops and an error message is displayed. To adjust this setting, press the Miss Perf button, enter the desired value on the numeric keypad and press the **ENT** button.

Printer Reset: Press this button to clear labels and start a self test.

3.7 T-1000-S14 NBO Operation

If you purchased the T-1000-S14 Advanced Poly-Bagger with the Next Bag Out printer option, please refer to the following sections for information about the printer's operation.

The T-1000-S14 touch screen program controls the operation of the NBO printer, an inline printer installed within the bagger that prints while the bag is feeding. If you purchased the T-1000-S14 with the Next Bag Out printer option, pressing the **TI-1000Z** button on the Bagger Options Menu will display operation, settings and status screens specific to NBO.

Refer to the T-1000-S14 Operation Guide for information about the bagger's program.

A. NBO Printer Setup Screen

The NBO Printer Setup screen displays the printer's status and label parameters. It also allows for adjustment of the stored label settings. See Figure 3-6. The NBO Printer Setup Screen is accessed by pressing the **Ti-1000Z** button on the Bagger Options Menu.

Press the **ON / OFF** toggle button to turn the printer on and off. Press the **Blank Bag** button to index the next bag without printing a label.

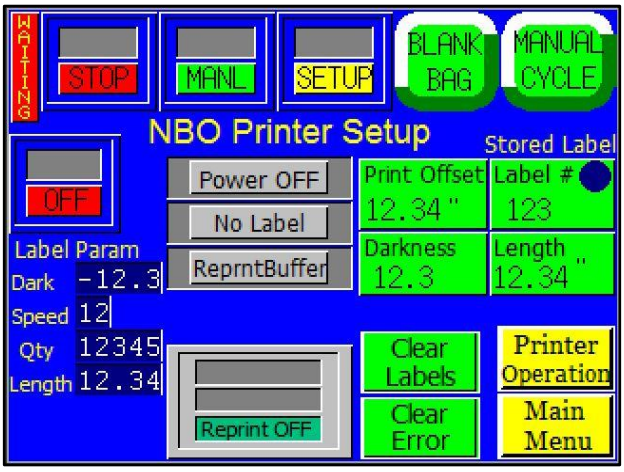

Figure 3-6

The NBO Printer Setup screen features a column of rectangular indicators that display the printer's status:

- **Power OFF** indicates that the printer is off. This box will also display "Self Test" when running a test and "Ready" during startup if an error does not exist.
- **No Label / Label** indicates whether or not a label has been downloaded. This box can also display "Error," "Printing" and "No Ribbon" during various stages of operation.
- **ReprintBuffer**: If "ReprintBuffer" is displayed in green, the printer is continuously printing a preset amount of the same label. If "ReprintBuffer" is displayed in grey, the reprint function is not activated. If "New Label" is displayed, a new label has been downloaded. If "StoredLabel" is displayed, a label has been recalled from stored memory.

The second column on the NBO Printer Setup screen serves as a further indicator of the printer's status. This box will display **Reprint OFF** if the reprint function has been turned off, **Reprint ON** if the reprint function has been turned on and **OverWrite** if previous label settings are overridden.

This screen also displays the downloaded label parameters, including the **Darkness** setting, the **Speed** setting, the **Quantity** setting and the **Length** setting. The Darkness, Print Speed, Quantity and Length parameters are set up in the label software. They are displayed on the Setup screen for informational purposes. However, the Darkness and Length settings can be adjusted on this screen.

Print Offset: The Print Offset is a print delay setting that causes the print to be raised on the bag. To adjust this setting, press the **Print Offset** button, enter a value on the numeric keypad and press the **ENT** button.

Darkness: Darkness can be set between 1 and 30. Darkness settings can be set in your label software, but can also be overridden by adjusting the Darkness setting on the NBO Printer Setup screen. Increase the Darkness setting to improve print quality. A typical setting is 20. To change this setting, press the **Darkness** button, enter a value into the numeric keypad and press the **ENT** button.

Label #: This button allows the operator to recall a label. To recall a label, press the **Label#** button and type in a number from 001 to 999, depending on the label you would like to recall. Enter the desired label number into the numeric keypad and press the **ENT** button. From the factory, APPI has included at least one sample label format (001) for testing.

Length: This setting allows the operator to adjust label length. Because the length of the label is not saved when downloading labels in memory, APPI recommends that stored labels are the same length. Otherwise, you must use a chart that describes the label format length for each stored label. To change this setting, press the **Length** button, enter a value into the numeric keypad and press the **ENT** button.

Press the **Clear Labels** button to clear all downloaded labels. Press the **Clear Error** button to clear an error.

B. NBO Printer Operation Screen

The NBO Printer Operation screen allows the operator to view the current printer settings and status. See Figure 3-7. This screen is accessed by pressing the **Printer Operation** button on the NBO Printer Setup screen.

This screen displays the same status column that appears on the NBO Printer Setup screen, along with the label quantity, the preset and total count of bags processed and the production time.

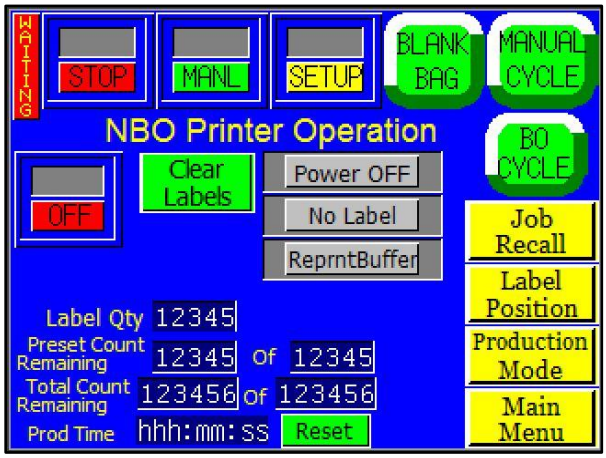

Figure 3-7

Label Quantity: Displays the amount of labels remaining to be printed. This number will decrease as the printer cycles. The original label quantity value is set in the label software.

Preset Count Remaining: Displays the preset number of cycle operations left before the bagger will stop automatically. The Preset Count will count down from a preset number and stop the machine when the preset number of processed bags is reached. To adjust the Preset Count, press the right box and enter a number using the numeric keypad. The left box will then count down from that preset number.

Total Count Remaining: Displays the total number of cycle operations. To adjust the Total Count, press the right box and set it to zero. The left box will then count up and the machine will operate continuously. If the operator enters a number other than zero into the right box, the Total Count will function just like the Preset Count and the left box will count down from that preset number.

Production Time: Displays the amount of time the machine has been turned on and operating. Press **Reset** to set this number to zero.

Press the **BO Cycle** button to manually cycle the Bag Opener, an optional device that enters a bag with one or more "fingers" and pulls the bag open.

C. Label Position

The Label Position screen allows the operator to view and adjust settings that affect the label position. See Figure 3-8. This screen is accessed by pressing the **Label Position** button on the NBO Printer Operation screen.

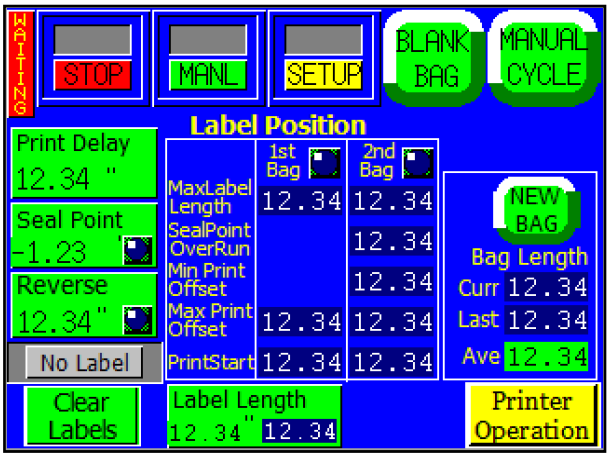

Figure 3-8

Print Delay: This setting causes the nip rollers to compress first, thus delaying the print head from lowering. This will ensure that the film is captured and ready to start feeding before the print head starts to lower. A standard setting is .1 to .3 seconds. Increasing this delay time will cause loss of production. To change this setting, press the **Print Delay** button, enter a value into the numeric keypad and press the **ENT** button.

Seal Point: The position of the seal, in inches, measured from the top perforation of the bag. To change this setting, press the **Seal Point** button, enter a value on the numeric keypad and press the **ENT** button.

Reverse: The distance, in inches, the rollers will reverse the bag into the T-1000-S14, while the pressure bar grips the bag, in order to break the perforation between bags. To adjust this setting, press the **Reverse** button, enter a value on the numeric keypad and then press the **ENT** button.

Label Length: This setting is the same as the Length setting on the NBO Printer Setup screen. To change this setting, press the **Label Length** button, enter a value into the numeric keypad and press the **ENT** button.

The Label Position screen provides detailed information for two methods of printing: first bag printing and second bag printing. Second bag printing allows a larger area of the bag to be printed. The blue box in the center of the screen displays several label settings for the first and second bag that affect the label position and are automatically calculated based on the label length. These settings include:

- **Max Label Length**: The maximum, acceptable length of the label.
- **Seal Point Overrun**: The amount of bag beyond the seal point that is printed. The bag will reverse to the seal point once the machine has finished printing.
- **Min Print Offset**: The minimum amount the print can be raised on the bag.
- **Max Print Offset**: The maximum amount the print can be raised on the bag.
- **Print Start**: The location where the printer begins printing.

The LEDs at the top of the 1st Bag and 2nd Bag column indicate whether or not the settings for that method of printing are acceptable. If one LED is green, the settings for that method of printing are acceptable. If one LED is Red, the settings for that method of printing exceeded the acceptable parameters. If both LEDs are green, the settings for both methods are acceptable. If both LEDs are red, the print will likely cross over from the first bag onto the second bag, printing a portion on both bags.

Press the **New Bag** button after switching bag size to count the bags and start an internal program that calculates average bag length. The perforation is used for registration. If a perforation is not detected, the bag will stop in the correct seal position, based on the average bag length measurement. A Feed Error message will be displayed if the perforation is not detected within the accepted bag length range.

3.8 Dual Printing Operation

If you purchased the T-1000-S14 Advanced Poly-Bagger with the dual printing option, please refer to the following sections for information about the printer's operation.

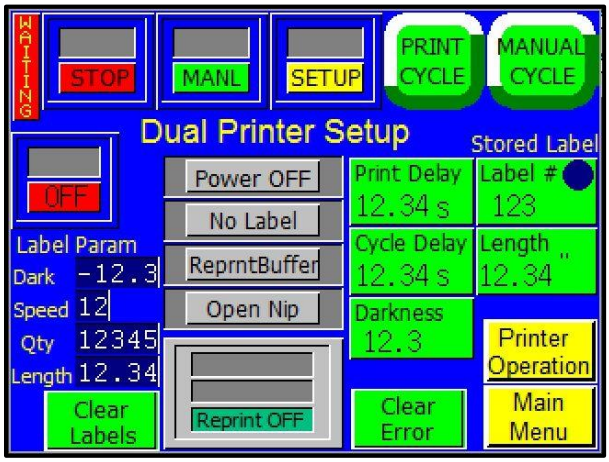

Figure 3-9

The T-1000-S14 touch screen program controls the operation of the both the Next Bag Out Printer, an inline printer installed within the bagger and an offline printer mounted upside down behind the bagger. To access operation, settings and status screens specific to the dual printing option, press the **TI1000Z** button on the Bagger Options Menu. Refer to the T-1000-S14 Operation Guide for information about the bagger's program.

A. Dual Printer Setup

The Dual Printer Setup screen displays the printer's status and label parameters. It also allows for adjustment of the stored label settings. See Figure 3-9. The Dual Printer Setup Screen is accessed by pressing the **Ti-1000Z** button on the Bagger Options Menu.

Press the **ON / OFF** toggle button to turn the printer on and off. Press the **Blank Bag** button to index the next bag without printing a label.

The Dual Printer Setup screen features a column of rectangular indicators that display the printer's status:

- **Power OFF** indicates that the printer is off. This box will also display "Self Test" when running a test and "Ready" during startup if an error does not exist.
- **No Label / Label** indicates whether or not a label has been downloaded. This box can also display "Error," "Printing" and "No Ribbon" during various stages of operation.
- **ReprintBuffer**: If "ReprintBuffer" is displayed in green, the printer is continuously printing a preset amount of the same label. If "ReprintBuffer" is displayed in grey, the reprint function is not activated. If "New Label" is displayed, a new label has been downloaded. If "StoredLabel" is displayed, a label has been recalled from stored memory.
- **Open Nip / Closed Nip**: Indicates whether the nip rollers are in the closed or open position.

The second column on the Dual Printer Setup screen serves as a further indicator of the printer's status. This box will display **Reprint OFF**, if the reprint function has been turned off, **Reprint ON** if the reprint function has been turned on and **OverWrite** if previous label settings are overridden.

This screen also displays the downloaded label parameters, including the **Darkness** setting, the **Speed** setting, the **Quantity** setting and the **Length** setting. The Darkness, Print Speed, Quantity and Length parameters are set up in the label software. They are displayed on the OFL Printer Setup screen for informational purposes. However, the Darkness and Length settings can be changed on this screen.

Print Delay: This setting causes the nip rollers to compress first, thus delaying the print head from lowering. This will ensure that the film is captured and ready to start feeding before the print head lowers. Increasing this delay time will cause loss of production. A standard setting is 0.1 to 0.3 seconds. To change this setting, press the **Print Delay** button, enter a value on the numeric keypad and press the **ENT** button.

Cycle Delay: This setting is the amount of time, in seconds, before the machine cycles again after completing the previous cycle. To change this setting, press the **Cycle Delay** button, enter a value into the numeric keypad and press the **ENT** button.

Darkness: Darkness can be set between 1 and 30. Darkness settings can be set in your label software, but can also be overridden by adjusting the Darkness setting on the OFL Printer Setup screen. Increase the Darkness setting to improve print quality. A typical setting is 20. To change this setting, press the **Darkness** button, enter a value into the numeric keypad and press the **ENT** button.

Label #: This button allows the operator to recall a label. To recall a label, press the **Label#** button and type in a number from 001 to 999, depending on the label you would like to recall. Enter the desired label number into the numeric keypad and press the **ENT** button. From the factory, APPI has included at least one sample label format (001) for testing.

Length: This setting allows the operator to adjust the label length. Because the length of the label is not saved when downloading labels in memory, APPI recommends that stored labels are the same length. Otherwise, you must use a chart that describes the label format length for each stored label. To change this setting, press the **Length** button, enter a value into the numeric keypad and press the **ENT** button.

The **Clear Labels** button can clear the downloaded label format or the label format that is recalled from stored memory. However, if data records are downloaded from a database, this button will not erase stored labels unless there are less than 90 records remaining. Press the **Clear Error** button to clear an error with the printer and continue operation.

NOTE: APPI resells several software packages including: Labelview, Zebra Design Pro and Bartender. If you are using other software, APPI may not be familiar with the specific settings available in your software. Refer to your software manual for print speed and darkness settings.

B. Dual Printer Operation

The Dual Printer Operation screen allows the operator to view the current printer settings and status. See Figure 3-10. This screen is accessed by pressing the **Printer Operation** button on the Dual Printer Setup screen. This screen displays the same status column that appears on the Setup screen, along with the label quantity, the preset and total count of bags processed and the production time.

Label Quantity: Displays the amount of labels remaining to be printed. This number will decrease as the printer cycles. The original label quantity value is set in the label software.

Preset Count Remaining: Displays the preset number of cycle operations left before the bagger will stop automatically. The Preset Count will count down from a preset number and stop the machine when the preset number of processed bags is reached. To adjust the Preset Count, press the right box and enter a number using the numeric keypad. The left box will then count down from that preset number.

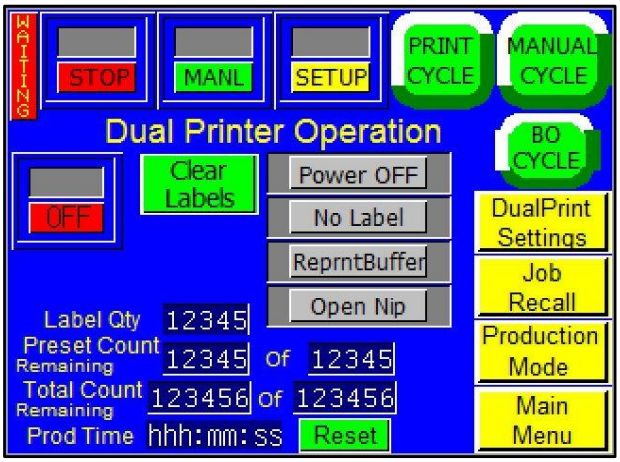

Figure 3-10

Total Count Remaining: Displays the total number of cycle operations. To adjust the Total Count, press the right box and set it to zero. The left box will then count up and the machine will operate continuously. If the operator enters a number other than zero into the right box, the Total Count will function just like the Preset Count and the left box will count down from that preset number.

Production Time: Displays the amount of time the machine has been turned on and operating. Press **Reset** to set this number to zero.

Press the **BO Cycle** button to manually cycle the Bag Opener, a T-1000-S14 option that enters a bag with one or more "fingers" and pulls the bag open.

C. Dual Printer Status

The Dual Printer Status screen is used to troubleshoot the printers and should only be accessed by qualified technicians or the factory.

The printer sends a status message when turned on and after each print. If an error occurs, the actual error message will be displayed on the Printer Status Screen. To reset the status, press the **Clear Status** button. To recall the status, press the **Read Status** button.

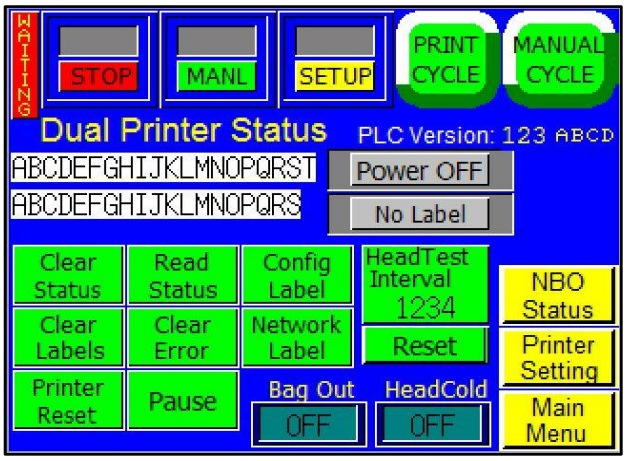

Figure 3-11

Config Label button: Press this button to print the parameters for the printer (i.e. Darkness, Speed).

Network Label button: Press this button to print the network configuration, including the current IP address.

Printer Reset button: Press this button to clear labels and start a self test.

HeadTest Interval button: The number of labels that are printed between tests. To disable this function, set the interval to zero. Press the **Reset** button to set the Head Test Interval to zero.

The Head Cold **ON / OFF** toggle button allows the operator to turn the Head Cold Warning feature on and off. If the Head Cold Warning feature is on, the machine will automatically stop if the print head gets too cold.

The Bag Out **On / Off** toggle allows the operator to turn the Bag Out sensor on and off. If the Bag Out sensor is enabled, operation stops and an error message is displayed every time the bagger runs out of bags.

Press the **NBO Status** button to access the status screen for the NBO printer.

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Chapter 4: Standalone Operation / Operation with Bagger

Summary
Touch Screen Identification
Touch Screen Specifications
Touch Screen Program
Ti-1000Z Operation
Ti-1000Z Roll-a-Print Operation

4.1 Chapter Summary

This chapter describes the identification, operation and settings of the touch screen program for two printer models that operate as standalone machines or with baggers other than the T-1000-S14 Advanced Poly-Bagger. These models are the Ti-1000Z and the Ti-1000Z Roll-a-Print. If you purchased the Ti-1000Z, refer to Section 4.5 for operation information. If you purchased the Ti-1000Z Roll-a-Print, refer to Section 4.6 for operation information.

4.2 Touch Screen Identification

- IOP Cable to Touch Screen / PLC Program Port
- PLC Wiring / Power
- Battery Cover / Battery Location
- DIP Switch Setting

CAUTION: Do not attempt to reprogram the PLC or touch screen. Doing so may cause an unsafe operating condition and void the warranty. Additionally, do not change the DIP switch settings.

4.3 Touch Screen Specifications / Features

Screen, Resolution	4.7" (11.94 cm), 320 x 240 pixels, 256 STN Colors
LCD	256 Colors, QVGA
Memory	6.5MB
Communication	RS232C
Dimension	142x112x29.9mm (5.6x4.4x1.2") (W, H, D)
Power Supply	24V DC, 0.2A

4.4 Touch Screen Program

The touch screen program is a user-friendly, menu-driven setup and operation program. Pop-up windows are incorporated for quick and easy setting adjustments. Each time a setting is changed, the settings are saved so that if power is lost, the "job" will be recalled automatically without the need for reprogramming. A general color scheme is used for operation consistency and to identify functions:

- **Blue:** Background color used for text information. No "buttons" or functions are blue.
- **Green**: Used for buttons that change settings. For example, pressing a green button may display a pop-up window or turn a function on / off.
- **Red**: Indicates that a function is off or stopped. For example, pressing a red button may turn a function on.
- **Yellow**: Used for menu buttons. Pressing a menu button displays another screen and allows for movement throughout the entire program.

4.5 Ti-1000Z Operation

If you purchased the Ti-1000Z Printer as a standalone machine or with a bagger other than the T-1000-S14, please refer to the following sections for information about the printer's operation.

A. Introduction Screen

When the Ti-1000Z is turned on, an Introduction screen is displayed. See Figure 4-1.

The Introduction screen is a welcome screen, and it contains a button that will take the operator to the Operation screen. When initially powered up, the printer will be in Setup mode.

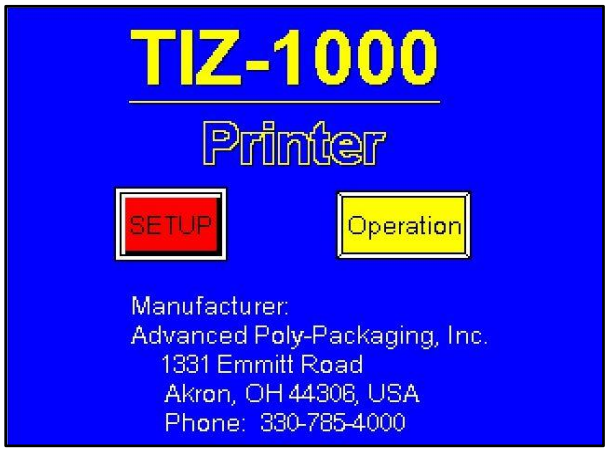


Figure 4-1

B. Operation Screen

The Operation screen acts as a default screen when the Level 2 Pass Code has been enabled in the Technical Assistance / Password Setup screen. This screen has limited functionality, other than allowing for test printing and resetting cycle counters. See Figure 4-2.

The Operation screen features several indicators that illuminate and change during operation:

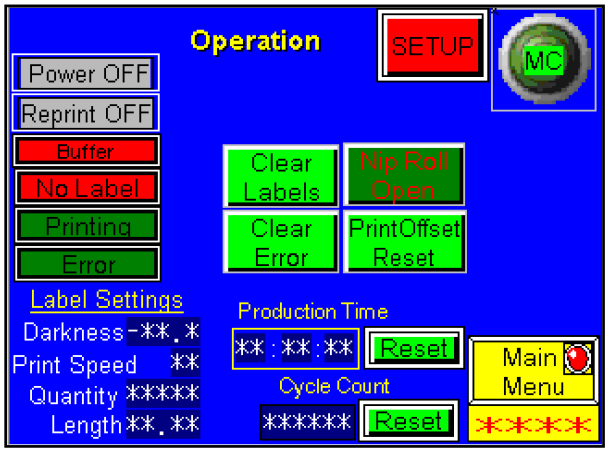


Figure 4-2

- **Power OFF**: This indicator can display "Power OFF," "Self Test" or "Ready." When Power OFF is displayed, the printer is disabled. Self Test is displayed when the printer is performing a test. Ready is displayed after self-testing or during startup if an error does not exist.
- **Reprint OFF:** This indicator can display "Reprint OFF," "Reprint ON" or "New Label." Reprint OFF is displayed when the printer is not continuously printing the same label. Reprint ON is displayed when the printer is continuously printing a preset amount of the same label. New Label is displayed when a new label has been downloaded.
- **Buffer:** This indicator is displayed when the labels are loading and the printer is preparing to print.
- **No Label / Labels**: Indicates whether or not a label has been downloaded.
- **Printing**: This indicator is displayed when the printer is cycling.
- **Error**: This indicator is displayed when the printer encounters an error.

The **Clear Labels** button can clear the downloaded label format or the label format that is recalled from stored memory. However, if data records are downloaded from a database, this button will not erase stored labels unless there are less than 90 records remaining.

Nip Roll Open / Nip Roll Closed: This button allows the operator to open and close the nip rollers manually. This button reads the status the nip is currently in. Press the **Nip Roll Open** button to close the nip rollers. The button will then display Nip Roll Closed. Press the **Nip Roll Closed** button to open the nip rollers. The button will then display Nip Roll Open.

Print Offset Reset: Press the **Print Offset Reset** button to reset the Print Offset setting to the original factory setting. Print Offset is a print delay setting that causes the print to be raised on the bag.

Darkness, **Print Speed**, **Quantity** and **Length** are parameters set up in the label software. They are displayed on this screen only for informational purposes. However, the Darkness setting can be changed from the Printer Settings screen.

When the pass code function is active, the operator must enter the Level 2 pass code to access the Main Menu. Without this pass code, the operator will be restricted to the Operation screen. An LED is located on the **Main Menu** button. If the LED is green, access to the Main Menu is granted. If the LED is red, access is denied unless the pass code is entered.

The Operation screen also displays two counters: **Production Time** and **Cycle Count**. Production Time displays the amount of time the machine has been turned on and operating. Press the **Reset** button to reset this value. Cycle Count displays the total amount of cycles. Press the **Reset** button to reset this value.

NOTE: Contact APPI Technical Support if the pass code is unknown. APPI will describe how to gain access to the Pass Code Setup screen and how to view and change the codes.

C. Main Menu

The Main Menu is initially accessed from the Operation screen. This screen allows the operator to access most other screen locations. See Figure 4-3.

On most screens, there is the **SETUP / RUN** mode toggle button. When in SETUP mode, the operator can manually cycle the machine by pressing the **MC** (**Manual Cycle**) button. When in RUN mode, auxiliary communication with the bagger turns on and the machine cycles automatically.

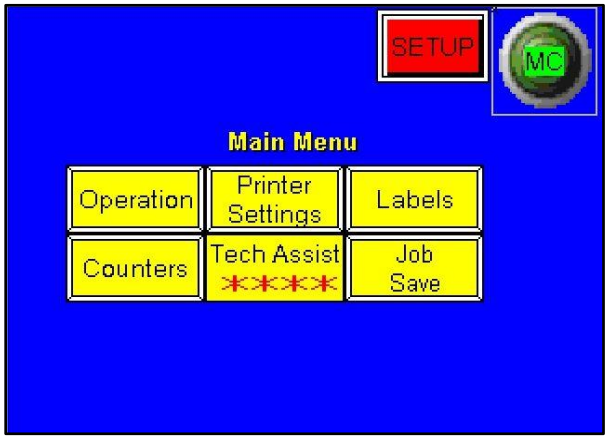


Figure 4-3

D. Printer Settings Screen

To access the Printer Settings menu, press the **Printer Settings** button from the Main Menu. All functions pertaining to print location and print resolution will be accessed from this menu. See Figure 4-4.

The same indicators that are on the Operation screen are also located on this screen.

Reprint OFF: This button allows the operator to turn the Reprint function, which allows a preset amount of the same label to be printed continuously, on and off. Press the **Reprint OFF** button to turn the Reprint function on. The button will then display Reprint ON. Press the **Reprint ON** button to turn the Reprint function off. The button will then display Reprint OFF.

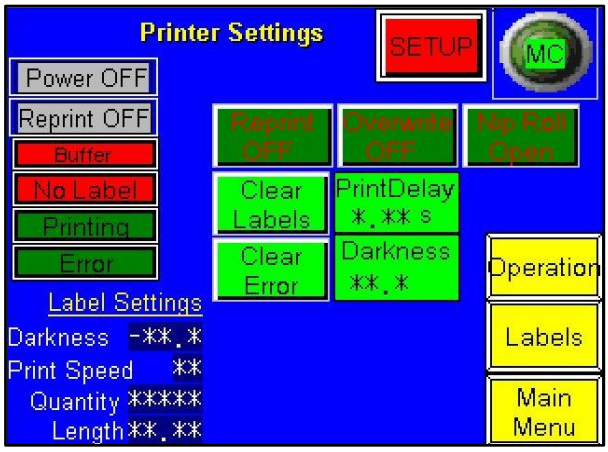


Figure 4-4

Overwrite OFF: This button allows the operator to turn the Overwrite function on and off. The Overwrite function overrides previous label settings. Press the **Overwrite OFF** button to turn the Overwrite function on. The button will then display Overwrite ON. Press the **Overwrite ON** button to turn the Overwrite function off. The button will then display Overwrite OFF.

Print Delay: This setting causes the nip rollers to compress first, thus delaying the print head from lowering. This will ensure that the film is captured and ready to start feeding prior to the print head lowering to print. A standard setting is .1 to .3 seconds. Increasing this delay time will cause loss of production.

Darkness: Darkness can be set between 1 and 30. Darkness settings can be set in your label software, but can also be overridden by adjusting the Darkness setting on the Printer Settings Screen. Increase the Darkness setting to improve print quality. A typical setting is 20.

NOTE: APPI resells several software packages including: Labelview, Zebra Design Pro and Bartender. If you are using other software, APPI may not be familiar with the specific settings available in your software. Refer to your software manual for print speed and darkness settings.

E. Stored Labels

This screen can be accessed from the Printer Settings screen or the Main Menu. See Figure 4-5.

After storing the preferred label in the Labelview software program and then storing it in the Ti-1000Z, jobs can be easily accessed, and a constant PC connection and software program will not be necessarry. Up to 999 labels can be stored.

The same indicators and settings displayed on the Settings and Operation screen are also located on this screen.

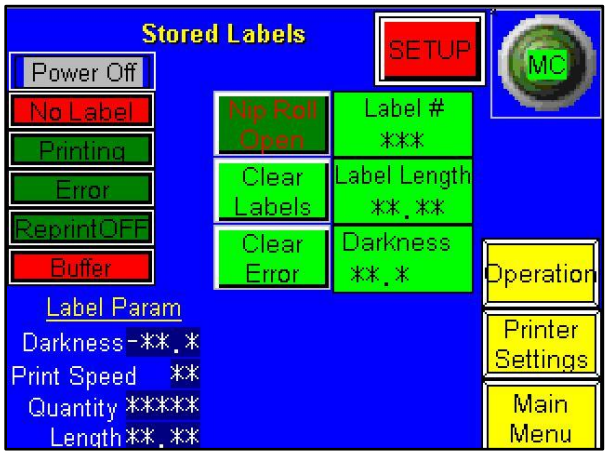


Figure 4-5

To load a stored label, press the **Label#** button and type in a number from 001 to 999, depending on the label you would like to recall. From the factory, APPI has included at least one sample label format (001) for testing.

Because the length of the label is not saved when downloading labels in memory, APPI recommends that stored labels are the same length. Otherwise, you must use a chart that describes the label format length for each stored label. To adjust the label length, press the **Label Length** button, enter a value on the numeric keypad and press the **ENT** button.

NOTE: APPI provides the settings and parameters for the most popular label software. However, APPI is not familiar with all label software programs. By reviewing the settings described in this manual, you may be able to set up your software with the proper settings.

F. Counters Screen

The Ti-1000Z is equipped with two internal counters as a standard feature. To access the Counters screen, press the **Counters** button from the Main Menu. See Figure 4-6.

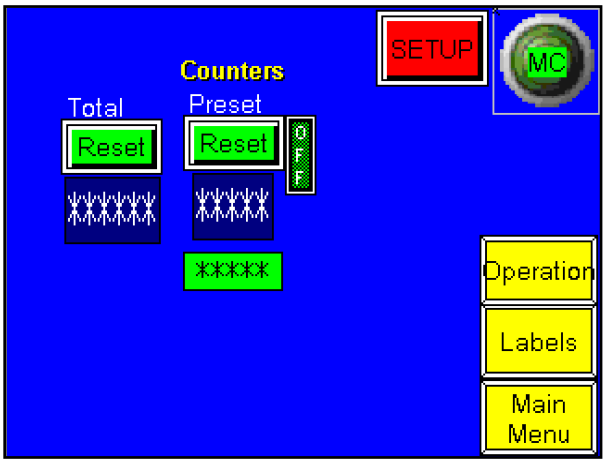


Figure 4-6

Totalizing Counter: To track production, use the Totalizing Counter to count the cycle operations of the Ti-1000Z. Press the **Reset** button to reset the counter to zero. This counter value is also displayed on the Operation screen.

Preset Counter: To halt production after a preset number of cycle operations, use the Preset Counter. When the final count has been reached, a message screen will be displayed. Set the Preset Count by pressing the numeric green button, located under the preset count. Enter the value on the numeric keypad and press the **ENT** button. To disable the Preset Counter, set the value to zero. The ON / OFF indicator next to this count will indicate whether or not a preset count is set.

Another method of stopping the printer is by entering the quantity of labels in your label software. When the quantity of downloaded labels reaches zero, the printer will stop operation and a "Printer Waiting" screen will be displayed. See Figure 4-7.

Figure 4-7

G. Job Save / Recall

The Ti-1000Z is able to store machine settings, called *recipes*. See Figure 4-8.

Each time a setting is changed on the Ti-1000Z, the settings are immediately saved in memory so that if power is lost, the Ti-1000Z will power on with the job that was running before power was lost.

To save a job to a memory location, press the **Job Save** button and enter the recipe number (memory location) in the **Recipe #** box on the Job Save screen. Then enter your part number in the **Part #** box and press the **Save** button. You will be prompted to confirm your save function.

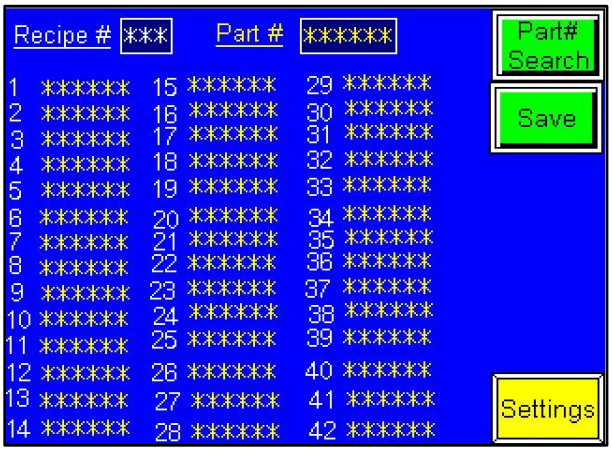


Figure 4-8

To recall a recipe that has already been saved to a memory location, enter the recipe number on the Job Save screen and then press the **Settings** button. You can then review the settings before pressing the **Load** button. See Figure 4-9.

If you do not know the recipe number, enter your part number, then press the **Part # Search** button. You can then press the **Settings** button to view and load your settings.

NOTE: If power is lost to the printer, the downloaded labels will be lost and will require downloading again, unless the Stored Labels function is used to recall the label.

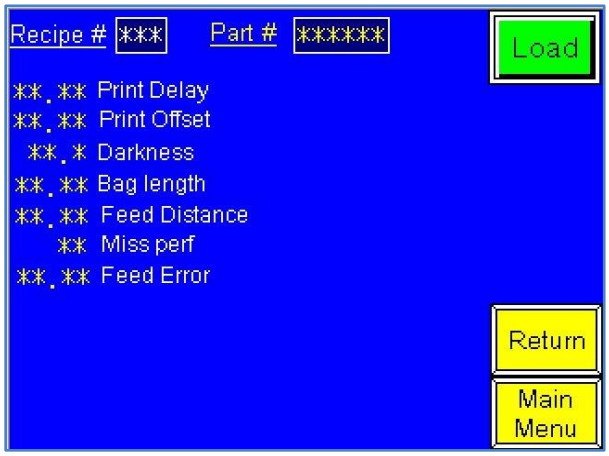


Figure 4-9

H. Technical Assistance / Service Center

The Technical Assistance screen provides manufacturer information, printer status, factory settings adjustments, functions testing and troubleshooting. It also displays the program version for the PLC controller and touch screen. See Figure 4-10.

NOTE: Before the Technical Assistance Screen can be accessed, you must enter a Level 1 pass code. This code is set to 1001 at the factory and may be changed at a later date.

Figure 4-10

I. License Activation

APPI equipment firmware must be activated to avoid operation disruption. If you notice a screen that requires an activation code, please contact APPI to request this code. The Technical Assistance screen provides contact information to request the activation code. See Figure 4-10.

When requesting assistance, please note the Touch Screen (TS) Version and Programmable Logic Controller (PLC) Version information located at the top of the Technical Assistance screen.

J. Password (Pass Code) Setup Screen

APPI has included a pass code function in all touch screen equipment to prevent operators from changing factory settings. See Figure 4-11.

There are two pass code levels described as follows:

1. **Level 1**: This is the highest level pass code. It prevents operators from accessing the Technical Assistance functions of the machine. The default pass code, when shipped from the factory, is 1001.
2. **Level 2**: This level pass code, when the pass code function is enabled, prevents the operator from accessing settings screens that affect the operation of the equipment.

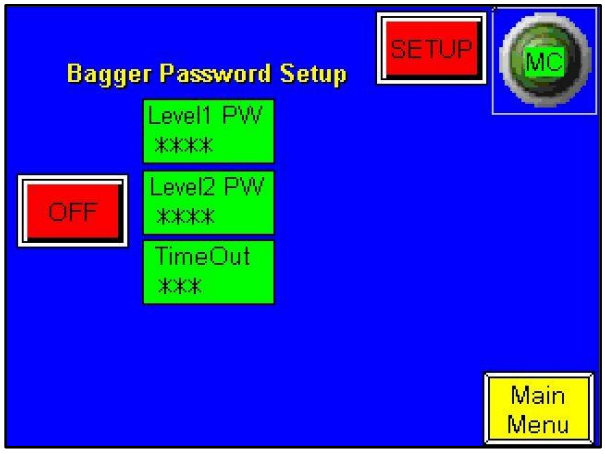


Figure 4-11

Pass codes prevent unauthorized individuals from tampering with settings. When equipment is shipped, APPI uses the following codes that should be changed prior to putting the Ti-1000Z into operation:

Factory Set Pass Codes:

1. Level 1 pass code: 1001
2. Level 2 pass code: 1002

To enable the pass code function, press the **Tech Assist** button from the Main Menu. Type in the Level 1 pass code (1001 by default from APPI). Press the **Bagger PassW** button. Then toggle the **ON / OFF** button to ON to turn the pass code function on. If you change the pass codes, ensure that these codes are written down.

Once the pass code function is enabled, the operator will have a programmed amount of time (Timeout Time) to make changes. Once this time has elapsed, the Operation screen will automatically be displayed.

Timeout Time can be changed by accessing the Password Setup screen. To change the Timeout Time, press the **TimeOut** button, enter a value on the numeric keypad, and press the **ENT** button.

If you misplace or forget the pass codes, contact the APPI Service Department for assistance. APPI will provide a "factory code" so the current pass codes can be displayed.

K. Printer Status Screen

The Printer Status screen is used for troubleshooting the printer and is accessed from the Technical Assistance screen. See Figure 4-12.

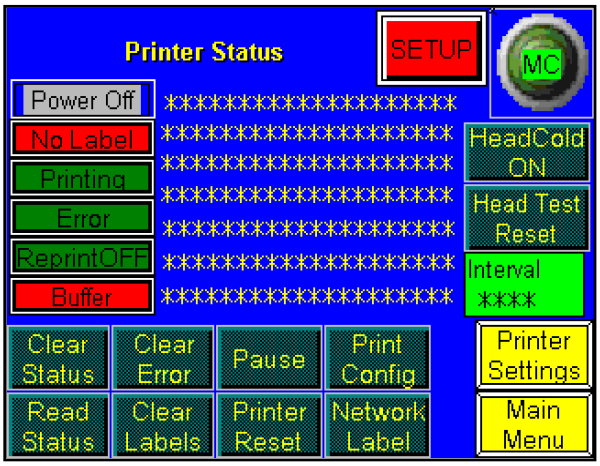


Figure 4-12

The printer sends a status message when powered on and after each print. If an Error LED on the Printer Settings screen is displayed, the actual error message will be displayed on the Printer Status screen. To reset the status, press the **Clear Status** button. To recall the status, press the **Read Status** button.

Print Config button: Press this button to print the parameters for the printer.

Network Label button: Press this button to print the network configuration, including the current IP address.

Printer Reset button: Press this button to clear labels and start a self test.

Interval button: The number of labels that are printed between tests. To disable this function, set the interval to zero. Press the **Head Test Reset** button to set the Head Test Interval to zero.

The **Head Cold ON / OFF** button allows the operator to turn the Head Cold Warning feature on and off. If the Head Cold Warning feature is on, the machine will automatically stop if the print head gets too cold.

L. PLC Info

The PLC I/O screen is provided for maintenance personnel to determine the status of the PLC and review the mode of outputs and inputs. See Figure 4-13. PLC I/O screen(s) are also used to assist APPI Service Technicians working with your maintenance personnel to troubleshoot the Ti-1000Z in the field.

To determine the function of each Input / Output, press the **Help** button to display a brief description of each input or output LED. See Figure 4-14.

The PLC I/O screen also provides the run Hours and Cycles counters. These counters cannot be reset by the operator.

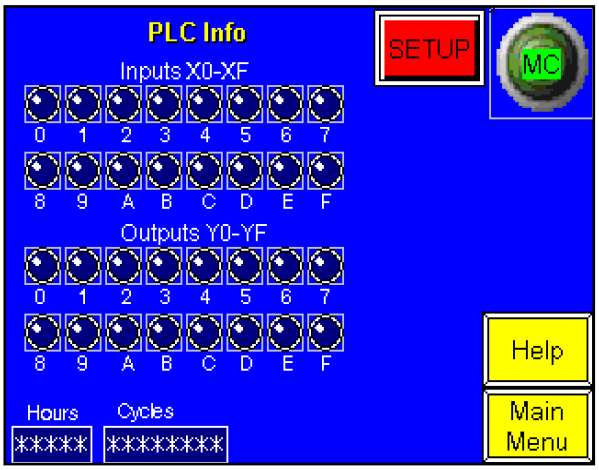


Figure 4-13

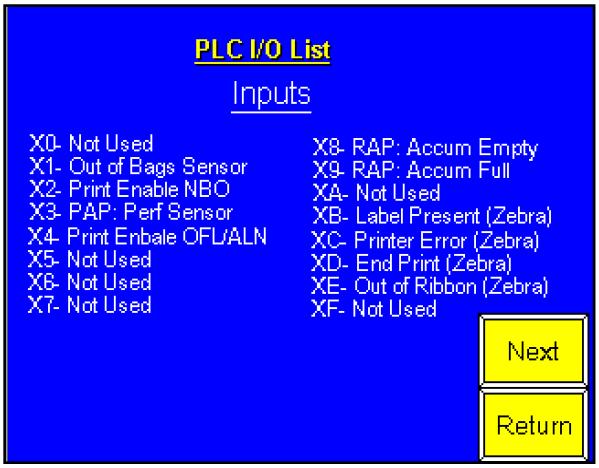


Figure 4-14

M. APPI Factory

This screen contains additional printer settings that should only be set by qualified technicians or by the factory. See Figure 4-15.

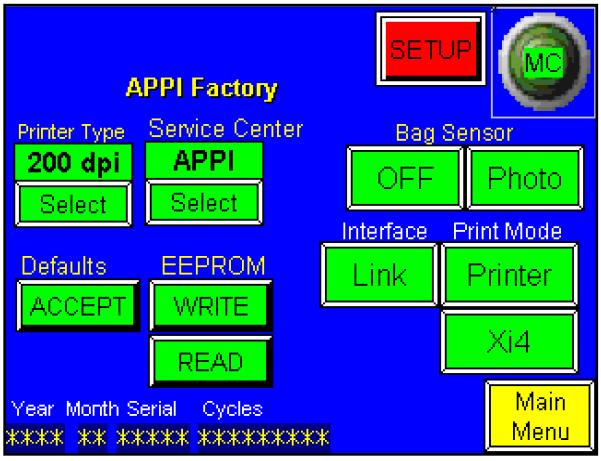


Figure 4-15

N. Information Screens / Message Screens

If an error occurs, the touch screen program will notify the operator with a red warning signal. For specific problems, detailed messages will appear with solutions to fix a specific problem. See Figure 4-16 through 4-18.

Some screens provide functional messages that describe errors or the status of equipment. Other screens provide instructions for operators to follow to bring the bagger back online. To reset a message screen, clear the condition first (if required) and then touch the screen.

Figure 4-16

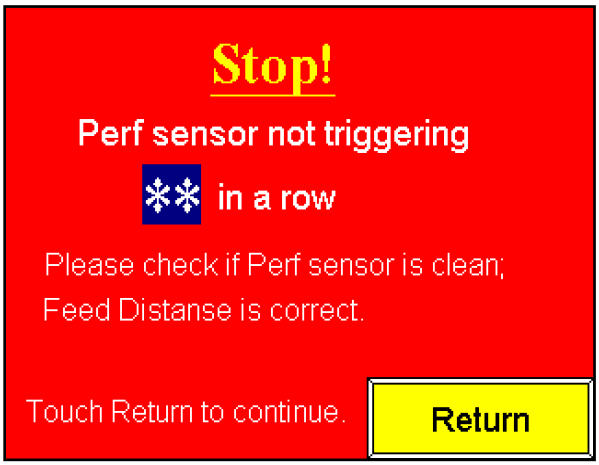


Figure 4-17

Figure 4-18

4.6 Roll-a-Print Operation

If you purchased the Ti-1000Z RAP as a standalone machine or with a bagger other than the T-1000-S14, please refer to the following sections for information about the printer's operation.

The Ti-1000Z touch screen program controls the operation of the Ti-1000Z Roll-a-Print, an offline printer that features an accumulation of printing to speed up operation. Please refer to the previous section, Ti-1000Z Operation, prior to reading this section. The following sections describe screens specific to the Ti-1000Z RAP.

A. Roll-a-Print Settings Screen

If you purchased the Ti-1000Z with the optional Roll-a-Print configuration, the Roll-a-Print Settings screen will be displayed when the **Printer Settings** button is pressed from the Main Menu.
See Figure 4-19.

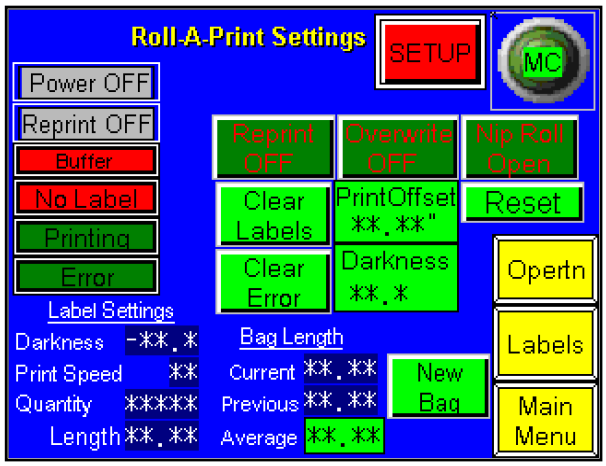


Figure 4-19

This screen features several indicators that illuminate and change during operation:

- **Power OFF**: This indicator can display "Power OFF," "Self Test" or "Ready." When Power OFF is displayed, the printer is disabled. Self Test is displayed when the printer is performing a test. Ready is displayed after self-testing or during startup if an error does not exist.
- **Reprint OFF**: This indicator can display "Reprint OFF," "Reprint ON" or "New Label." Reprint OFF is displayed when the printer is not continuously printing a preset amount of labels. Reprint ON is displayed when the printer is continuously printing a preset amount of labels. New Label is displayed when a new label has been downloaded.
- **Buffer**: This indicator is displayed when the labels are loading and the printer is preparing to print.
- **No Label / Labels**: Indicates whether or not a label has been downloaded.
- **Printing**: This indicator is displayed when the printer is cycling.
- **Error**: This indicator is displayed when the printer encounters an error.

Reprint OFF / Reprint ON: This button allows the operator to turn the Reprint function, which allows a preset amount of the same label to be printed continuously, on and off. Press the **Reprint OFF** button to turn the Reprint function on. The button will then display Reprint ON. Press the **Reprint ON** button to turn the Reprint function off. The button will then display Reprint OFF.

Overwrite OFF / Overwrite ON: This button allows the operator to turn the Overwrite function on and off. The Overwrite function overrides previous label settings. Press the **Overwrite OFF** button to turn the Overwrite function on. The button will then display Overwrite ON. Press the **Overwrite ON** button to turn the Overwrite function off. The button will then display Overwrite OFF.

Nip Roll Open / Nip Roll Closed: This button allows the operator to open and close the nip rollers manually. This button reads the status the nip is currently in. Press the **Nip Roll Open** button to close the nip rollers. The button will then display Nip Roll Closed. Press the **Nip Roll Closed** button to open the nip rollers. The button will then display Nip Roll Open.

The **Clear Labels** button can clear the downloaded label format or the label format that is recalled from the stored memory so that a newly downloaded label will immediately print. Press the **Clear Error** button to clear an error with the printer and continue operation.

Print Offset: Print Offset is a print delay setting that causes the print to be raised on the bag. To change this value, press the **Print Offset** button, enter a value on the numeric keypad and press the **ENT** button.

Darkness, **Print Speed**, **Quantity** and **Length** are parameters that are set up in the label software, displayed on this screen only for information. However, the Darkness setting can be changed from the Printer Settings screen.

This screen also displays the current, previous and average bag length. The average bag length can be adjusted by pressing the green numeric button next to Average, entering a value on the numeric keypad and pressing the **ENT** button.

Press the **New Bag** button to clear downloaded labels. Press the **Reset** button to restore the settings on this screen to the original factory settings.

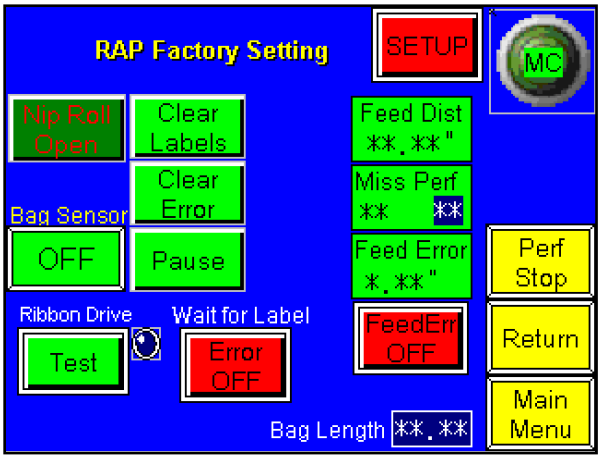


Figure 4-20

B. RAP Factory Setting Screen

The RAP Factory Setting screen features additional printer settings that should only be set by the factory or qualified technicians. See Figure 4-20. This screen is accessed by pressing the **RAP Factory** button on the Technical Assistance screen.

Feed Dist: The bag length distance, in inches, the perforation sensor does not look for a perforation in the bag when the machine is indexing the bag. To change this setting, press the **Feed Dist** button, enter a value on the numeric keypad and press the **ENT** button.

Miss Perf: The maximum number of perforations the sensor can miss before operation stops and an error message is displayed. To adjust this setting, press the **Miss Perf** button, enter the desired value on the numeric keypad and press the **ENT** button.

Feed Error: The amount of acceptable variation, in inches, from the set bag length. For example, if the bag length is 15" and the Feed Error is set to 3", bags with 12-18" lengths would be accepted, but bags with a length of 19" would cause operation to stop and an error message would be displayed. To change this setting, press the **Feed Error** button, enter a value on the numeric keypad and press the **ENT** button. To disable the Feed Error function, press the **FeedErr Off** button.

The RAP Factory Setting screen also allows the operator to initiate a ribbon drive test and turn the Wait for Label Error off.

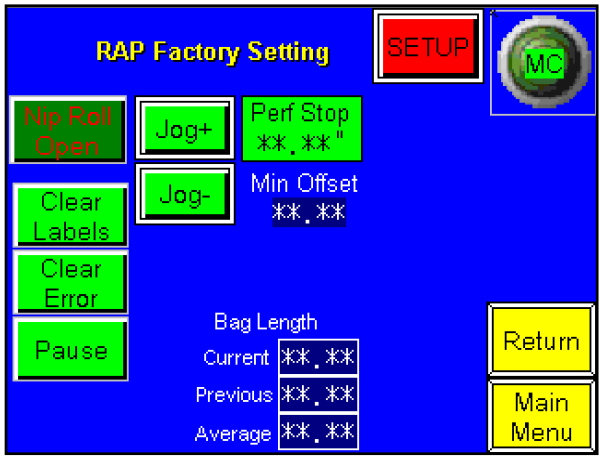


Figure 4-21

C. RAP Factory(Label Position) Settings Screen

The RAP Factory Setting (Label Position) screen features additional printer settings that should only be set by the factory or qualified technicians. See Figure 4-21. This screen is accessed by pressing the **Perf Stop** button on the RAP Factory Setting screen.

Chapter 5: Settings, Adjustments, Maintenance and Troubleshooting

Labelview Parameter Settings
ZebraDesigner Settings
Machine Adjustments
Maintenance
Troubleshooting

5.1 LabelView Setup Parameters Software Settings

APPI machines that are equipped with the Xi4 driver, including the Ti-1000Z, Ti-1000Z RAP, and T-1000-S14 NBO, have LabelView software available to setup parameters for labels. The screens may change, or information in the parameter settings may change, based on the software version. Please refer to the LabelView Pro addendum for further instruction.

5.2 ZebraDesigner Driver Settings

The ZebraDesigner is a label design software which can be included with the Designer Pro Version of the Zebra software. This setup applies to APPI machines equipped with the Xi4 driver, including the Ti-1000Z, Ti-1000Z RAP and the T-1000-S14 NBO. Please refer to the addendum for further instruction.

5.3 Adjustments, Maintenance and Troubleshooting

If you purchased the Ti-1000Z or the Ti-1000Z RAP, please refer to the following sections for adjustments, maintenance and troubleshooting information. If you purchased the T-1000-S14 NBO, please refer to the T-1000-S14 Operation Guide for adjustments, maintenance and troubleshooting information.

5.4 Machine Adjustments

Periodically, the Ti-1000Z / Ti-1000Z RAP will require readjustment or realignment of components to ensure proper operation. Adjustments may be required after transportation, excessive handling or due to normal wear and tear.

CAUTION: Machine adjustments, electrical troubleshooting and component replacement should be performed by qualified maintenance technicians, familiar with safety practices including but not limited to equipment lock-out/tag-out, voltages and pneumatics. If you are not familiar with the equipment or have not received training on the Ti-1000Z / Ti-1000Z RAP, you should consult with APPI technical support before attempting adjustments or repairs.

5.5 Tracking and Alignment Adjustments

Tracking problems can cause the thermally printed information to be out of the proper location.
To avoid printing problems, machine adjustments to correct the tracking and alignment of the web of bags may be required.

However, before considering adjustment, ensure there is sufficient tension on the film / bag web. When feeding or stopping, the bag roll should not spin freely or feed excess film.

5.6 Compression (Nip) Roller Adjustment

The drive roll compression is the force that exists between the two feed rolls (rubber covered grooved roll and grooved steel roll). Too much drive roll compression will cause extra wear on the drive roll and the motor.

Adjust the regulator pressure to adjust the nip roller tension. Pressure should be set as low as possible to cause the film to pull the film through the print head evenly without wrinkling.

5.7 Idler Roller Guides

Two plastic web guides are located on the rear idler roller. These guides are used for *fine* adjustment of tracking. Once the web is tracking within +/- 1/8" (3.175 cm) left to right, the plastic web guides can be used to further assist tracking. Hold the upper roller in place while turning and sliding the plastic guides close to the bags without touching the bags.

NOTE: If the bags are not tracking properly, the plastic guides could cause the bag web to turn or fold over. If this occurs, slide the guides further away from the web and make adjustments to correct tracking issues

5.8 Machine Maintenance

To extend the life of the Ti-1000Z / Ti-1000Z RAP, qualified maintenance personnel must perform all required maintenance tasks. Failure to perform scheduled and preventive maintenance may cause excessive wear to components and will void the warranty. This section covers two types of machine maintenance: preventative and scheduled.

For the purpose of this manual, preventive maintenance (PM) tasks are considered periodic tasks that should be performed on a daily, weekly or monthly basis. Scheduled maintenance tasks are performed when the Ti-1000Z / Ti-1000Z RAP Maintenance Chart Number changes to a higher number. Scheduled maintenance tasks (CHART items) are performed depending on the number of machine cycles and therefore are not considered "periodic" tasks.

CAUTION: Unplug the power cord and disconnect the air line prior to removing guards, funnels or covers. Preventive maintenance must be performed by qualified maintenance personnel.

5.9 Preventive Maintenance Checklist

ITEM	DESCRIPTION	PERIOD
Filter / Air regulator	Drain water from filter	D
Air regulator	Adjust pressure to required/tested settings (varies)	D
Drive rollers	Clean with alcohol	D
Perforation sensor	Clean sensor assembly with alcohol	D
Platen print roller	Inspect for nicks or cuts, clean with alcohol	D
Print head	Clean with alcohol (also after each ribbon change)	D
Micron filter / Venturi	Inspect for contamination of filter, replace as needed Inspect for blockage / air restriction	W
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
Compression (drive rollers)	Inspect to ensure parallel w/ each other (bag tracking)	M
Drive belt	Inspect for wear / fraying, replace if needed	M
Drive Belt (print head assembly)	Inspect for wear, looseness, tighten as required	M
Head Down Cam	Apply a small amount of grease on both sides of the Head Down Cam and on both sides of the Clevis to prevent them from binding. Apply a small amount of grease between the Head Down Shaft and the Head Down Cam to keep the Cam from binding. Apply a small amount of grease to the front of the Head Down Cam to prevent wear on the back of the print head plate.	M

LEGEND:

D	Daily
W	Weekly
M	Monthly

CAUTION: Unplug the power cord and disconnect the air line prior to removing guards, funnels or covers. Preventative maintenance must be performed by qualified maintenance personnel.

5.10 Scheduled Maintenance Chart (perform every 500,000 cycles)

ITEM	DESCRIPTION	CHART 1	2	3	4	5	6	7	8	9	10
Drive belt (left panel)	Adjust/Inspect for wear replace when necessary.	O	O	O	O	O	O	O	O	O	O
Guide 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
Perf sensor and spring	Inspect for wear, replace if required.	O	O	O	O	O	O	O	O	O	O
Rubber drive roll	Inspect for cuts, unevenness	O	O	O	O	O	O	O	O	O	O
Steel upper roll	Clean w/ alcohol, inspect for burs	O	O	O	O	O	O	O	O	O	O
Printed circuit boards / wiring	Blow off with clean, dry air, inspect for loose wires, connectors	O	O	O	O	O	O	O	O	O	O
Cylinders	Listen for air leakage, replace or repair as required	O	O	O	O	O	O	O	O	O	O
Air blower filter	Inspect for contamination, replace as necessary	O	O	O	O	O	O	O	O	O	O
Air lines and connectors	Inspect for wear, cuts, leaking, replace as required	O	O	O	O	O	O	O	O	O	O
Print platen roller	Inspect for free movement, inspect for wear, replace roller or bearings as required.	O	O	O	O	O	O	O	O	O	O
Print head belt	Inspect for tightness and wear, tighten or replace as required.	O	O	O	O	O	O	O	O	O	O
Print head	Clean, inspect for wear, inspect print quality (missing pixels), replace as required.	O	O	O	O	O	O	O	O	O	O
	INITIALS										

5.11 Troubleshooting Guide

The items included in this section cover the common causes of trouble that an operator might encounter during the operation of the Ti-1000Z / Ti-1000Z RAP. When operating difficulties occur, the best procedure is to observe what is happening and attempt to isolate the problem. 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 by qualified mechanics or electricians.

5.12 Troubleshooting Checklist

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
Touch screen does not display	1. Screen saver is active 2. Power off 3. Loose connection 4. Fuse blown 5. Cable shorted / failed	1. Touch the screen 2. Plug in power cord / turn on 3. Tighten connections 4. Replace fuse(s) 5. Replace cable
No main power light	1. Blown fuse 2. Bulb out	1. Replace fuse 2. Replace bulb
Two bags index from rollers	1. Bag is folded over 2. Perf sensor dirty / damaged 3. Perf sensitivity out of adjustment 4. Ungrounded perf sensor circuit 5. Seal point value too high 6. Feed distance too high 7. Zero perf function incorrectly set	1. Straighten bag, thread bags again 2. Clean / replace perf sensor 3. Adjust pot on High Voltage PCB 4. Attach grounding rod to roller 5. Change seal point setting 6. Set value to zero 7. Reset Zero Perf.
Bag does not completely index	1. Perf is sensing hole in bag (vent) 2. Seal position setting too low 3. Zero perf function incorrectly set	1. Reposition bag left or right 2. Increase seal position setting 3. Reset Zero Perf.
First bag after threading indexing multiple bags	1. Thread bags not at proper seal position 2. Perf Sensor not sensing bag 3. Dirty / damaged sensor 4. Pot on High Voltage PCB out of adjustment	1. Pull bags through pinch rollers to proper seal point, then cycle machine again. 2. Clean / replace sensor 3. Clean / replace sensor 4. Adjust Pot
Bags web breaking prematurely in machine	1. Improper web tension 2. Index speed too high 3. Improper threading / web contact 4. Bag roll side-plates bent inward	1. Adjust tension 2. Reduce speed setting 3. Rethread / remove obstructions 4. Repair / remove side-plates

5.13 PLC IO Listing

The Main PLC and Expansion PLC IO Listings are provided to assist in troubleshooting the Ti-1000Z and Ti-1000Z RAP. Refer to the T-1000-S14 Operation Guide for the PLC IO Listing for printers operating with the T-1000-S14.

Main PLC				
	Input	Description	Output	Description
	X0	RAP: Reserved for Stepper control	Y0	RAP: Stepper PulseTrain CW
	X1	Out of Bags Sensor	Y1	RAP: Stepper PulseTrain CCW
	X2	NBO Print Request	Y2	Ribbon Drive Enable
	X3	Perf Sensor	Y3	Auxiliary Printer Busy
	X4	OFL Print Request	Y4	Auxiliary Printer Fault
	X5	Spare	Y5	Auxiliary Printer Ready
	X6	Spare	Y6	RAP: Nip Roll Solenoid
	X7	Spare	Y7	Spare
	X8	RAP: Accum. Empty - Bagger Stop (Top)	Y8	Reprint - Zebra
	X9	RAP: Accum. Full - Print Suspend (Bottom)	Y9	Start Print - Zebra
	XA	Spare	YA	Pause Toggle - Zebra
	XB	Label Ready - Zebra	YB	Spare
	XC	Printer Error - Zebra	YC	Spare
	XD	End Print (Printing) - Zebra	YD	RAP: H/V Trigger
	XE	Ribbon Out - Zebra	YE	Spare
	XF	Spare	YF	Print Head Down Solenoid

5.14 Electrical Drawings

Electrical drawings are provided at the end of this chapter to assist in troubleshooting the Ti-1000Z Inline Thermal Printer.

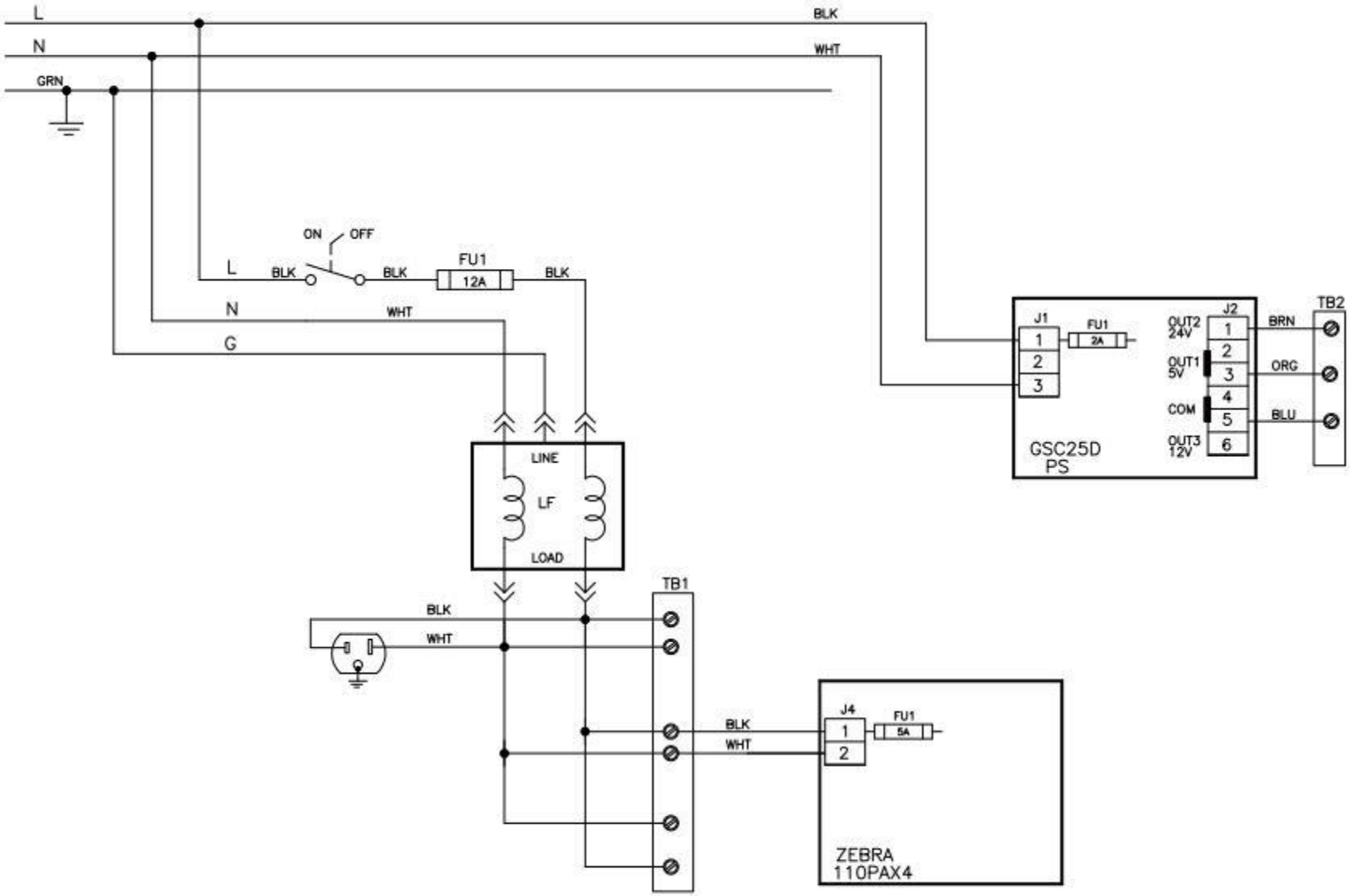
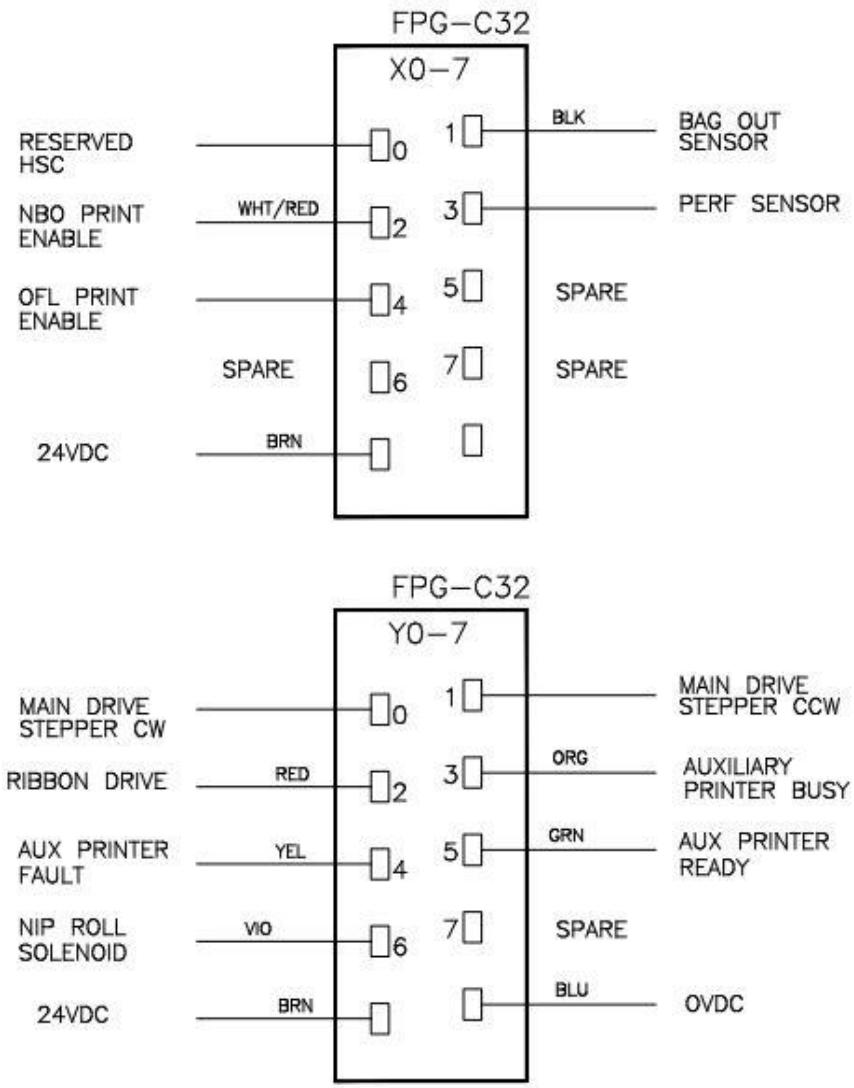
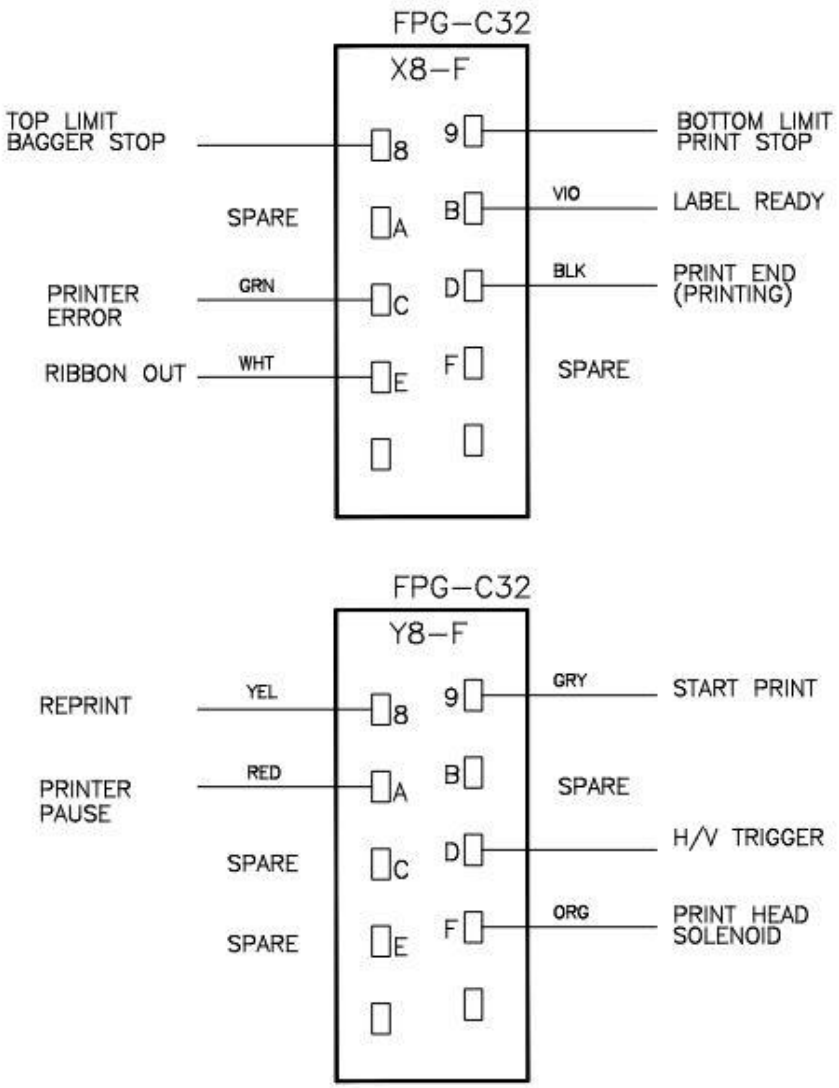

L
N
GRN
BLK
WHT
ON
OFF
L
BLK
BLK
FU1
12A
BLK
N
WHT
G
LINE
LF
LOAD
TB1
BLK
WHT
J1
1
2
3
FU1
2A
OUT2
24V
OUT1
5V
COM
OUT3
12V
J2
1
2
3
4
5
6
BRN
ORG
BLU
TB2
GSC25D
PS
BLK
WHT
J4
1
2
FU1
5A
ZEBRA
110PAX4

Figure 5-1


FPG–C32
X0–7
RESERVED HSC
0
1
BLK
BAG OUT SENSOR
NBO PRINT ENABLE
WHT/RED
2
3
PERF SENSOR
OFL PRINT ENABLE
4
5
SPARE
SPARE
6
7
SPARE
24VDC
BRN


FPG–C32
X8–F
TOP LIMIT BAGGER STOP
8
9
BOTTOM LIMIT PRINT STOP
SPARE
A
B
VIO
LABEL READY
PRINTER ERROR
GRN
C
D
BLK
PRINT END (PRINTING)
RIBBON OUT
WHT
E
F
SPARE

FPG–C32
Y0–7
MAIN DRIVE STEPPER CW
0
1
MAIN DRIVE STEPPER CCW
RIBBON DRIVE
RED
2
3
ORG
AUXILIARY PRINTER BUSY
AUX PRINTER FAULT
YEL
4
5
GRN
AUX PRINTER READY
NIP ROLL SOLENOID
VIO
6
7
SPARE
24VDC
BRN
BLU
OVDC

FPG–C32
Y8–F
REPRINT
YEL
8
9
GRY
START PRINT
PRINTER PAUSE
RED
A
B
SPARE
SPARE
C
D
H/V TRIGGER
SPARE
E
F
ORG
PRINT HEAD SOLENOID

Figure 5-2

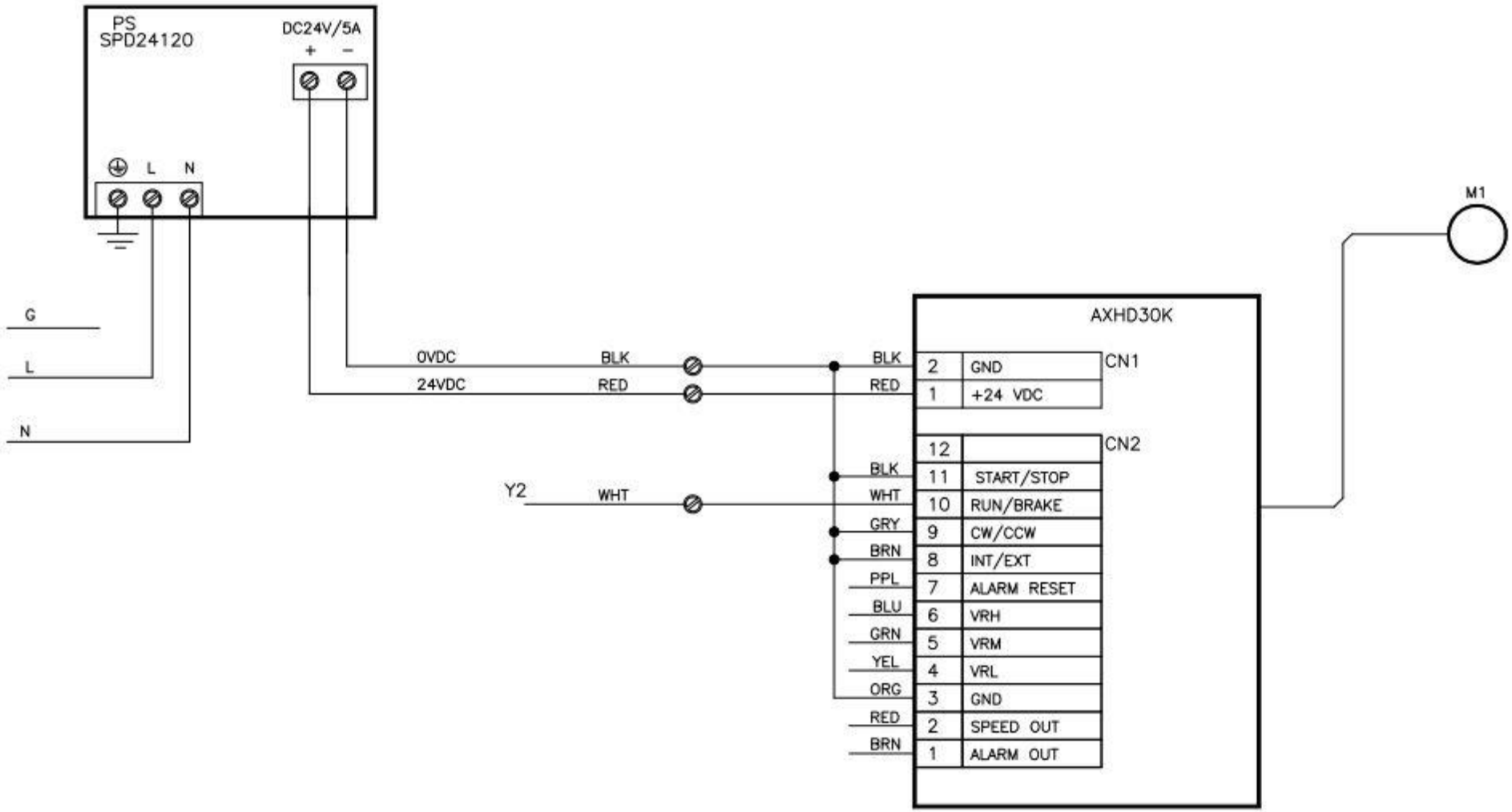

PS
SPD24120
DC24V/5A
+
−
L
N
G
L
N
0VDC
24VDC
BLK
RED
Y2
WHT
M1
AXHD30K
BLK
RED
2
GND
1
+24 VDC
CN1
12
CN2
BLK
11
START/STOP
WHT
10
RUN/BRAKE
GRY
9
CW/CCW
BRN
8
INT/EXT
PPL
7
ALARM RESET
BLU
6
VRH
GRN
5
VRM
YEL
4
VRL
ORG
3
GND
RED
2
SPEED OUT
BRN
1
ALARM OUT

Figure 5-3

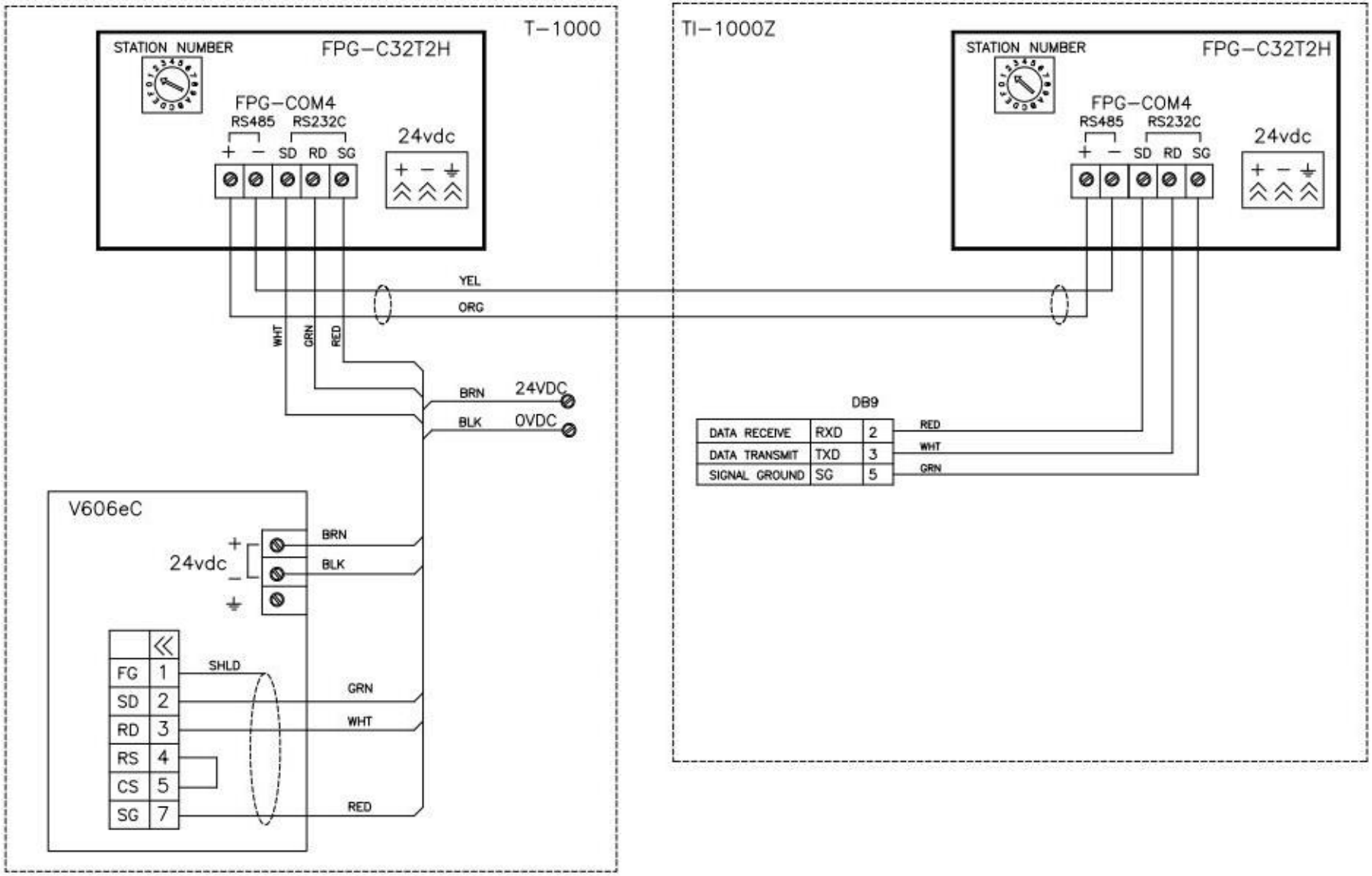

T-1000
STATION NUMBER
FPG-C32T2H
FPG-COM4
RS485
RS232C
+ − SD RD SG
24vdc
+ − ⏚
YEL
ORG
WHT
GRN
RED
BRN
24VDC
BLK
0VDC
V606eC
24vdc
BRN
BLK
FG 1
SD 2
RD 3
RS 4
CS 5
SG 7
SHLD
GRN
WHT
RED
TI-1000Z
STATION NUMBER
FPG-C32T2H
FPG-COM4
RS485
RS232C
+ − SD RD SG
24vdc
+ − ⏚
DB9
DATA RECEIVE RXD 2
DATA TRANSMIT TXD 3
SIGNAL GROUND SG 5
RED
WHT
GRN

Figure 5-4

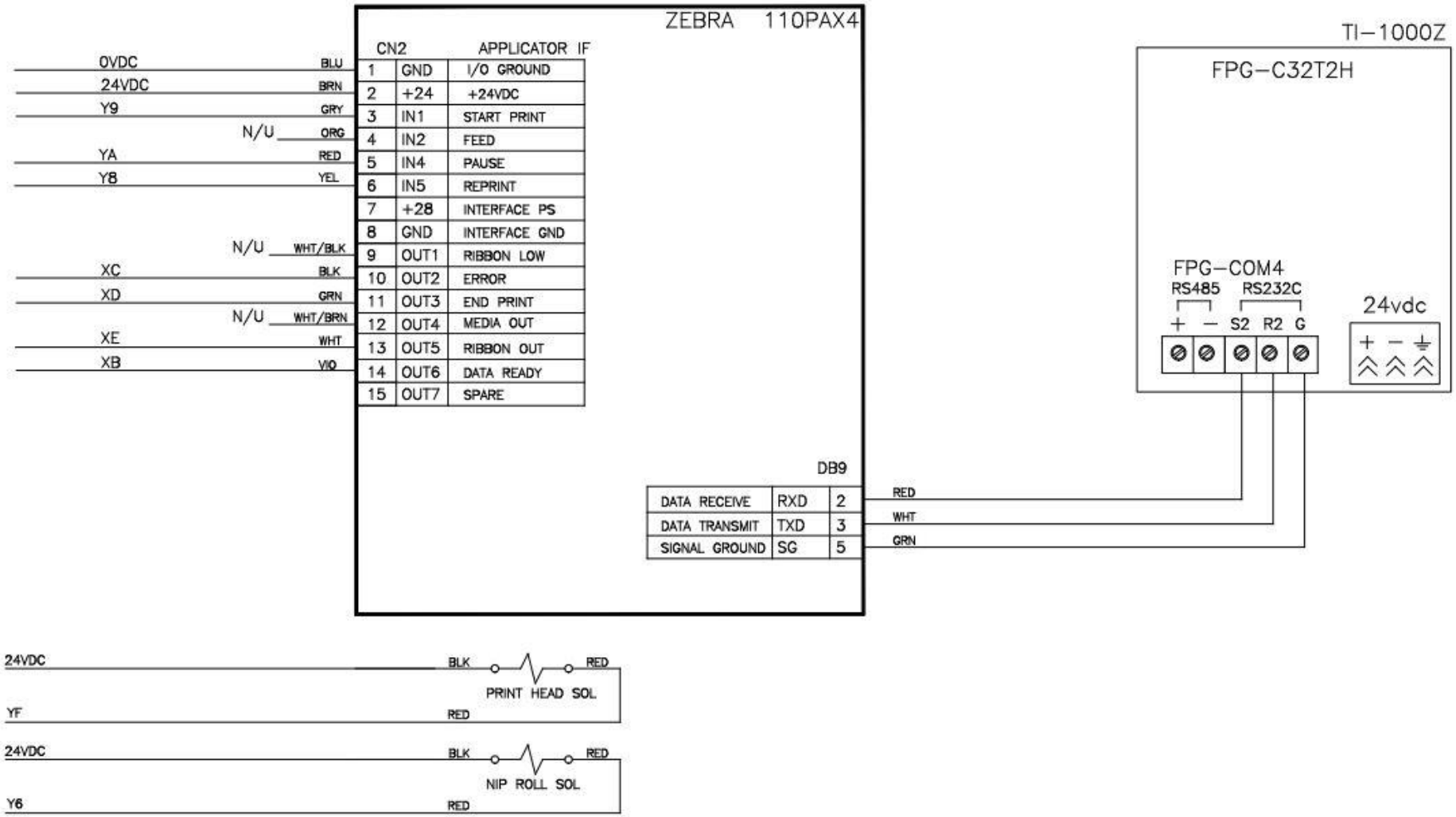

ZEBRA 110PAX4
CN2 APPLICATOR IF
1 GND I/O GROUND
2 +24 +24VDC
3 IN1 START PRINT
4 IN2 FEED
5 IN4 PAUSE
6 IN5 REPRINT
7 +28 INTERFACE PS
8 GND INTERFACE GND
9 OUT1 RIBBON LOW
10 OUT2 ERROR
11 OUT3 END PRINT
12 OUT4 MEDIA OUT
13 OUT5 RIBBON OUT
14 OUT6 DATA READY
15 OUT7 SPARE
0VDC BLU
24VDC BRN
Y9 GRY
N/U ORG
YA RED
Y8 YEL
N/U WHT/BLK
XC BLK
XD GRN
N/U WHT/BRN
XE WHT
XB VIO
DB9
DATA RECEIVE RXD 2
DATA TRANSMIT TXD 3
SIGNAL GROUND SG 5
RED
WHT
GRN
TI-1000Z
FPG-C32T2H
FPG-COM4
RS485
RS232C
+ − S2 R2 G
24vdc
+ − ⏚
24VDC BLK RED
PRINT HEAD SOL
YF RED
24VDC BLK RED
NIP ROLL SOL
Y6 RED

Figure 5-5

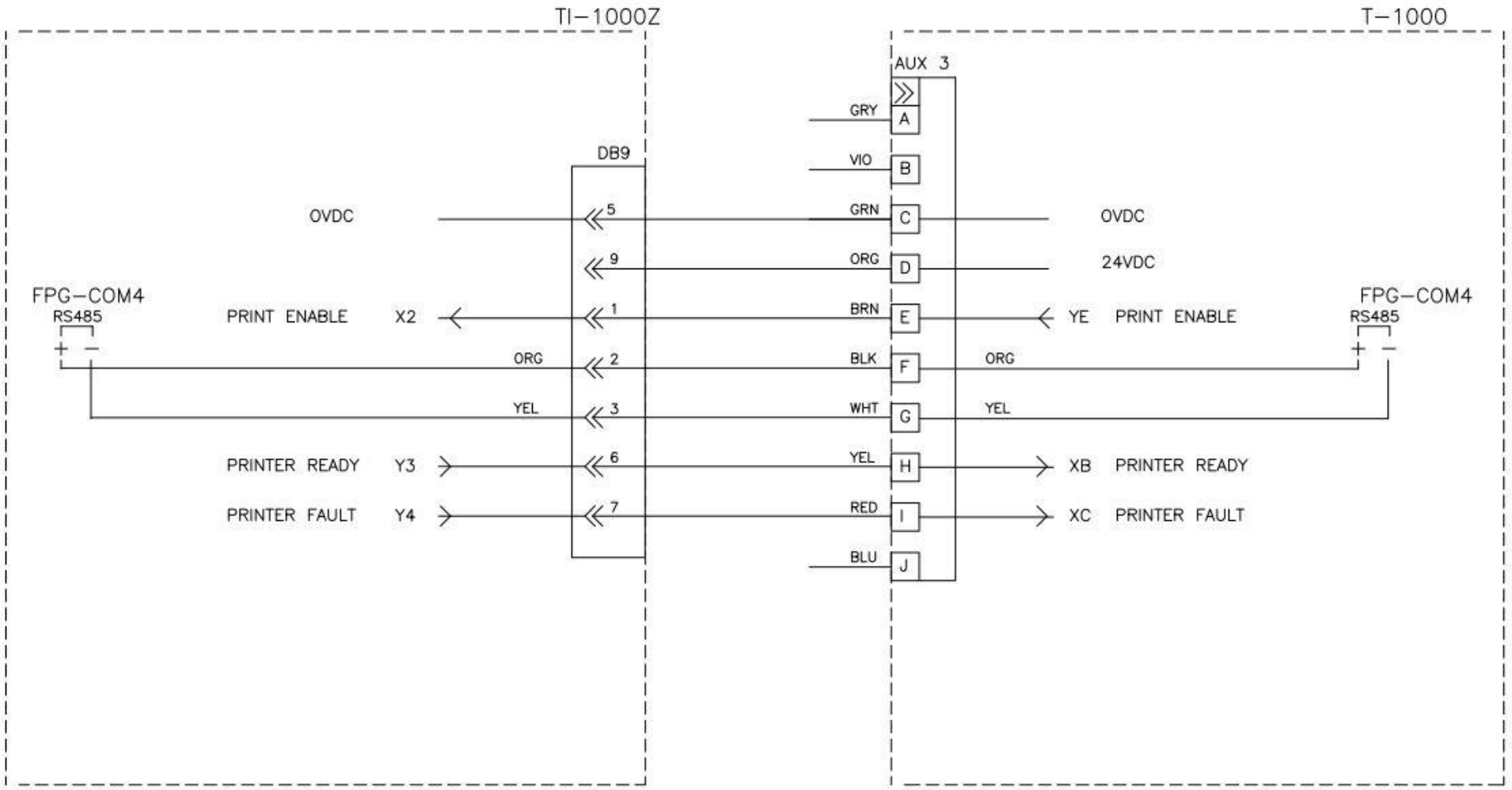

TI-1000Z
T-1000
AUX 3
DB9
GRY
A
VIO
B
GRN
C
ORG
D
BRN
E
BLK
F
WHT
G
YEL
H
RED
I
BLU
J
OVDC
5
9
1
2
3
6
7
OVDC
24VDC
YE PRINT ENABLE
ORG
YEL
XB PRINTER READY
XC PRINTER FAULT
FPG-COM4
RS485
+ -
PRINT ENABLE X2
ORG
YEL
PRINTER READY Y3
PRINTER FAULT Y4
FPG-COM4
RS485
+ -

Figure 5-6

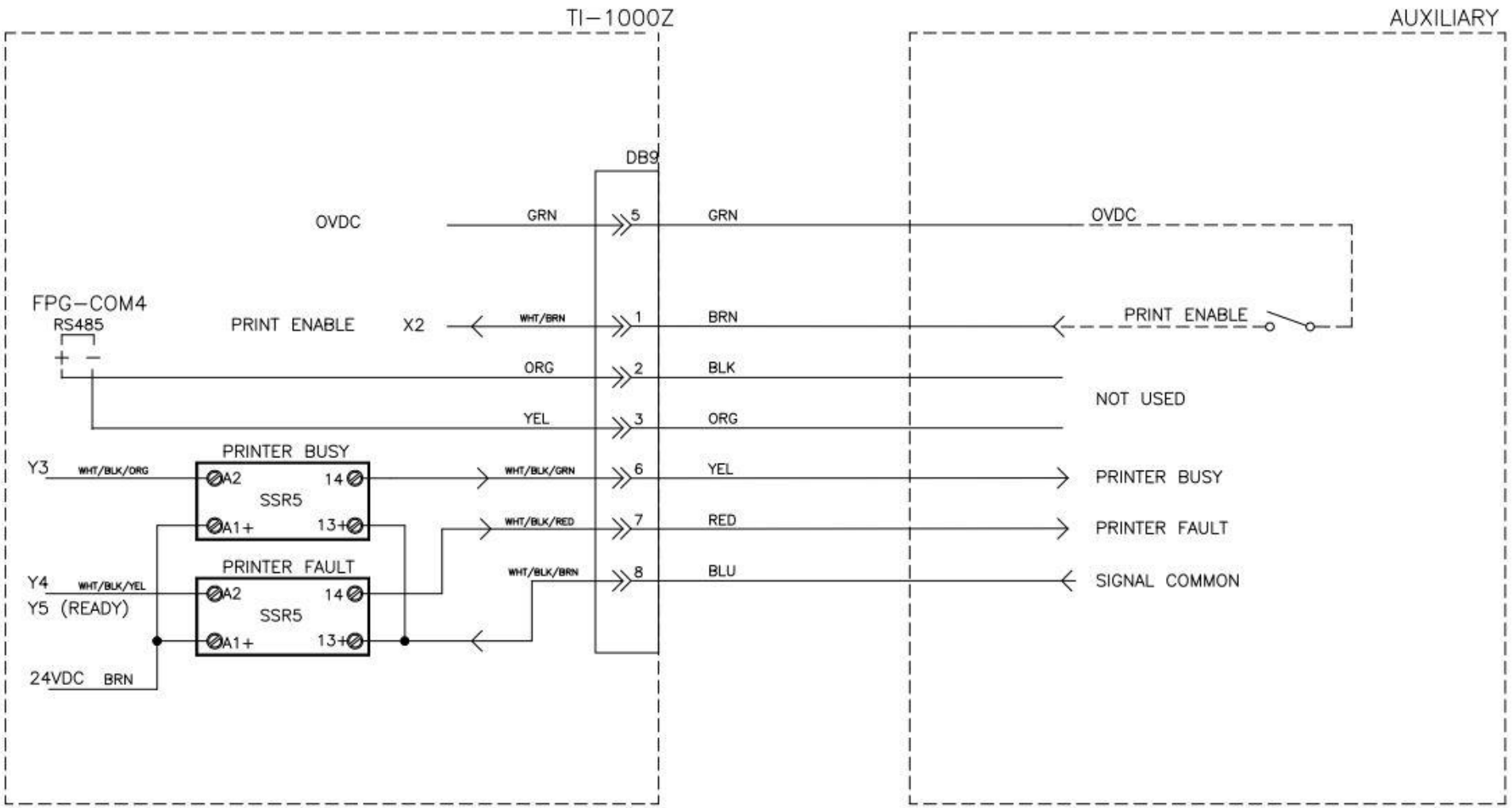

TI-1000Z
AUXILIARY
DB9
OVDC
GRN
5
GRN
OVDC
FPG-COM4
RS485
+ -
PRINT ENABLE
X2
WHT/BRN
1
BRN
PRINT ENABLE
ORG
2
BLK
NOT USED
YEL
3
ORG
PRINTER BUSY
Y3
WHT/BLK/ORG
A2
14
SSR5
A1+
13+
WHT/BLK/GRN
6
YEL
PRINTER BUSY
WHT/BLK/RED
7
RED
PRINTER FAULT
PRINTER FAULT
Y4
WHT/BLK/YEL
Y5 (READY)
WHT/BLK/BRN
8
BLU
SIGNAL COMMON
24VDC
BRN

Figure 5-7

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Chapter 6: Parts and Drawings

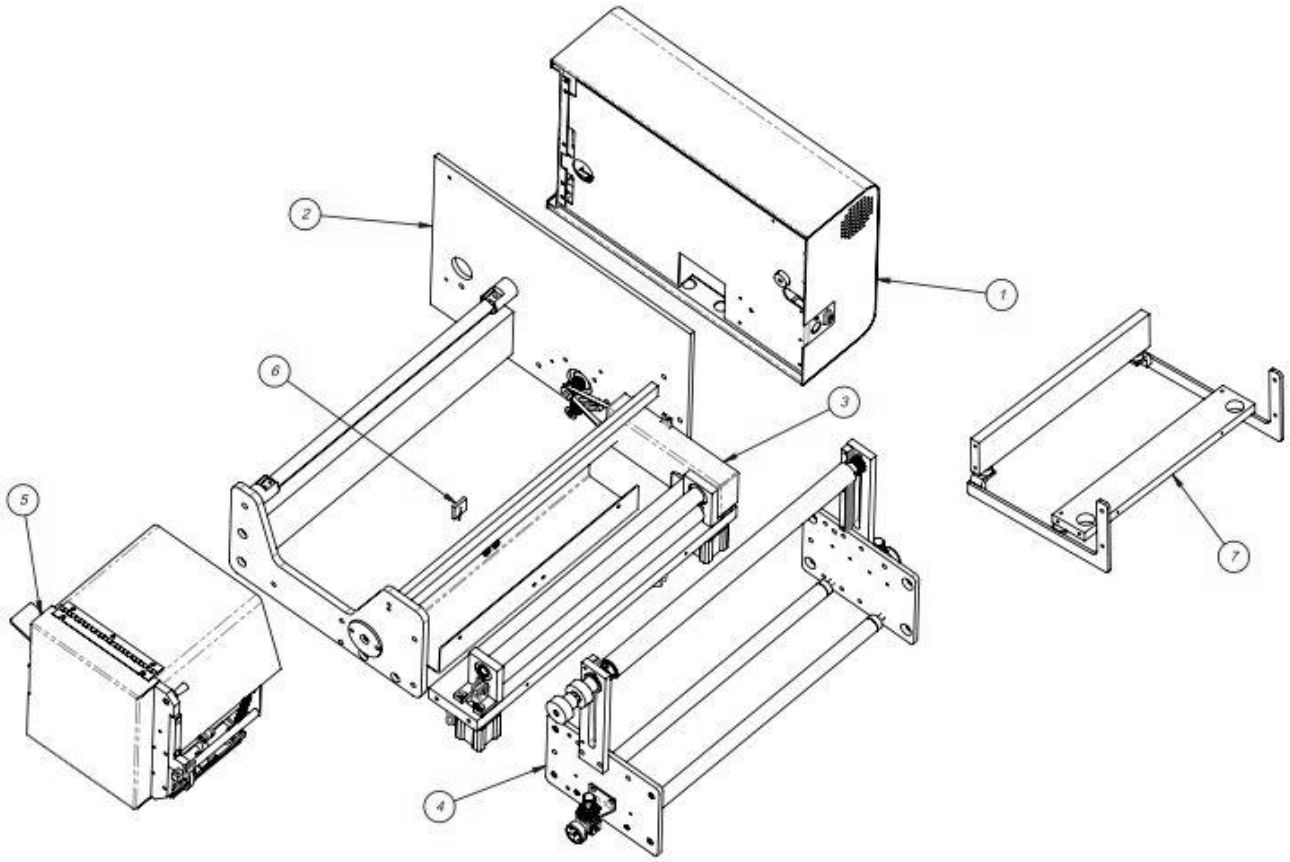
Ti-1000Z Parts Lists and Drawings
Ti-1000Z RAP Parts Lists and Drawings
T-1000-S14 NBO Parts Lists and Drawings

6.1 Ti-1000Z Inline Thermal Printer

T-Ti1000Z

ITEM NO.	QTY.	PART NO.	DESCRIPTION	PAGE NO.
1	1	TA-T2Z1000	ELECTRONICS ASSEMBLY	
2	1	TA-T2Z2000	MOUNTING ASSEMBLY	
3	1	TA-T2Z2000-1	NIP ROLL ASSEMBLY	
4	1	TA-T2Z4000	PRINTER REGISTER	
5	1	TA-T2Z8000	ZEBRA PRINTER ASSEMBLY	
6	1	TA-T2Z-BO10	BAG OUT DETECTOR ASSEMBLY	---
7*	1	TA-T2Z2000-US9	MOUNTING ASSEMBLY, TI-1000Z TO US-9000	

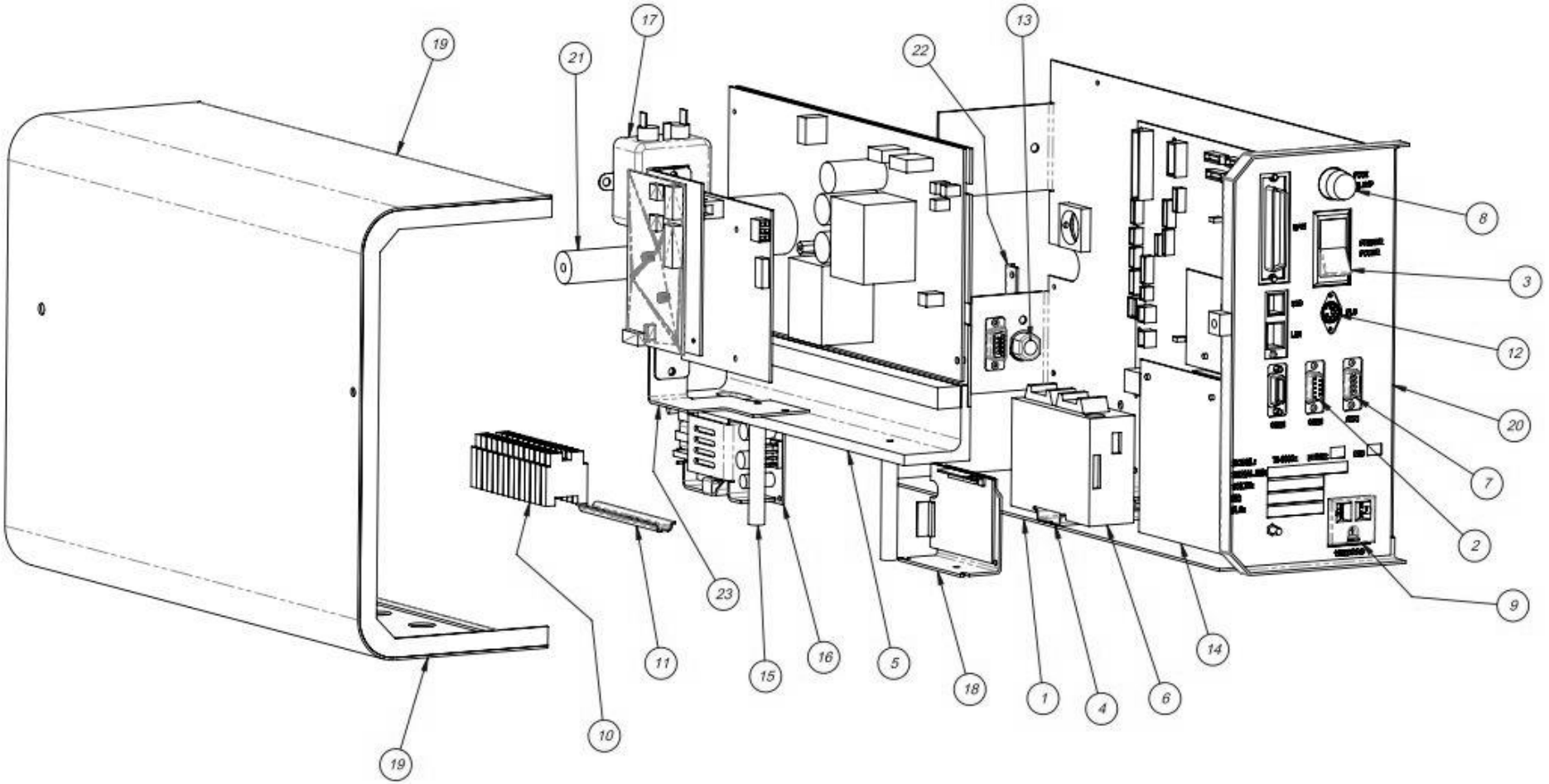
NOTE: Item 7 is only included in the Ti-1000Z Inline Thermal Printer when the printer is operating with the combined T-1000-S14/US-9000 System. If your printer is not operating with this system, disregard Item 7.



A. Electronics Assembly

PN: TA-T2Z1000

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TP-T2Z1005	ELECTRONICS BASE
2	2	TP-212147	9 PIN D-SUB FEMALE CONNECTOR
3	1	TP-215384	POWER SWITCH
4	1	TP-218020	DIN RAIL
5	1	VP-Z-33050M	POWER SUPPLY BOARD
6	1	TP-220511	PLC, FPO-E32T-A EXPANSION I/O
7	1	TP-212246	9 PIN D-SUB MALE CONNECTOR
8	1	TP-207216	FUSE HOLDER
9	1	TP-212410	AC OUTLET
10	14	TP-208142	LARGE TERMINAL
11	1	TP-218021	DIN RAIL
12	1	TP-212160	5 POS MINI DIM
13	1	TP-112240	POWER CORD STRAIN RELIEF
14	1	V-Z-113-8K1-00070	XI4 300 PRINTER
15	2	TP-T2Z1008	STAND-OFF – 2.5"
16	1	TP-213361	24VDC 3 AMP POWER SUPPLY
17	1	TP-205108	EMI FILTER CORCOM
18	1	TP-501156	DC MOTOR DRIVE, DRIVEN PRINT ROLL
19	1	TP-T2Z1003	PRINTER ELECTRONICS COVER
20	1	TP-T2Z1007	OVERLAY
21	1	TP-T2Z2012	COVER PANEL STAND-OFF
22	1	TP-T2Z1011	COVER PLATE
23	1	TP-T2Z1004	APP BOARD AND MOUNT



ELECTRONICS MODULE 67

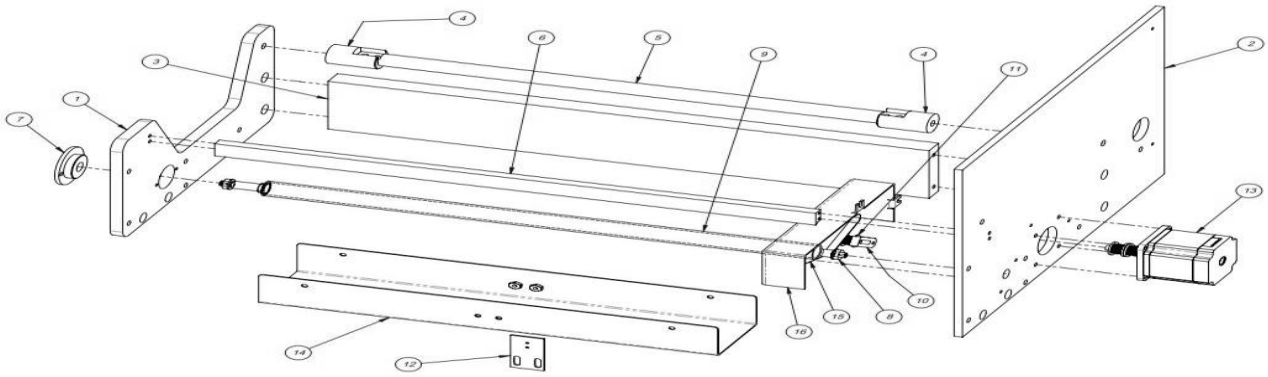
PN: TA-T2Z1000

B. Mounting Assembly

PN: TA-T2Z2000

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TP-T2Z2002-1	MOUNTING SIDE PLATE – RIGHT SIDE
2	1	TP-T2Z2002-2	MOUNTING SIDE PLATE – LEFT SIDE
3*	1	TP-T2Z2007	SUPPORT BRACE
4	2	TP-T14M1035	GUIDE ROD HOLDER
5	1	TP-T2Z2004	PIVOT SHAFT
6	1	TP-T2Z2005	LATCH BAR
7	1	TP-T2Z2011	BEARING PLATE
8	2	TP-504097	PRECISION FLANGED BALL BEARING
9	1	TP-T2Z2006	PRINT HEAD ROLLER
10	1	TP-T15M8007	BELT TENSIONER
11	1	TP-T2Z2024	NIP TENSIONER PULLEY
12	1	TP-T2AC10-012	BAG-OUT SENSOR MOUNT
13	1	VP-Z-46198M	MOTOR
14	1	TP-T2Z2022	TUBING COVER
15	1	TP-503187	BELT
16	1	TP-T2Z2013	BELT COVER

**NOTE: If the Ti-1000Z is operating with the combined T-1000-S14/US-9000 system, Item 3 becomes D9-149479-902: Support Brace Modification.*

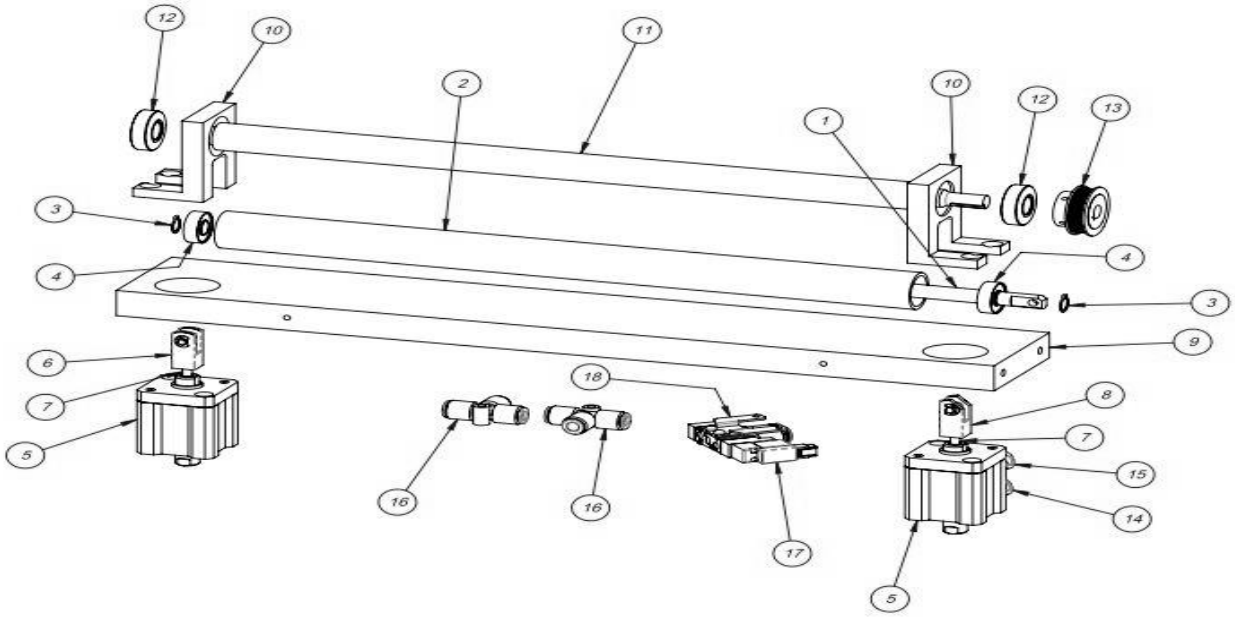


C. Nip Roll Assembly

PN: TA-T2Z2000-1

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TP-T2Z2025	NIP ROLL DEAD SHAFT
2	1	TP-T2Z2026	ROLLER TUBE
3	2	TP-108092	3/8" SNAP RING
4	2	TP-T2Z4010	BUSHING CAGE
5	2	TP-403236	NIP ROLL CYLINDER
6	1	TP-404252	CLEVIS
7	2	TP-T2Z2030	CYLINDER PIN
8	1	TP-T2Z2029	MODIFIED CLEVIS
9*	1	TP-T2Z2016	NIP ROLL SUPPORT BRACE
10	2	TP-T2Z2028	BEARING HOUSING
11	1	TP-T2Z2027	DRIVEN NIP ROLL
12	2	TP-504129	½" BORE, 1- ½" O.D., 3/8 WIDEKP-A SERIES RADIAL TYPE
13	1	TP-T2Z2019	DRIVEN NIP ROLL PULLEY
14	2	TP-401277	ELBOW, ¼ TUBE x 10 – 32 TH'D
15	2	TP-402186	FLOW CONTROL
16	2	TP-401254	UNION TEE FITTING
17	1	TP-402255	VALVE
18	1	TP-402175	BRACKET

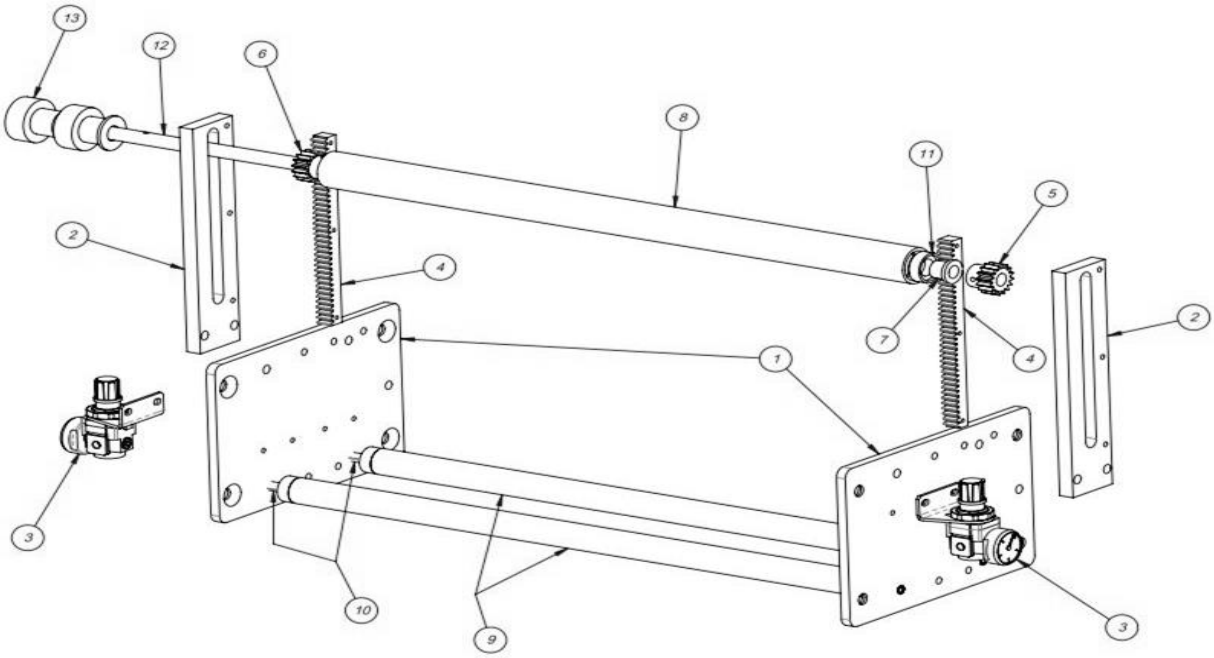
**NOTE: If the Ti-1000Z is operating with the combined T-1000-S14/US-9000 system, Item 9 becomes D9-149479-903: Nip Roll Support Brace Modification.*



D. Printer Register

PN: TA-T2Z4000

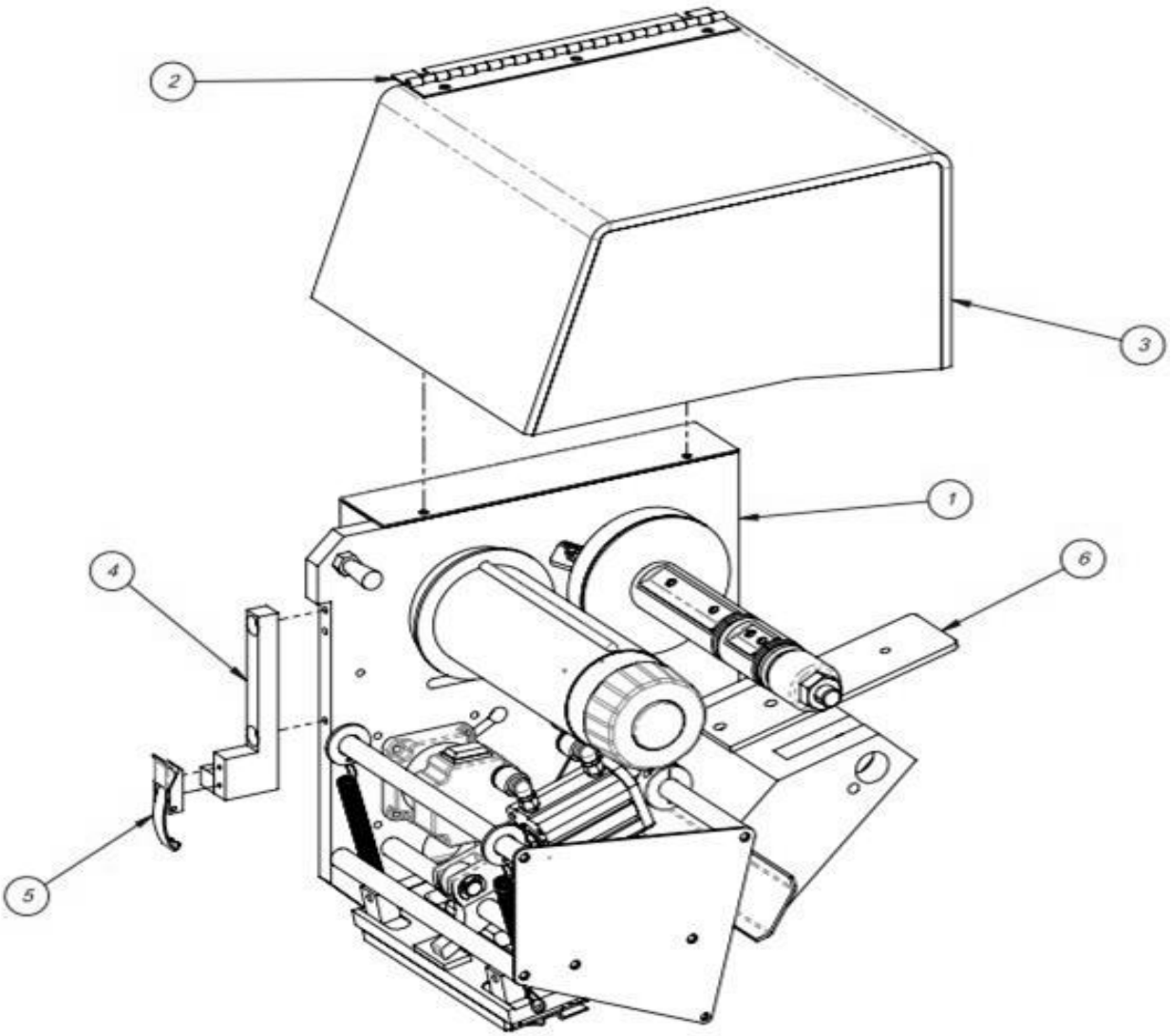
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	2	TP-T2Z4001	PRINTER MOUNTING BRACKET
2	2	TP-T2Z4002	RACK MOUNT
3	2	TP-406259	MINI-REG ASSEMBLY
4	2	TP-T2Z4003	SHORT GEAR RACK
5	1	TP-T2Z4004	GEAR
6	1	TP-T2Z4005	GEAR
7	2	TP-107108	BEARING
8	1	TP-T2Z4007	ROLLER TUBE
9	2	TP-T1MC00052	GUIDE ROLLER (PRINT REG)
10	4	TP-106106	SPRING PIN
11	2	TP-T2Z4010	BUSHING CAGE
12	1	TP-T2Z4006	ROLLER SHAFT
13	2	TP-109149	HANDLE, KNURLED STEEL



E. Zebra Printer Assembly

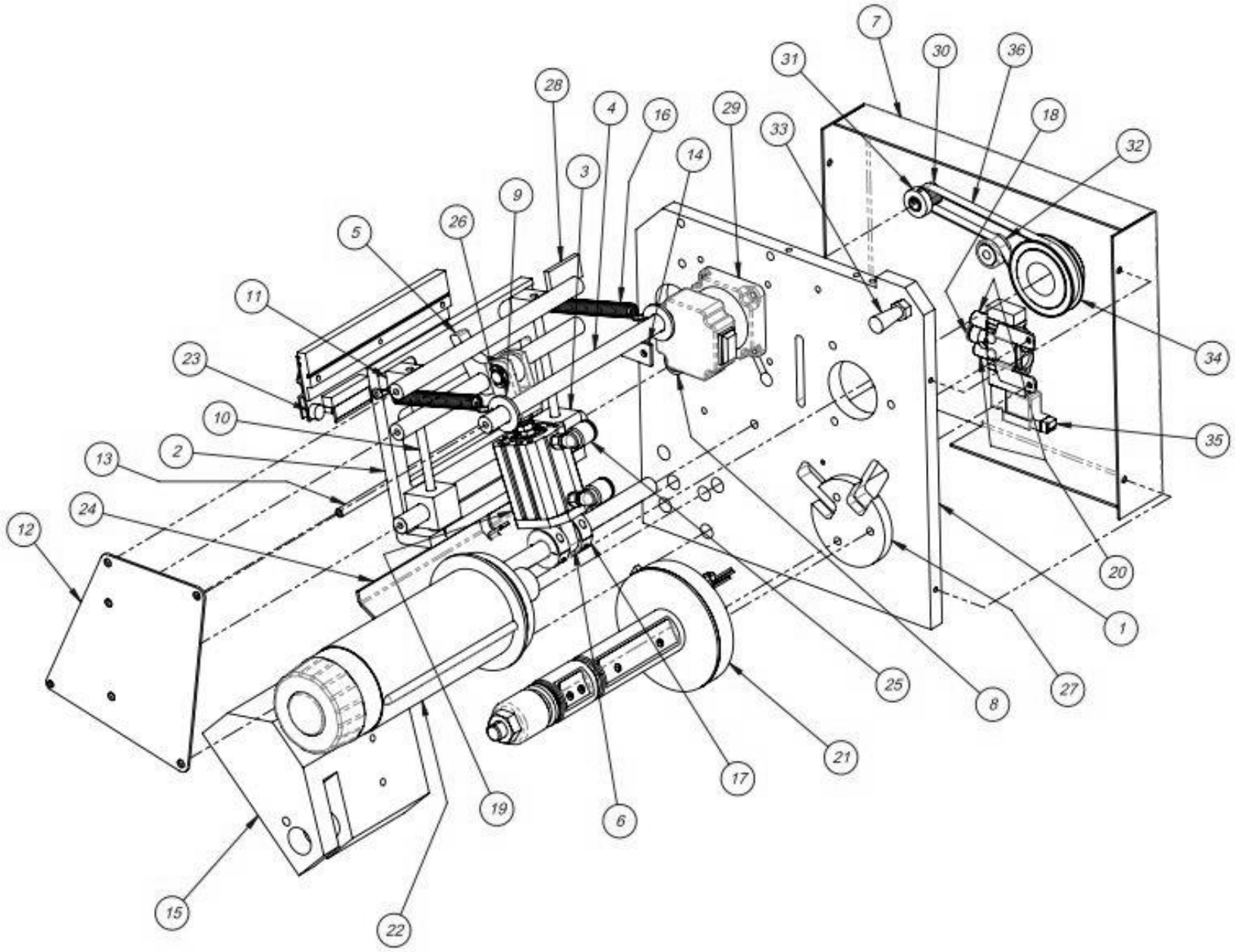
PN: TA-T2Z8000

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	---	SEE PAGES 87 & 88
2	1	TP-T2Z8101	HINGE ASSEMBLY
3	1	TP-T2Z8102	LEXAN PRINTER GUARD
4	1	TP-T2Z2010	STOP BAR
5	1	TP-T15M8105	BLADE DRAW LATCH
6	1	TP-T2Z2014	PIVOT BLOCK BRACKET



PN: TA-T2Z8000

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TP-T15M8001	PRINTER SIDE PLATE
2	1	TP-T15M8002	MOUNTING PLATE PRINT HEAD
3	2	TP-T15M8003	ADJUSTMENT BLOCK
4	5	TP-T15M8004	SUPPORT ROD
5	1	TP-T15M8005	CAM-PRINT HEAD
6	1	TP-T15M8006	CYLINDER MOUNT
7	1	TP-T15M8008	BELT GUARD
8	1	TP-T15M8010	LOCATING SPACER
9	2	TP-T15M8012	SPRING MOUNT
10	2	TP-T15M8013	ADJUSTMENT ROD
11	2	TP-T15M8014	ADJUSTMENT ROD BLOCK
12	1	TP-T15M8030	END PLATE
13	1	TP-T15M8031	ROLLER SHAFT
14	1	TP-T15M8032	SHAFT MOUNT
15	1	TP-T15M0036	PIVOT BLOCK
16	2	TP-108127	SPRING
17	2	TP-111107	6435K33 COLLAR CLAMP
18	1	TP-401265	AIR FITTING
19	1	TP-403140	AIR CYLINDER
20	2	TP-404263	MUFFLER
21	1	VP-Z-P1006058	XI4 RIBBON SUPPLY SPINDLE MAINTENANCE KIT
22	1	VP-Z-41150M	TAKE UP SPINDLE
23	1	VP-Z-P1004230	PRINT HEAD
24	1	TP-T15M8011	SENSOR BRACKET
25	2	TP-401277	ELBOW ¼ TUBE X 10-32
26	1	TP-404148	CLEVIS
27	1	TP-T15M8044	SUPPLY SPOOL SPACER
28	1	TP-T15M8038	WEAR SURFACE
29	1	TP-501155	DC MOTOR PRINTER
30	1	TP-T14M1100	PRINTER RIBBON MOTOR PULLEY
31	1	TP-T14M1107	COLLAR
32	1	TP-504138	CAMP FOLLOWER
33	1	TP-109225	FINGER KNOB
34	1	TP-T15M8042	RIBBON TAKE-UP PULLEY
35	1	TP-402255	PNEUMATIC VALVE
36	1	TP-503113	BELT



ZEBRA PRINTER ASSEMBLY, CONTINUED

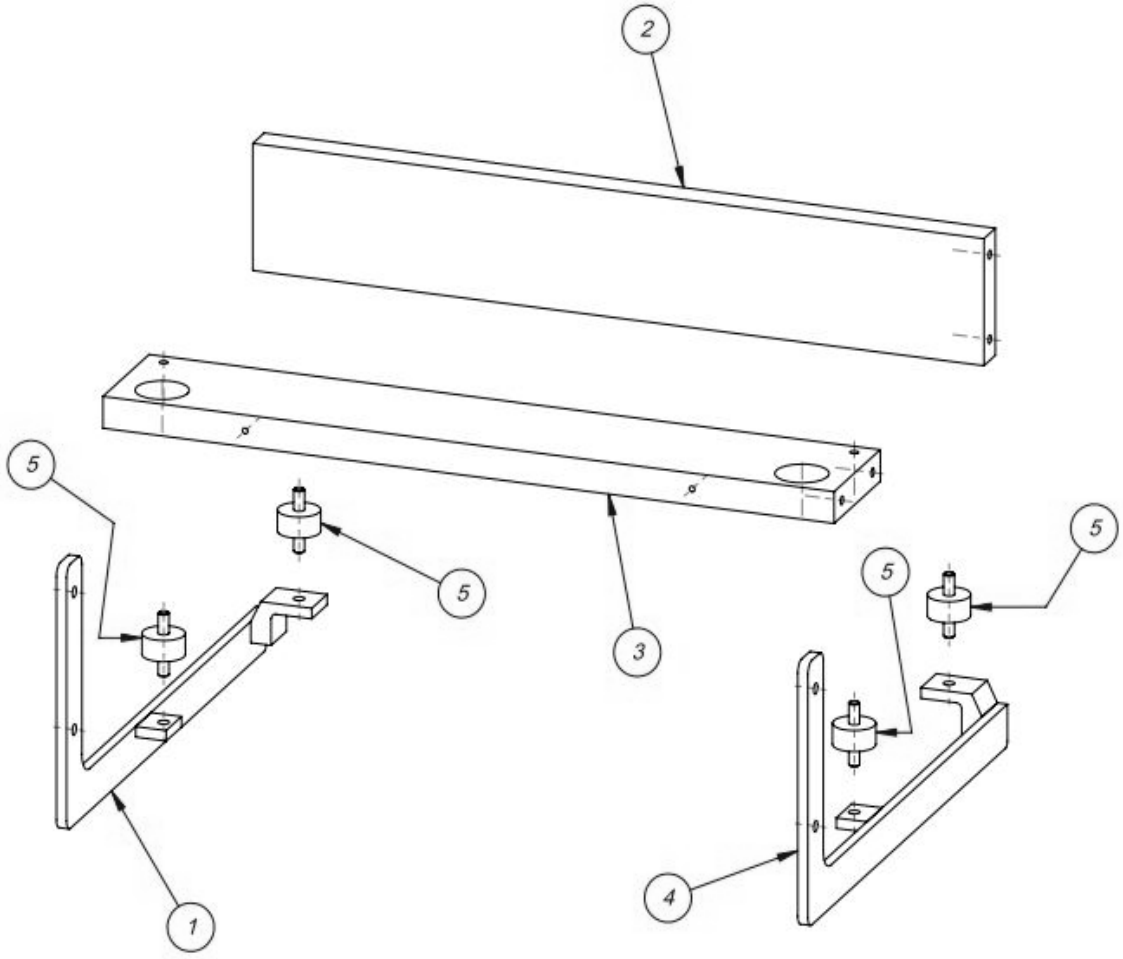
PN: TA-T2Z8000

F. Mounting Assembly, Ti-1000Z to US-9000

PN: TA-T2Z2000-US9

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	D9-149479-901	PRINTER MOUNT (LEFT)
2	1	D9-149479-902	SUPPORT BRACE MODIFICATION
3	1	D9-149479-903	NIP ROLL SUPPORT BRACE MODIFICATION
4	1	D9-149479-904	PRINTER MOUNT (RIGHT)
5	4	TP-110761	VIBRATION MOUNT

NOTE: This assembly is only included in the Ti-1000Z Inline Thermal Printer when the printer is operating with the combined T-1000-S14/US-9000 system.

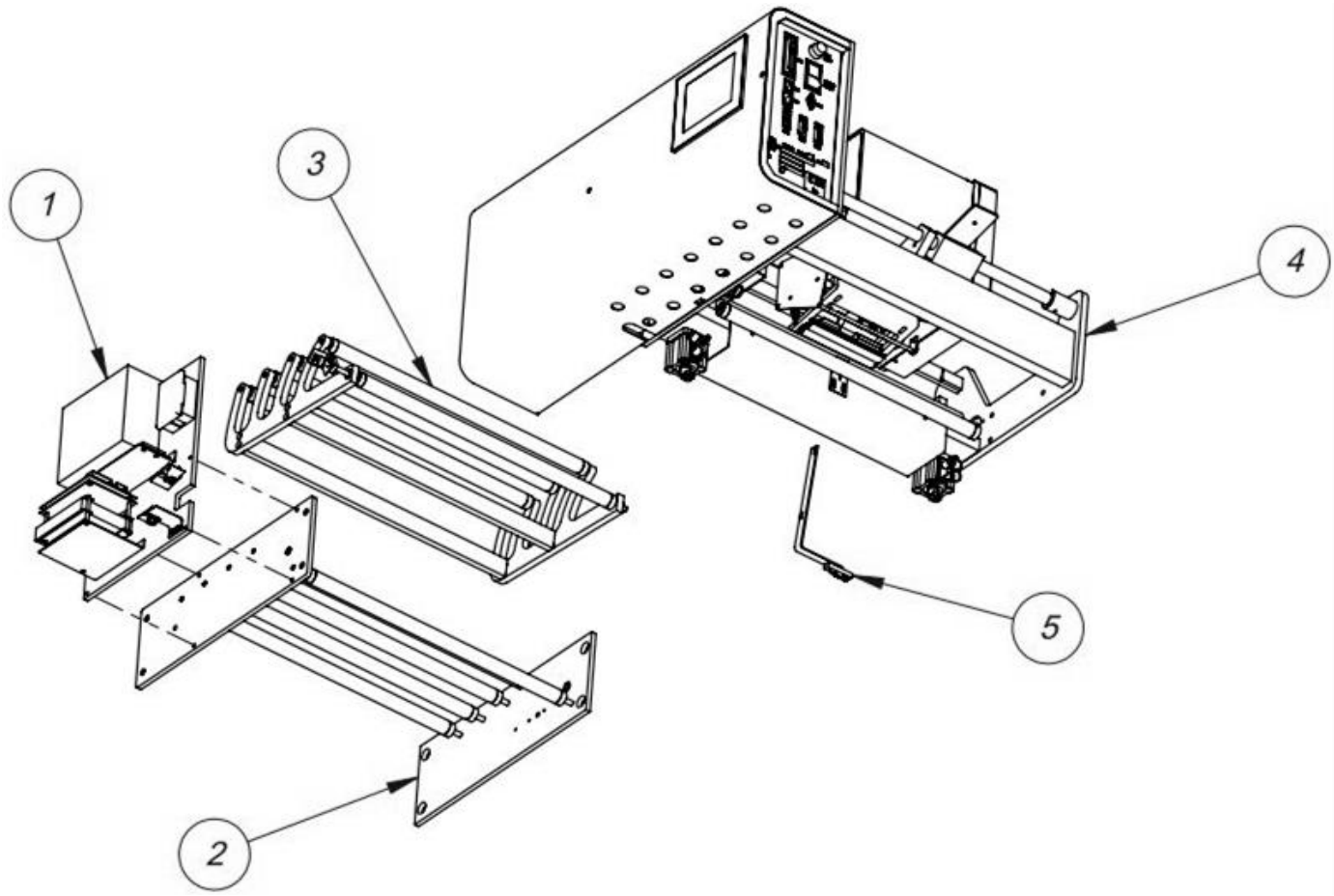


6.2 Ti-1000Z Roll-A-Print

T-TI1000Z-RAP

ITEM NO.	QTY.	PART NO.	DESCRIPTION	PAGE NO.
1	1	TA-T2Z-1000RAP	RAP ELECTRONICS ASSEMBLY	
2	1	TA-T2Z-2000RAP	RAP FRAME ASSEMBLY	
3	1	TA-T2Z-3000RAP	RAP RACK ASSEMBLY	
4*	1	T-TI1000Z	TI-1000Z INLINE THERMAL PRINTER	
5	1	TA-T2Z-BO10	BAG OUT DETECTOR ASSEMBLY	--

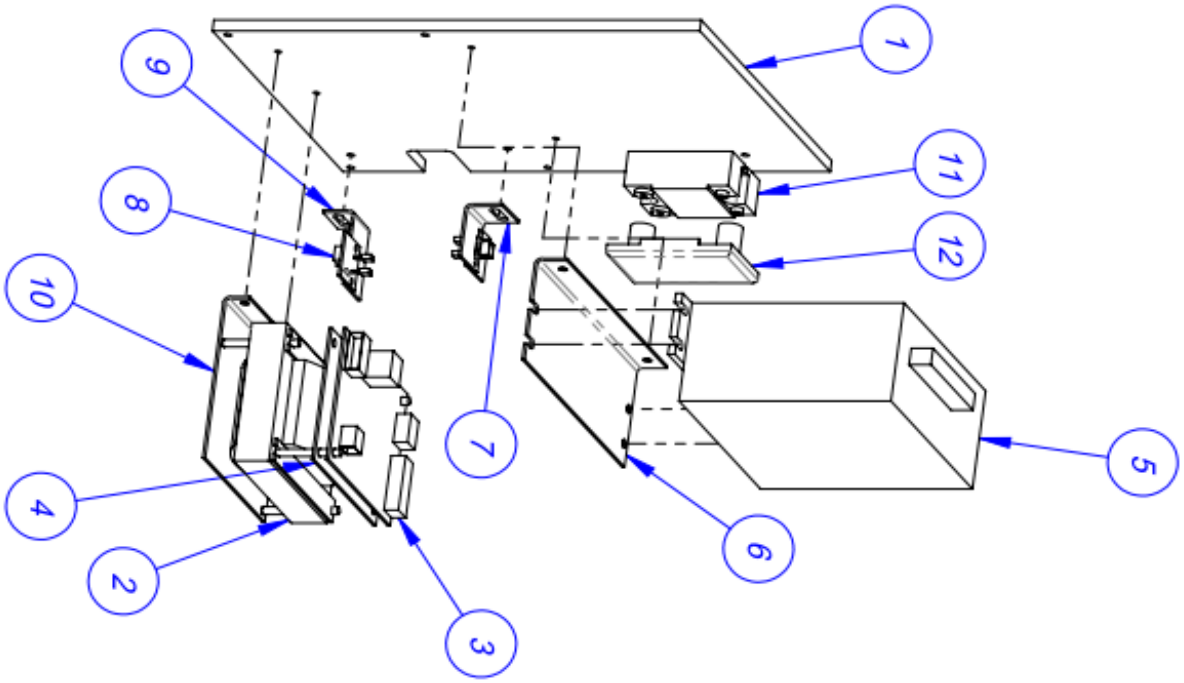
**NOTE: For parts lists and drawings of Item 4, the Ti-1000Z Inline Thermal Printer, please refer to section 6.1.*



A. RAP Electronics Assembly

PN: TA-T2Z-1000RAP

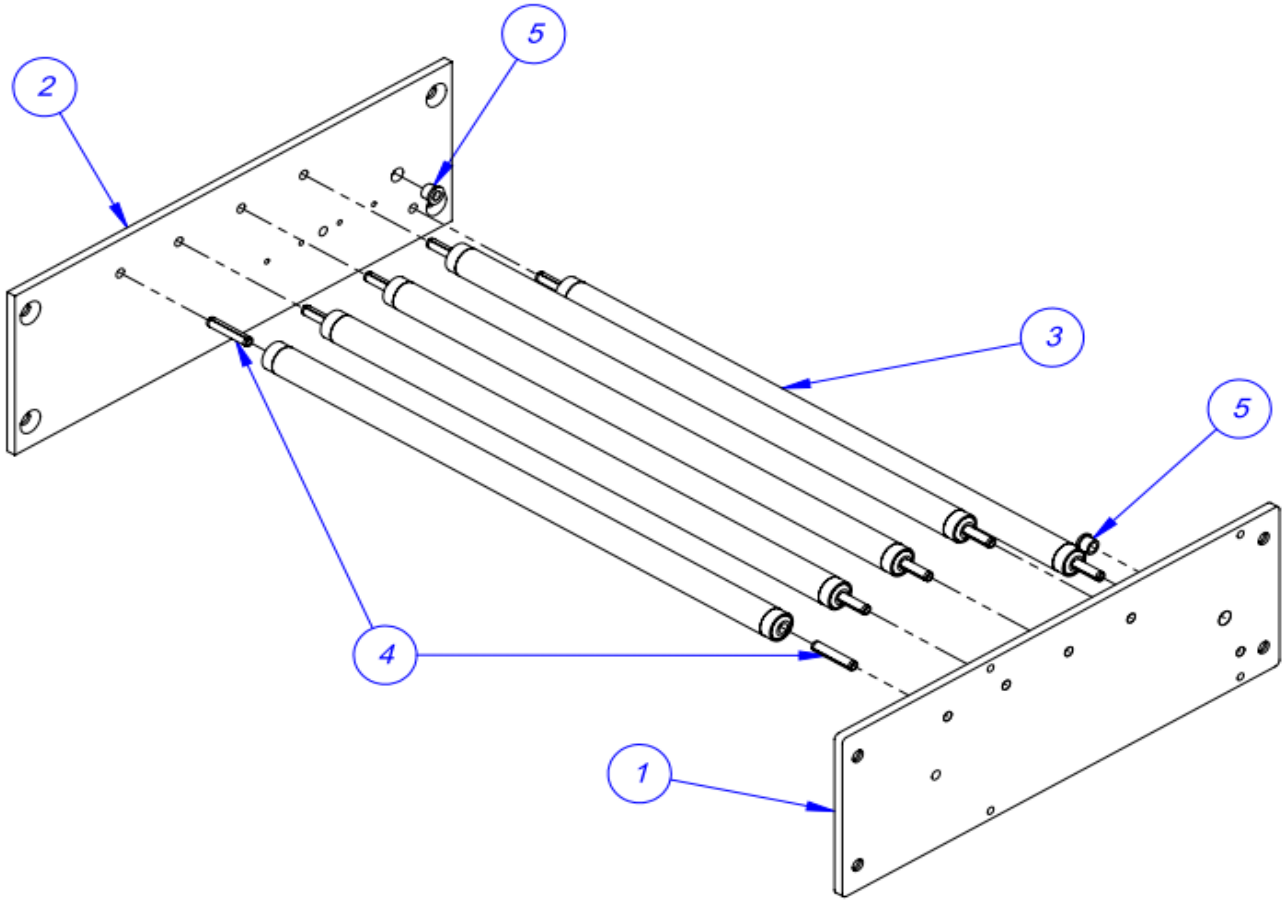
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TP-T2ZRAP101	ELECTRONICS BACK PANEL
2	1	TP-211386	TRANSFORMER
3	1	TP-T1ME00301	HIGH VOLTAGE BOARD
4	1	HP-58243A1	HEAT SHIELD
5	1	TP-501169-1	DRIVER
6	1	TP-T2ZRAP102	DRIVE MOUNT
7	1	TP-T2ZRAP104	PRINTER STOP SENSOR MOUNT
8	2	TP-T8ME0161	ANTI-JAM SENSOR T-375
9	1	TP-T2ZRAP105	PRINTER STOP SENSOR MOUNT
10	1	TP-T2ZRAP106	HIGH VOLTAGE MOUNT
11	1	TP-215000	SOLID STATE RELAY
12	1	TP-215000A	COVER



B. RAP Frame Assembly

PN: TA-T2Z-2000RAP

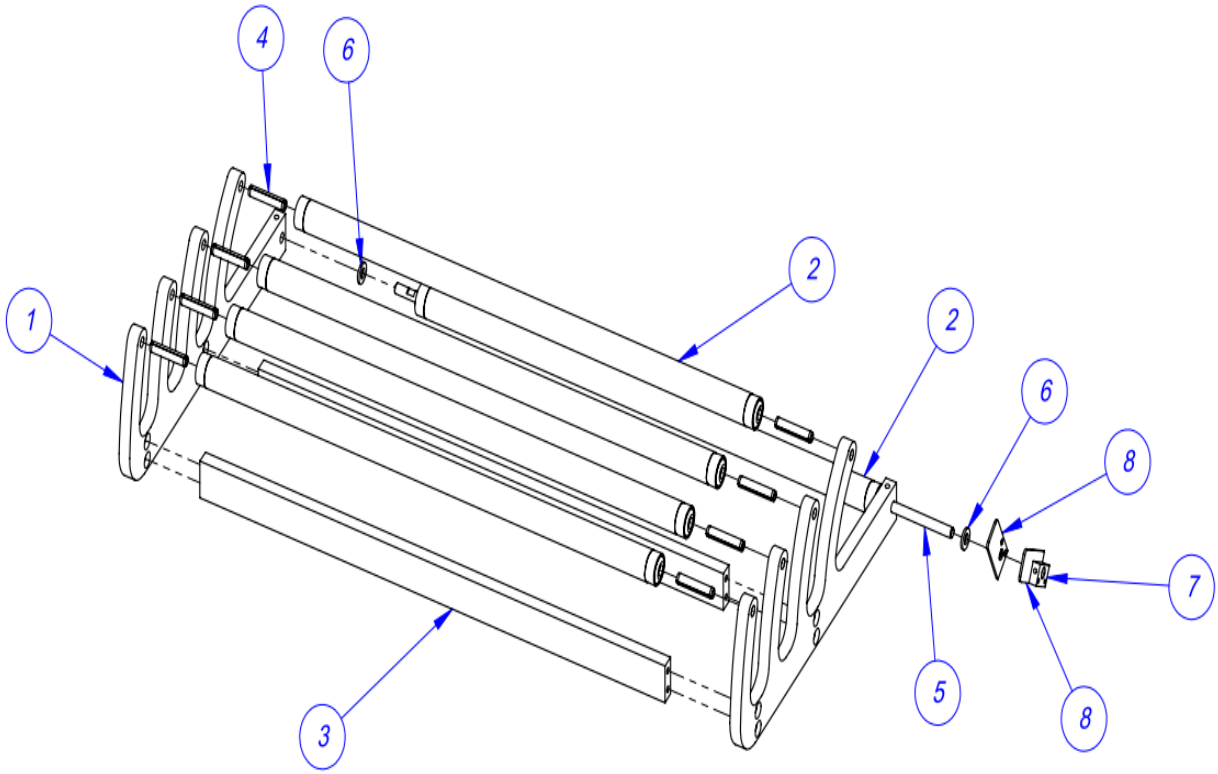
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TP-T2ZRAP201	SIDE FRAME (RIGHT)
2	1	TP-T2ZRAP202	SIDE FRAME (LEFT)
3	5	TP-T1MC00052	STANDARD ROLLER
4	10	TP-106106	SPRING PIN
5	2	TP-107152	FLANGED BEARING



C. RAP Rack Assembly

PN: TA-T2Z-3000RAP

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	2	TP-T2ZRAP301	RACK ARM
2	4	TP-T1MC00052	STANDARD ROLLER
3	2	TP-T2ZRAP302	SPREADER
4	8	TP-106106	SPRING PIN
5	1	TP-T2ZRAP303	RACK PIVOT ROD
6	2	TP-107113	THRUST BEARING
7	2	TP-T2ZRAP304	FLAG BLOCK
8	2	TP-T2ZRAP305	SENSOR FLAG

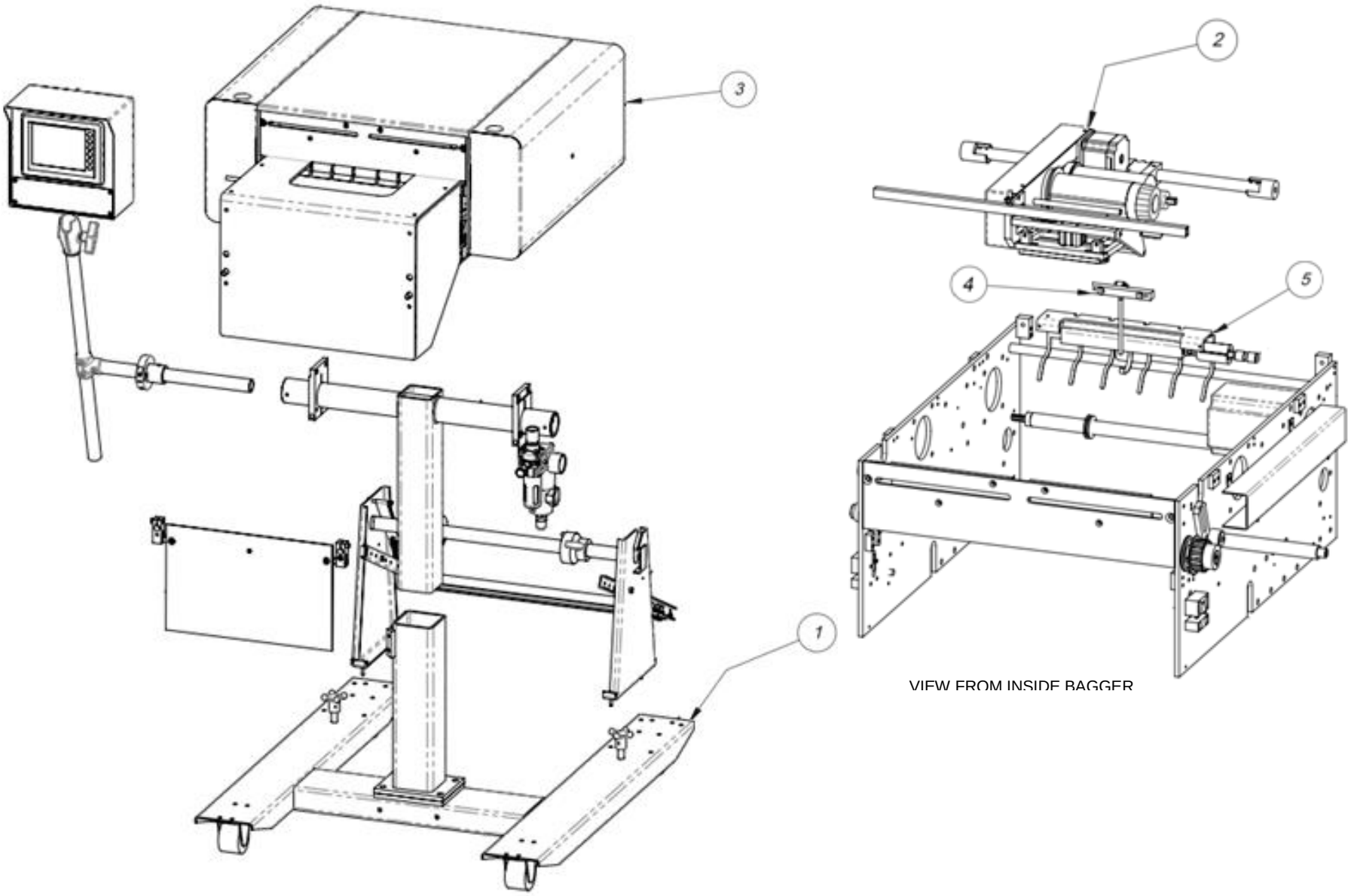


6.3 T-1000-S14 Next Bag Out Printer/Bagger

T-T1000-S14NB

ITEM NO.	QTY.	PART NO.	DESCRIPTION	PAGE NO.
1	1	T-T1000-S14	T-1000 ADVANCED POLY-BAGGER	--
2	1	TA-TI1000ZNB	ZEBRA NBO PRINTER	81
3	1	TA-T1-S14PRINT	COVERS AND GUARDING	88
4	1	TA-T10001-1NB	AIR PULSE ASSEMBLY	91
5	1	TA-T10001-2NB	AIR KNIFE ASSEMBLY	92

NOTE: For parts lists and drawings of Item 1, the T-1000 Advanced Poly-Bagger, please refer to Chapter 5 of the T-1000-S14 Operation Guide.

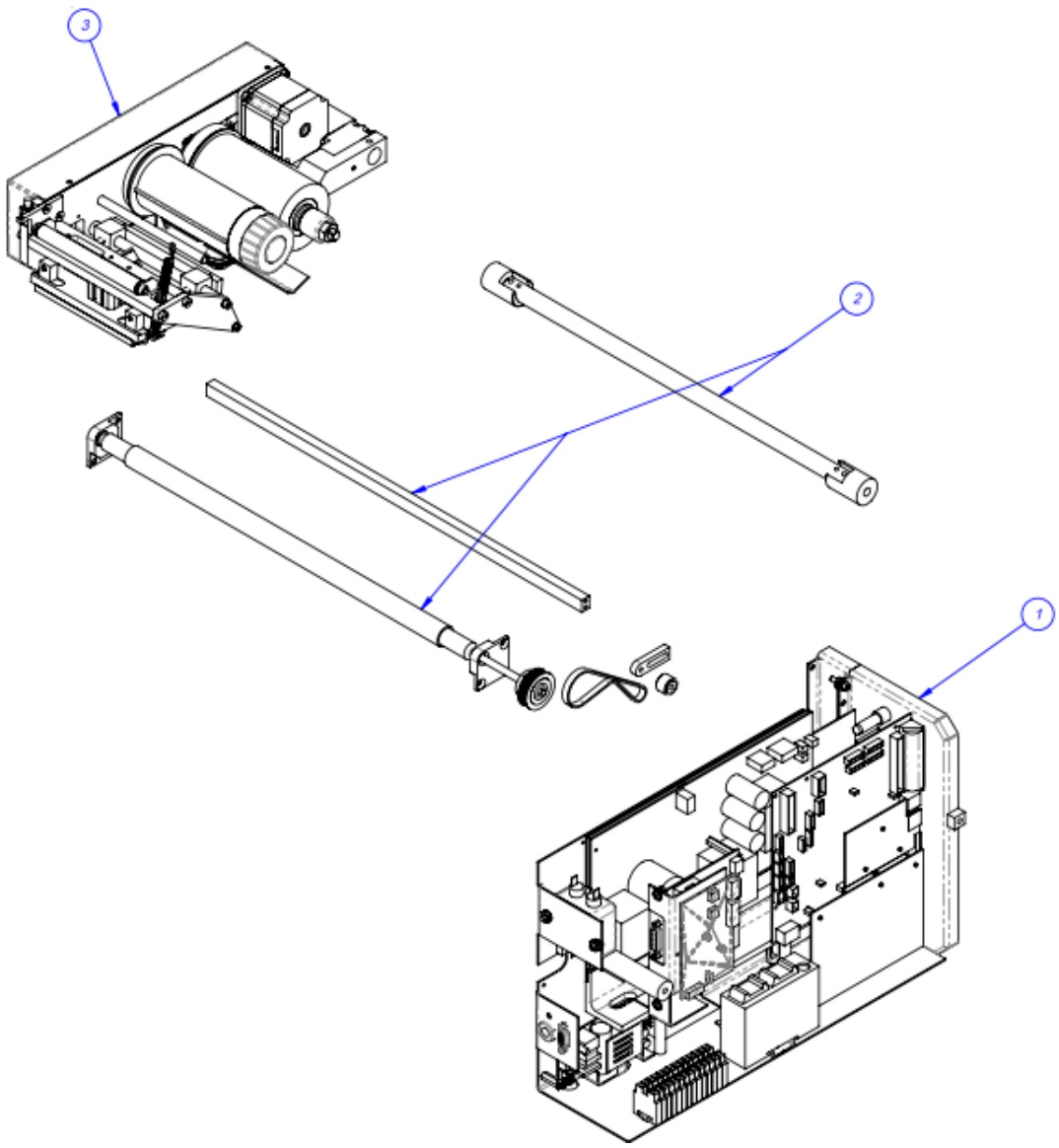


VIEW FROM INSIDE BAGGER

A. Zebra NBO Inline Thermal Printer

PN: TA-TI1000ZNB

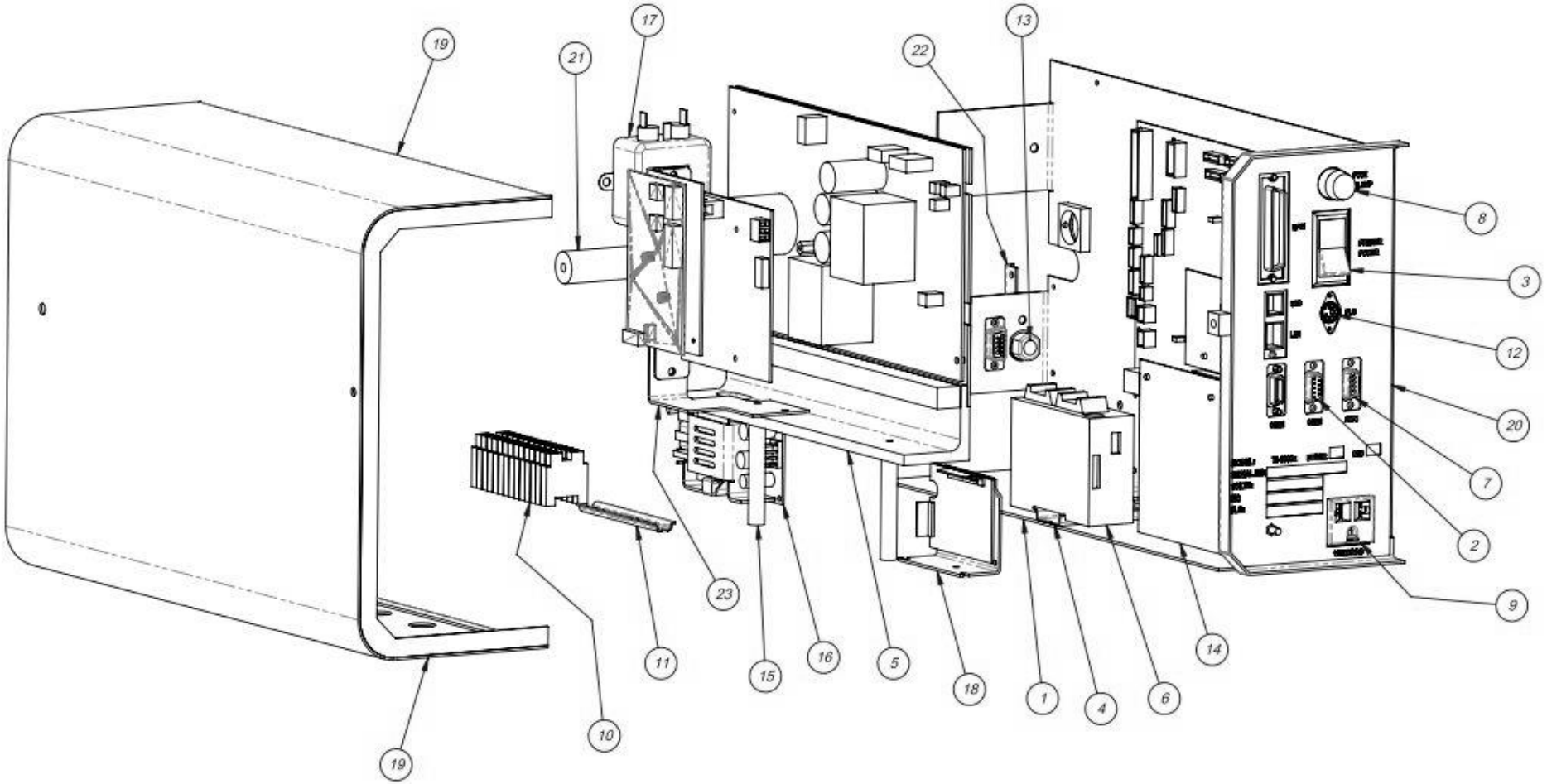
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TA-T2Z1000	ELECTRONICS ASSEMBLY
2	1	TA-T2Z2000NB	MOUNTING ASSEMBLY
3	1	X-TA-T2Z8000NB	ZEBRA PRINTER ASSEMBLY



A.1 Electronics Assembly

PN: TA-T2Z1000

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TP-T2Z1005	ELECTRONICS BASE
2	2	TP-212247	9 PIN D-SUB FEMALE CONNECTOR
3	1	TP-215384	POWER SWITCH
4	1	TP-218020	DIN RAIL
5	1	VP-Z-33050M	POWER SUPPLY BOARD
6	1	TP-220511	PLC, FPO-E32T-A EXPANSION I/O
7	1	TP-212246	9 PIN D-SUB MALE CONNECTOR
8	1	TP-207216	FUSE HOLDER
9	1	TP-212410	AC OUTLET
10	14	TP-208142	LARGE TERMINAL
11	1	TP-218021	DIN RAIL
12	1	TP-212160	5 POS MINI DIM
13	1	TP-112240	POWER CORD STRAIN RELIEF
14	1	V-Z-113-8K1-00070	XI4 300 PRINTER
15	2	TP-T2Z1008	STAND-OFF – 2.5"
16	1	TP-213361	24VDC 3 AMP POWER SUPPLY
17	1	TP-205108	EMI FILTER CORCOM
18	1	TP-501156	DC MOTOR DRIVE, DRIVEN PRINT ROLL
19	1	TP-T2Z1003	PRINTER ELECTRONICS COVER
20	1	TP-T2Z1007	OVERLAY
21	1	TP-T2Z2012	COVER PANEL STAND-OFF
22	1	TP-T2Z1011	COVER PLATE
23	1	TP-T2Z1004	APP BOARD AND MOUNT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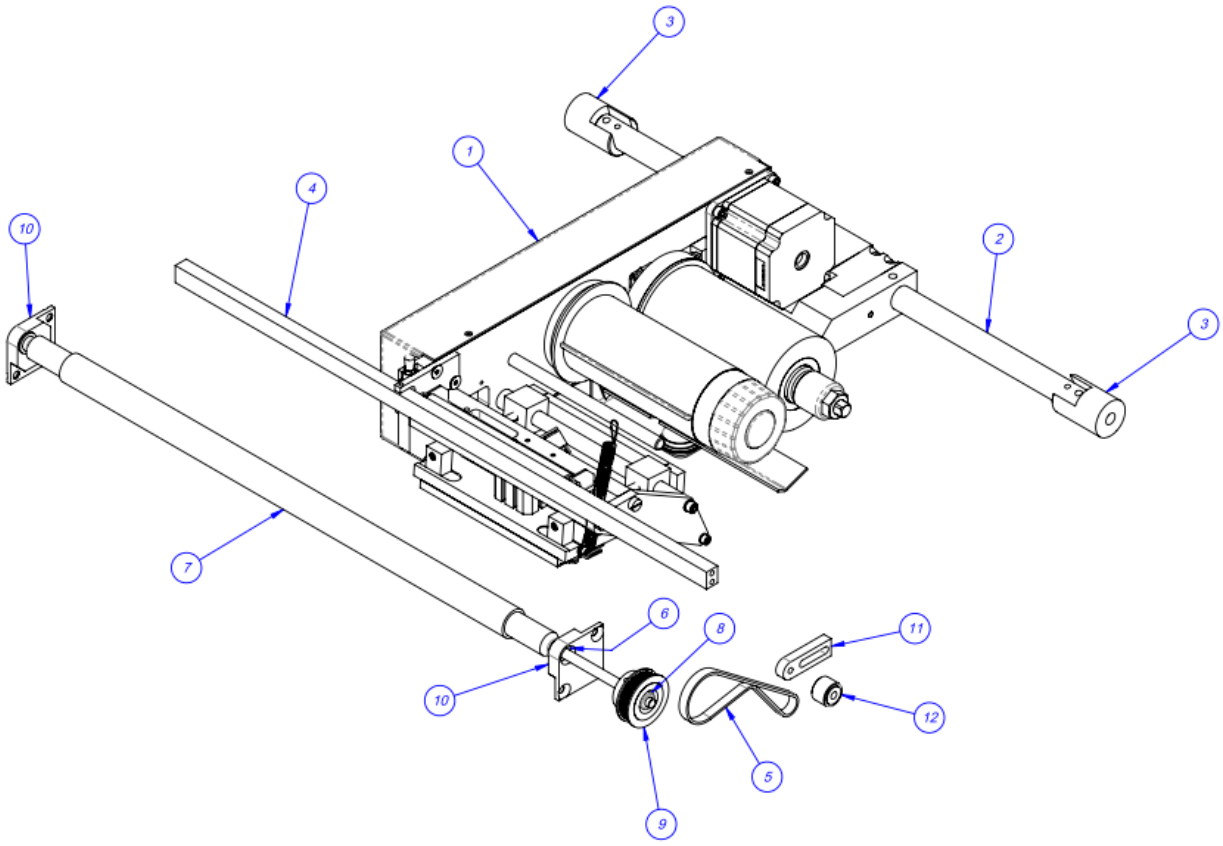
A.2 Mounting Assembly

PN: TA-T2Z2000NB

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TA-Ti1000ZNB	ZEBRA NBO PRINTER
2	1	TP-T2Z2004	PIVOT SHAFT
3*	2	TP-T14M1035	GUIDE ROD HOLDER
4	1	TP-T2Z2005NB	LATCH BAR
5	1	TP-503151	TIMING BELT
6	2	TP-504097	PRCISION FLANGED BALL BEARING
7	1	TP-T2Z2006NB	DRIVEN PRINT ROLL
8	1	TP-504139	CLUTCH BEARINGS
9	1	TP-T2Z2008	PULLEY, PRINT ROLL
10	2	TP-T2Z2011NB	BEARING PLATE
11	1	TP-T15M8007	BELT TENSIONER
12	1	TP-503138	McGILL #10 BORE, .629 O.D., 15/32 WIDE (PRINT BELT TENSIONER)



A.3 Zebra Printer Assembly

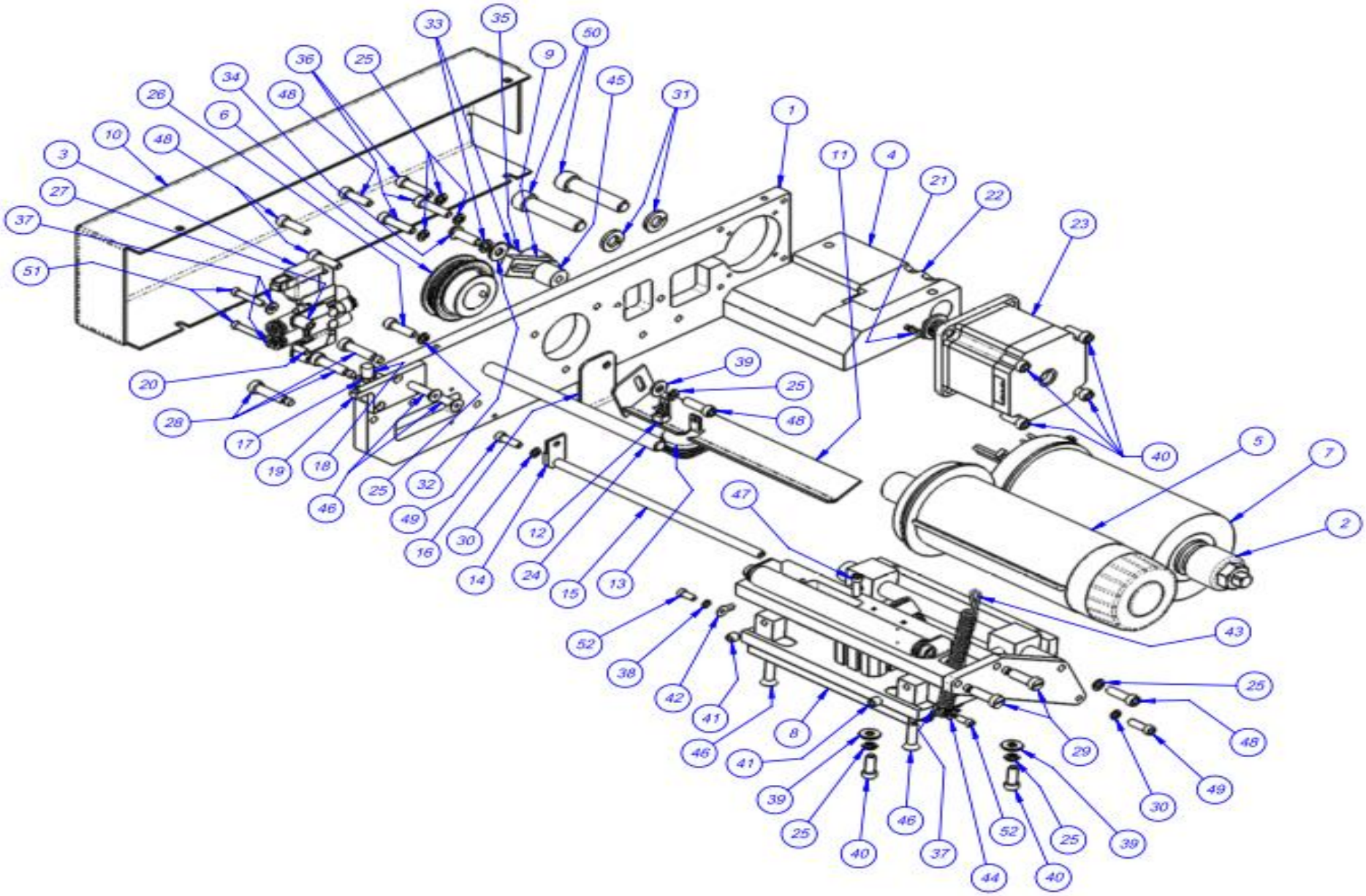
PN:TA-T2Z8000NB

IREM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TP-T2Z-8001NB	PRINTER SIDE PLATE
2	1	VP-Z-P1006058	Xi4 RIBBON SUPPLY SPINDLE MAINT. KIT
3	1	TP-402255	VALVE
4	1	TP-T2Z3004NB	PIVOT BLOCK
5	1	VP-Z-41150M	TAKE UP SPINDLE
6	1	TP-T15M-8042	RIBBON TAKE-UP PULLEY
7	1	TH-ZEB-B-409	RIBBON ROLL
8	1	X-TA-T2Z800NB	NBO PRINTER HEAD
9	1	TP-T15M8007 & TP-503138	PRINTER ROLL IDELER
10	1	TP-T2Z-8008 NB	PRINTER COVER
11	1	TP-T2Z8011NB	SENSOR BRACKET
12	1	VP-Z-46665M	RIBBON SENSOR
13	1	TP-216101	REFLECTOR 1" DIAMETER
14	1	TP-T15M8032	SHAFT MOUNT
16	1	TP-T15M8031	ROLLER SHAFT
16	1	TP-T2Z8005NB	REFLECTOR MOUNT
17	1	TP-T2Z-8003NB	CATCH
18	1	TP-109228	McMASTER-CARR #60395K570, STEEL MINIATURE HANDLE
19	1	TP-T2Z-8002NB	LATCH PLATE
20	1	TP-106304	DOWEL PIN
21	1	TP-108223	SPRING PLUNGER
22	1	TP-T2z8006NB	LATCH BLOCK
23	1	VP-Z-46198M	MOTOR
24	1	TP-T2Z8012NB	RIBBON ROD

Zebra Printer Assembly (Continued)

PN:TA-T2Z8000NB

25	8	TP-102153	WASHER #8 SPLIT LOCK
26	1	TP-103182	SCREW, SHCS #8-32 x 5/8
27	2	TP-104121	NYLON SPACER
28	3	TP-103316-1	SCREW, SHSS 3/16 x 3/4
29	2	TP-103317	SCREW, SHSS 3/16 x 5/8
30	2	TP-102152	WASHER #6 SPLIT LOCK
31	2	TP-102156	5/16 LOCK WASHER
32	1	TP-102150	#10 FLAT WASHER
33	2	TP-102154	#10 Lock Washer
34	1	TP-102189	SCREW, BHCS 10-32 x 5/8
35	1	TP-103130	SCREW, SHCS #10-32 x 3/4
36	3	TP-103117	SCREW, SHCS #8-32 x 3/4
37	3	TP-102131	#4 FLAT WASHER
38	3	TP-102101	WASHER #4 INTERNAL; TOOTH
39	3	TP-102133	#8 FLAT WASHER
40	6	TP-103116	SCREW, SHCS #8-32 x 1/2
41	2	TP-103261	#10-32 x 1/4 SET SCREW
42	1	TP-108342	TERMINAL
43	1	TP-108127	Extension SPRING
44	1	TP-102101	#4 LOCK WASHER
45	1	TP-104152	McMASTER-CARR #4325A27
46	4	TP-103391	SCREW, FHCS #8-32 x .750
47	1	TP-103010	SCREW, SHCS #5-40 x 1/2
48	5	TP-102016	SCREW, SHCS 8-32 x 5/8
49	2	TP-103116	SCREW, SHCS 1/4-20 x 1-1/4
50	2	TP-103168	SCREW, SHCS 5/16-18 x 1-1/2
51	2	TP-103106	SCREW, SHCS 4-40 x 3/4 S.S.
52	2	TP-103102	SCREW, SHCS 4-40 x 5/16 S.S.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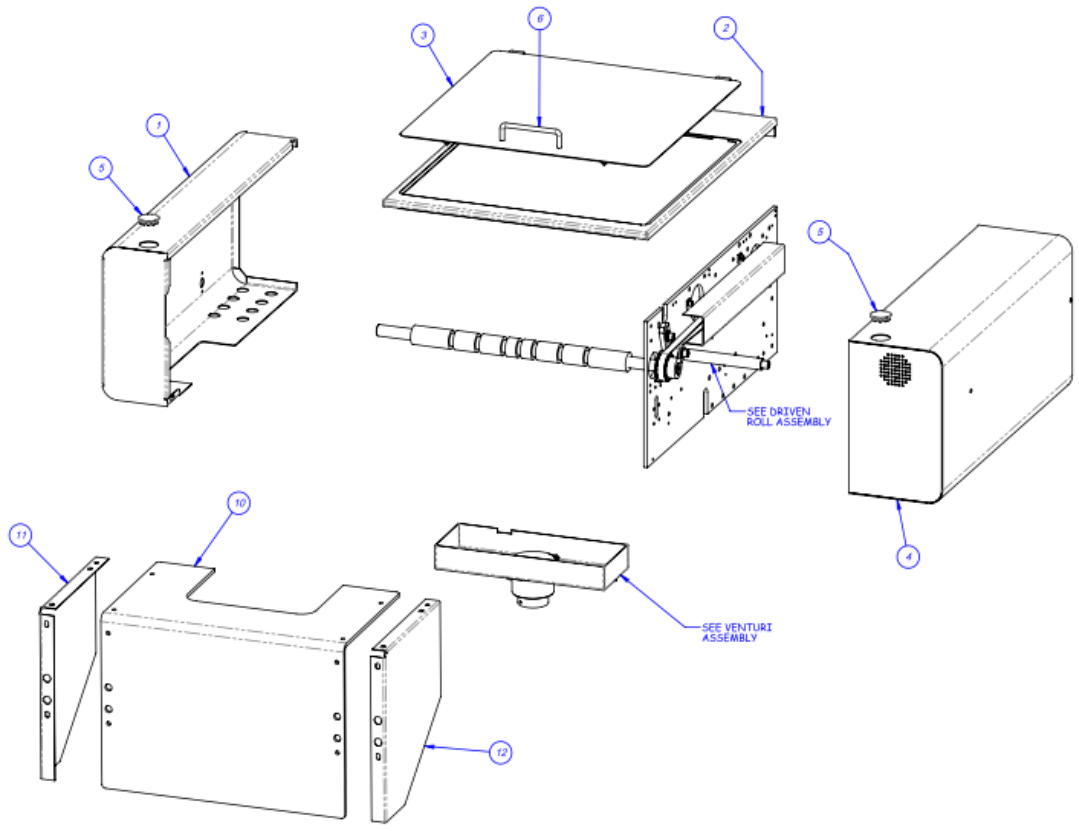
B. Covers and Guarding

PN: TA-T1-S14PRINT

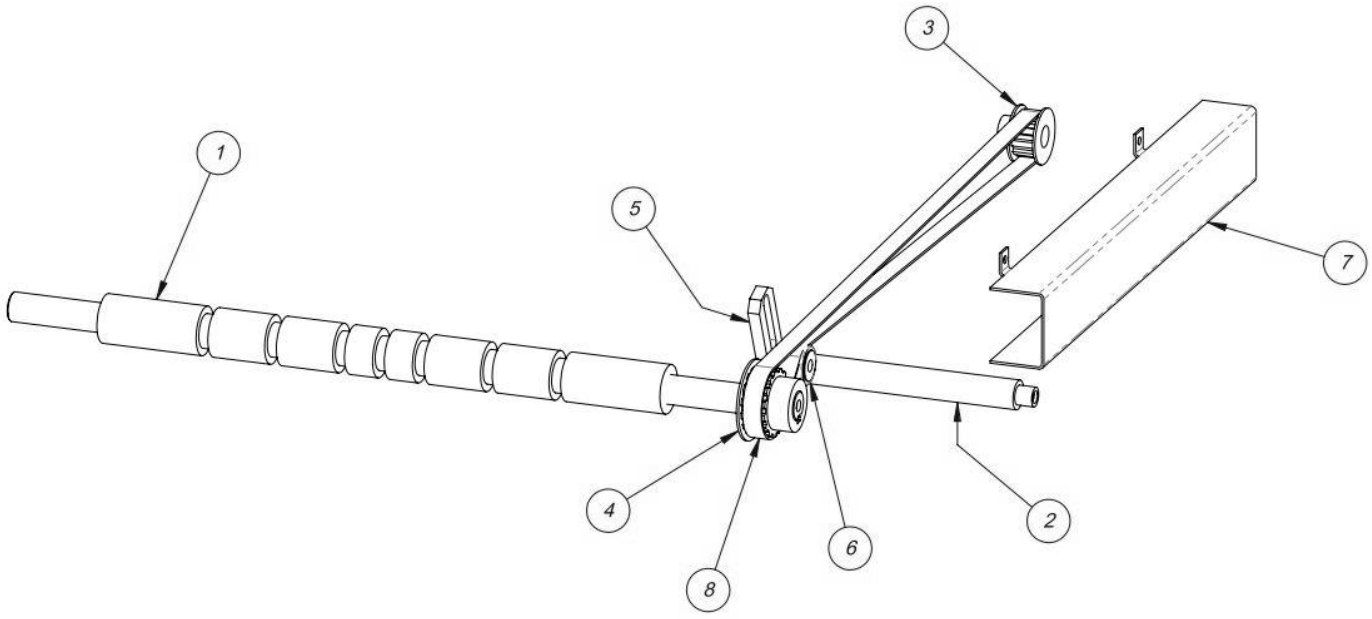
TI-S14 PRINT COVERS AND GUARDINGS			
ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	TP-T1MD00004-S14	ELECTRONICS COVER
2	1	TP-T1MD00044NB	TOP COVER
3	1	TP-T1MD00044-1NB	PRINTER COVER
4	1	TP-T1MD00005-S14NB	PRINTER ELECTRONICS COVER
5	2	TP-111241	SNAP BUTTON PLUG
6	1	TP-109158	4"HANDLES
		See p.89	DRIVEN ROLLER ASSEMBLY
		See p.90	VENTURI ASSEMBLY
10	1	TP-T1MD00116-2	LEXAN GUARD 5.25" (13.3 cm) PASS THROUGH
11	1	TP-T1MD00226-3	LEXAN GUARD BRACKET
12	1	TP-T1MD00226-4	LEXAN GUARD BRACKET



PN: TA-T1-S14PRINT

Driven Roll Assembly

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TP-T1MC00017NB	RUBBER ROLLER
2	1	TP-T1MC00082NB	COVER STAND-OFF
3	1	TP-T14M1027NB	MOTOR PULLEY
4	1	TP-T1MC00162S14NB	DRIVEN PULLEY
5	1	TP-T1MC00091	BELT TENSIONER
6	1	TP-504132	CAM FOLLOWER
7	1	TP-T1MD00050NB	BELT COVER
8	1	TP-503157	BELT

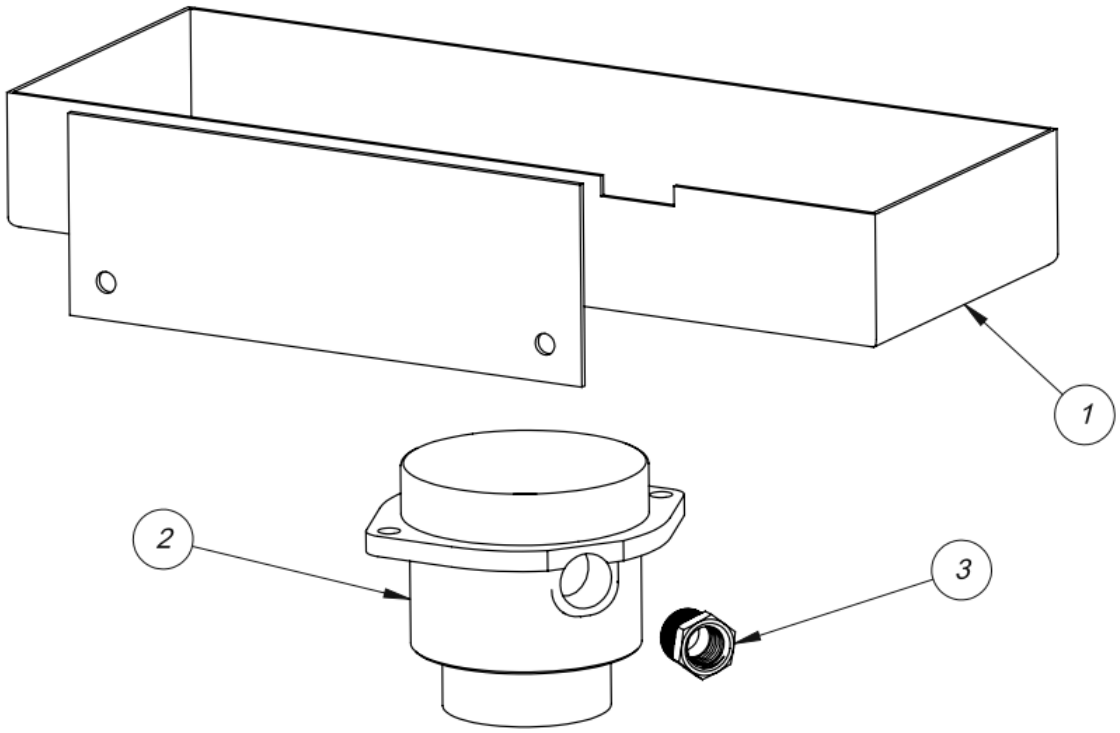


B.2 Covers and Guarding, Continued

PN: TA-T1-S14PRINT

Venturi Enclosure Assembly

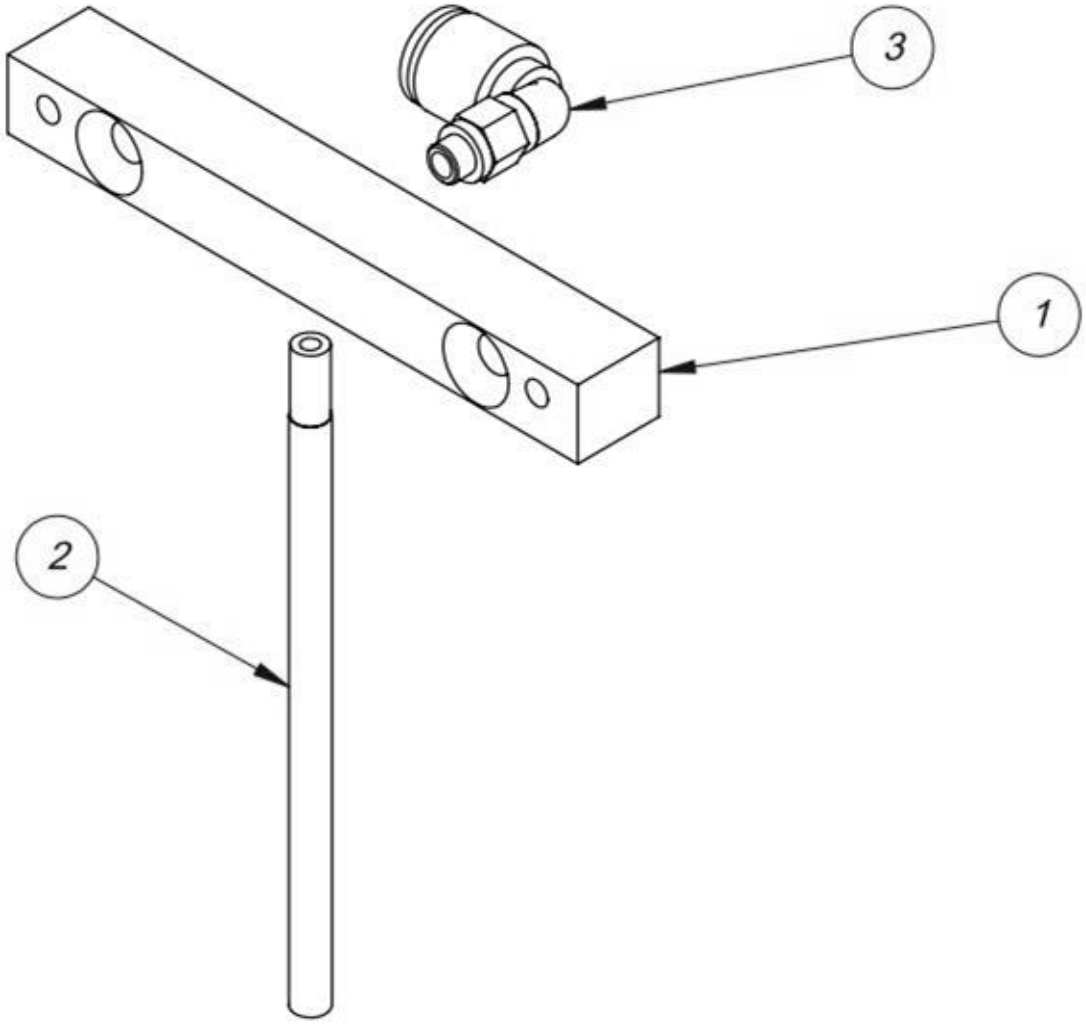
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TP-TS10-109	VACUUM ENCLOSURE
2	1	TP-405272	AIR AMPLIFIER
3	1	TP-106440	REDUCING HEX BUSHING (4429K412)



C. Air Pulse Assembly

PN: TA-T10001-1NB

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TP-BP-1013-NB	AIR KNIFE MOUNTING BAR
2	1	TP-BP-1015-S14	AIR PULSE NOZZLE
3	1	TP-401277	ELBOW, 1/4" TUBE x 10/32



D. Air Knife Assembly

PN: TA-T10001-2NB

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TP-T1MC00083	HIGH VOLTAGE SENSOR INSULATOR
2	1	TP-405268	AIR KNIFE
3	1	TP-T1MC00020NB	FINGER PLATE
4	1	TA-T100124NB	SENSOR, HIGH VOLTAGE NBO
5	1	TP-T1MC00022NB	AIR KNIFE MOUNT
6	1	TP-401292	STRAIGHT, 1/4" POLY x 1/4" NPT
7	1	TP-406181	FILTER
8	1	TP-401262	UNION, STRAIGHT 1/4" TUBE
9	1	TP-T1MC00025NB	HIGH VOLTAGE SHIELD