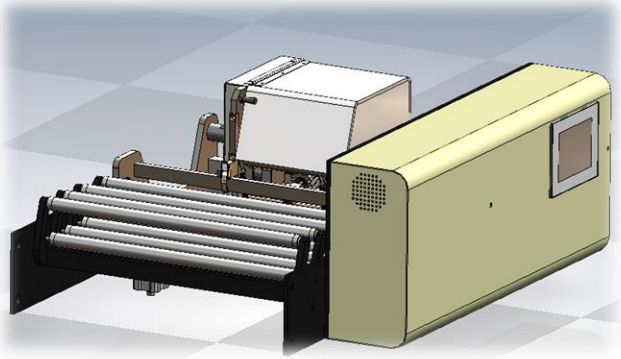
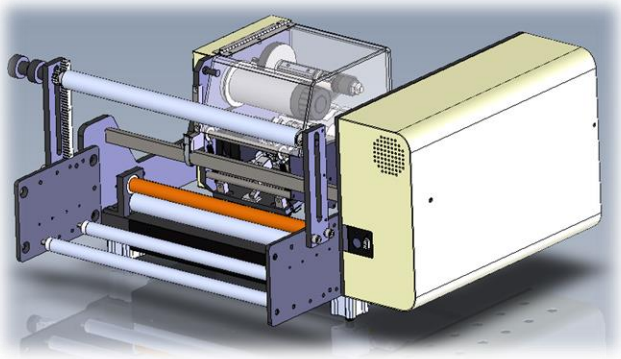
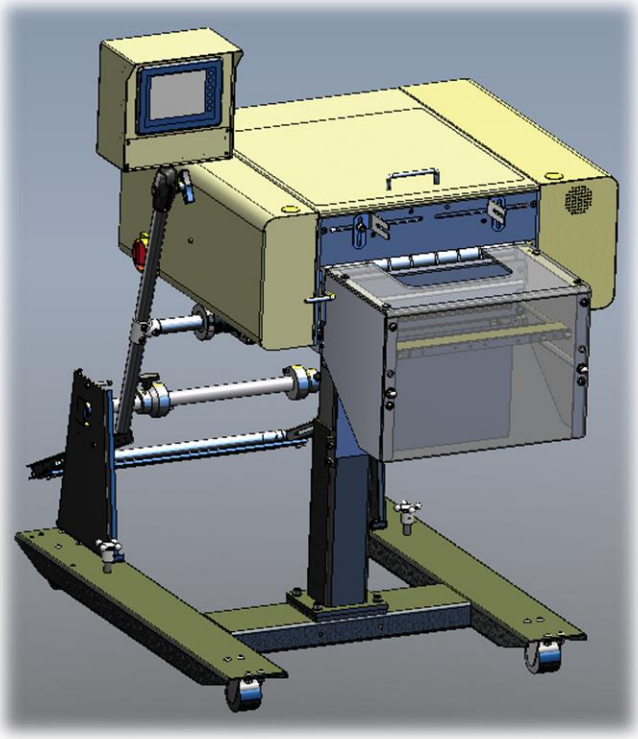
Ti-1000Z Inline Printer
Ti-1000Z Roll-A-Print
T-1000-S14 Next Bag Out

Operation Guide, Version 1B

Setup, Operation and Parts Manual







Advanced Poly-Packaging, Inc.

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Acknowledgments

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Limited Warranty and Disclaimer

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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.

TABLE OF CONTENTS

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Chapter 1: Introduction

Welcome
Overview
Special Features
Using This Manual
Warranty Registration

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 serves 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, and 5 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

Chapter Summary
Safety, Risks
Installation Procedures
Air and Power Requirements
Main Power
Rear Power Switch
Bag Threading
Ribbon Threading
Cycle Operation of the Printer
Adjusting Rear Tension
Note on Adjustments to the Printer

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 and 2-4 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. Refer to Figure 2-7 for proper threading of the RAP 1400/2800.

2.8 Ribbon Threading

Refer to Figure 2-5 for proper ribbon threading of the Ti-1000Z and Ti-1000Z RAP. Refer to Figure 2-6 for proper ribbon threading of the T-1000-S14 NBO and the T-1000-S14 NBO80Z. The print head assembly can be rotated up and back for easy ribbon changes. Release the locking mechanism and raise the print head assembly.

To replace the ribbon on the T-1000-S14 NBO80Z, the print head must be tilted and the sleeve pushed over before changing the ribbon. Please See Figure 2-8 and Figure 2-9 for step by step instructions.

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

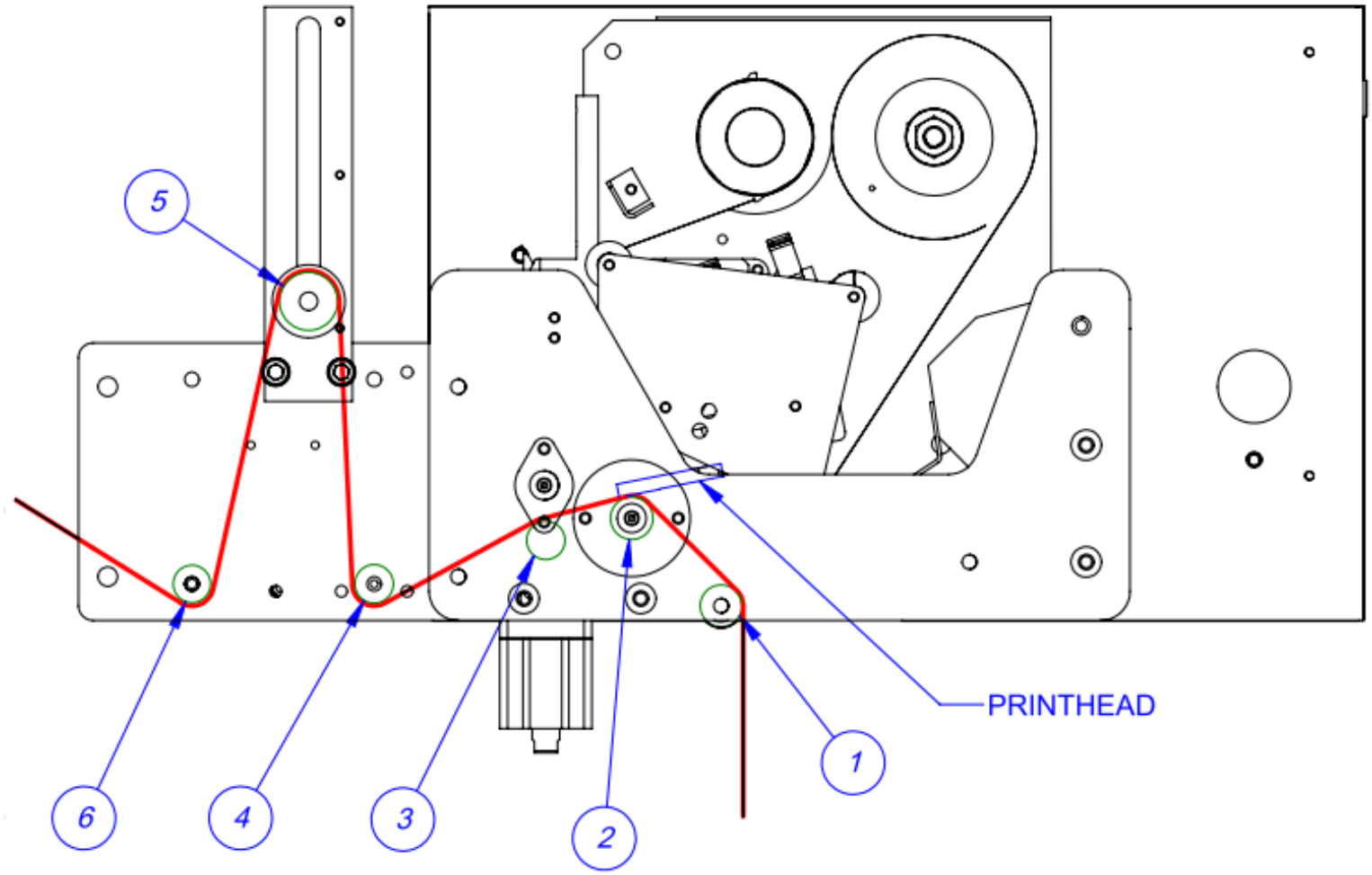

Figure 2-1

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

SINGLE DANCER

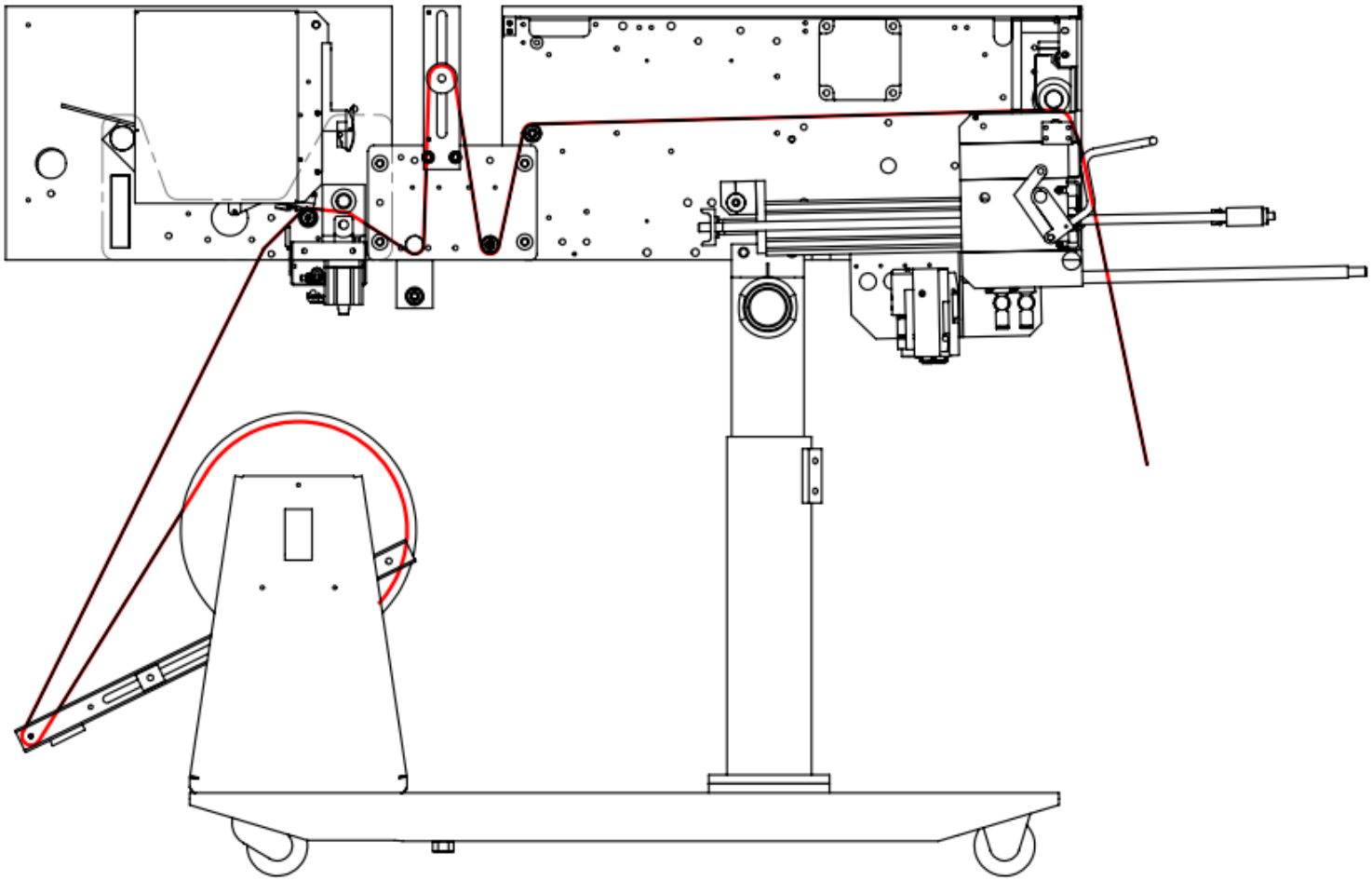

Figure 2-2

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

SINGLE DANCER

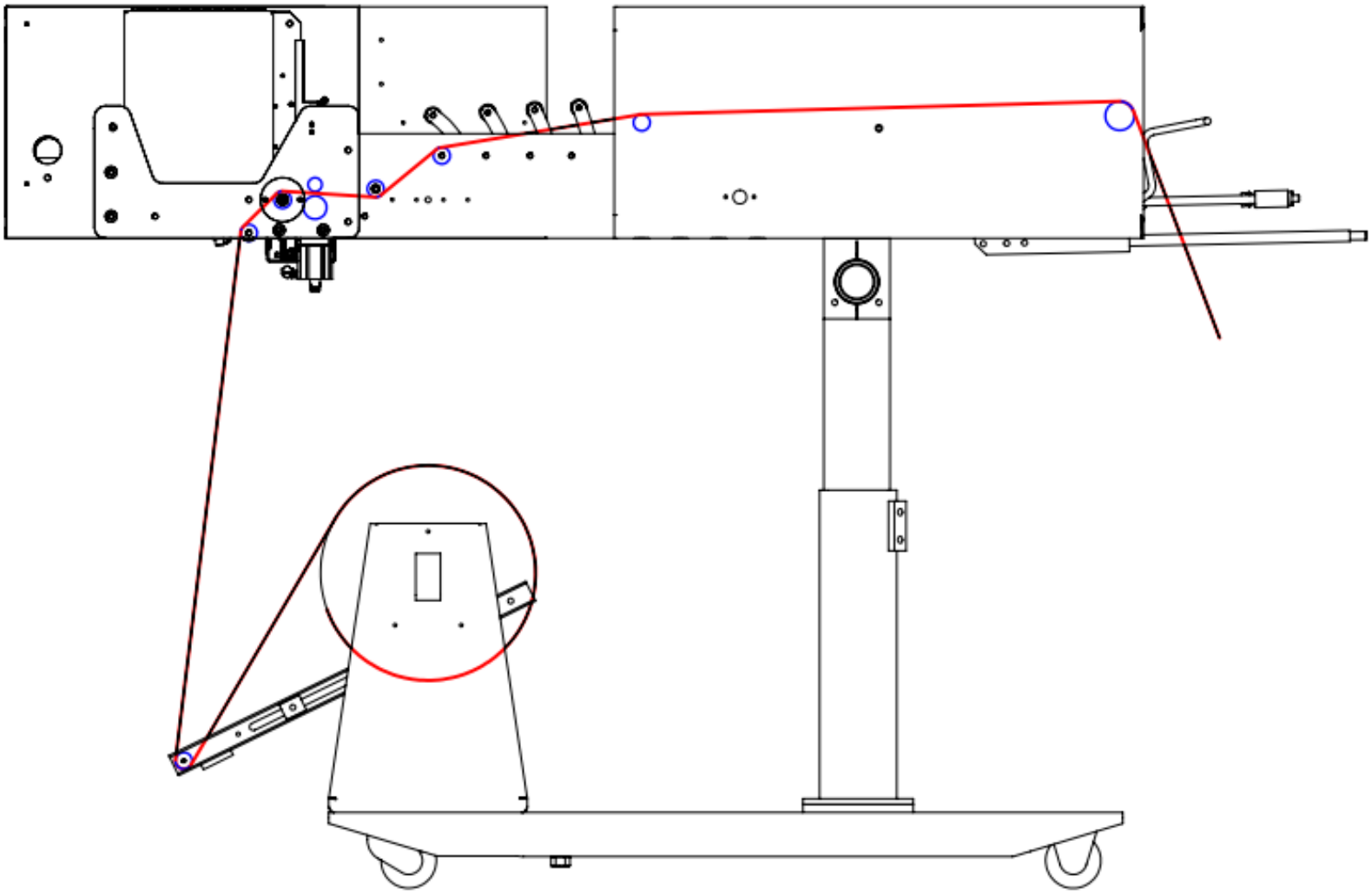

Figure 2-3

T-1000-S14 NBO THREADING DIAGRAM

SINGLE DANCER

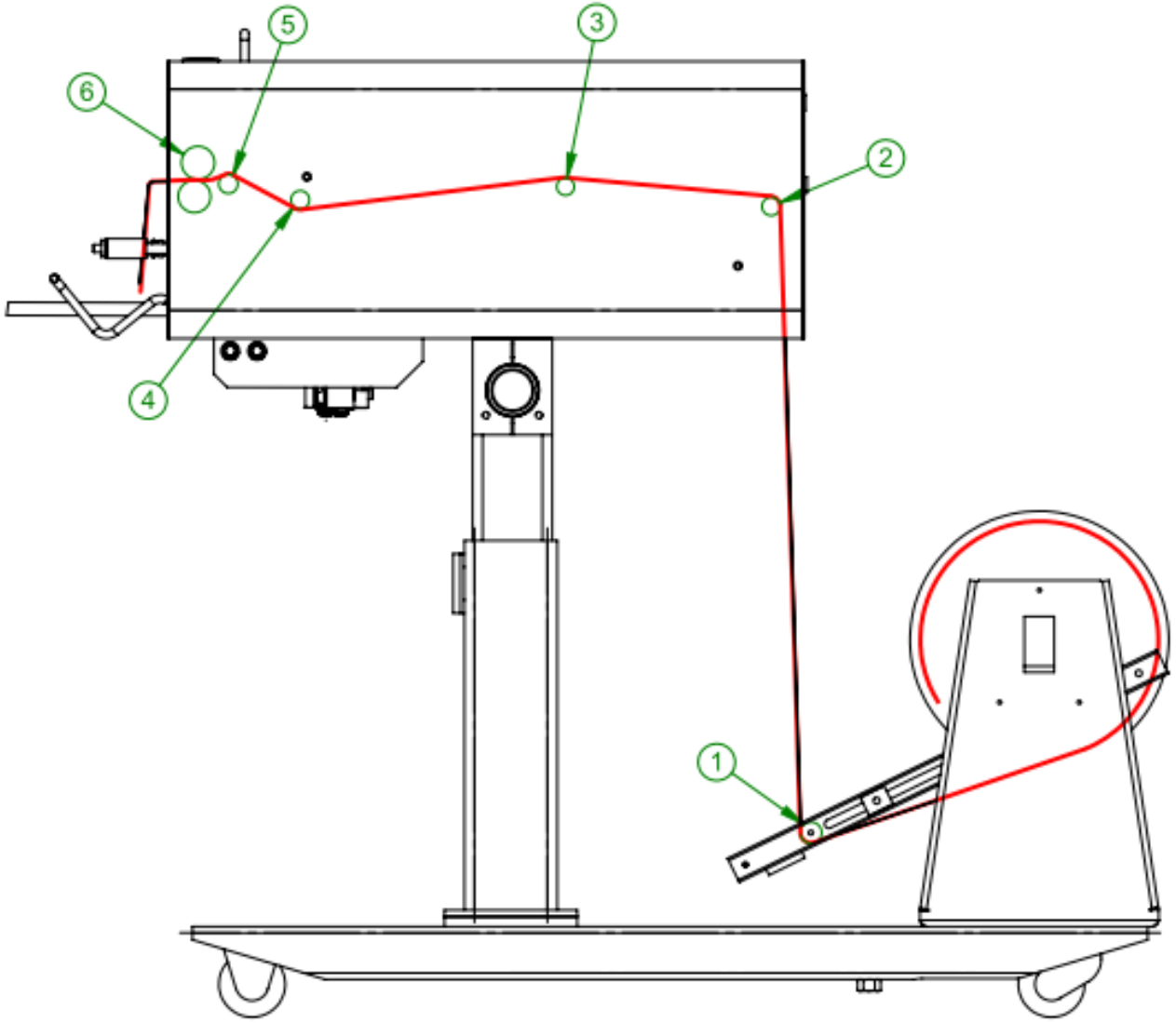

Figure 2-4

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

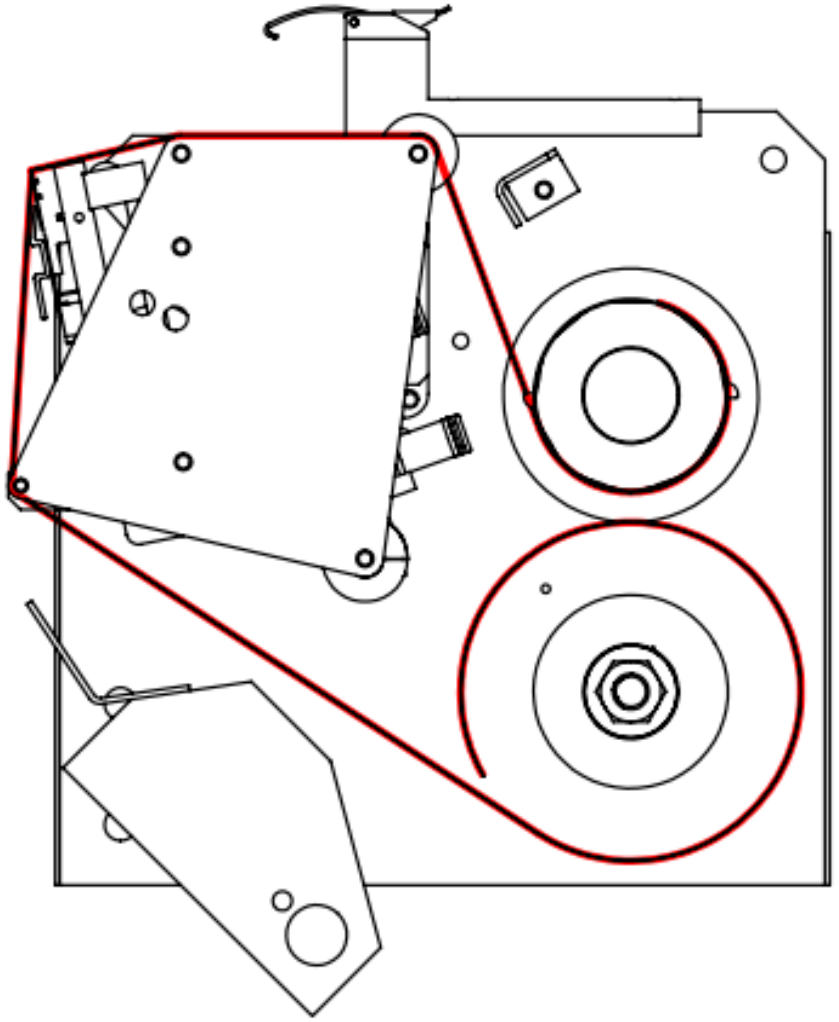

Figure 2-5

T-1000-S14 NBO RIBBON THREADING DIAGRAM

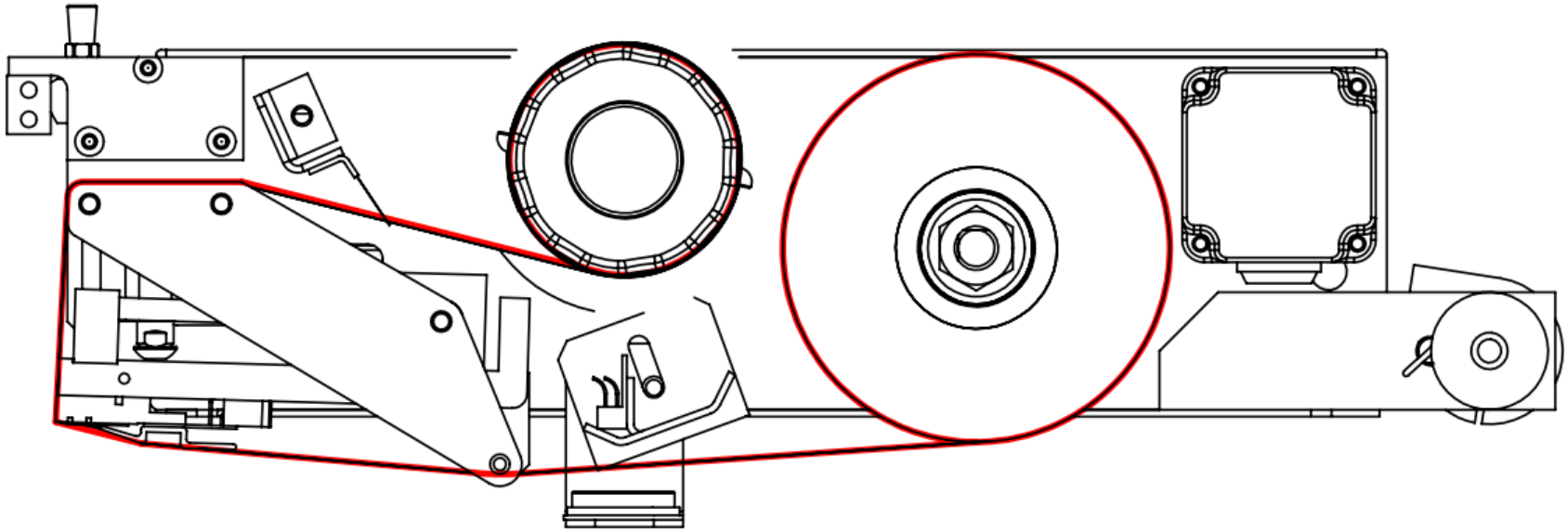

Figure 2-6

RAP 1400/2800 THREADING DIAGRAM

SINGLE DANCER

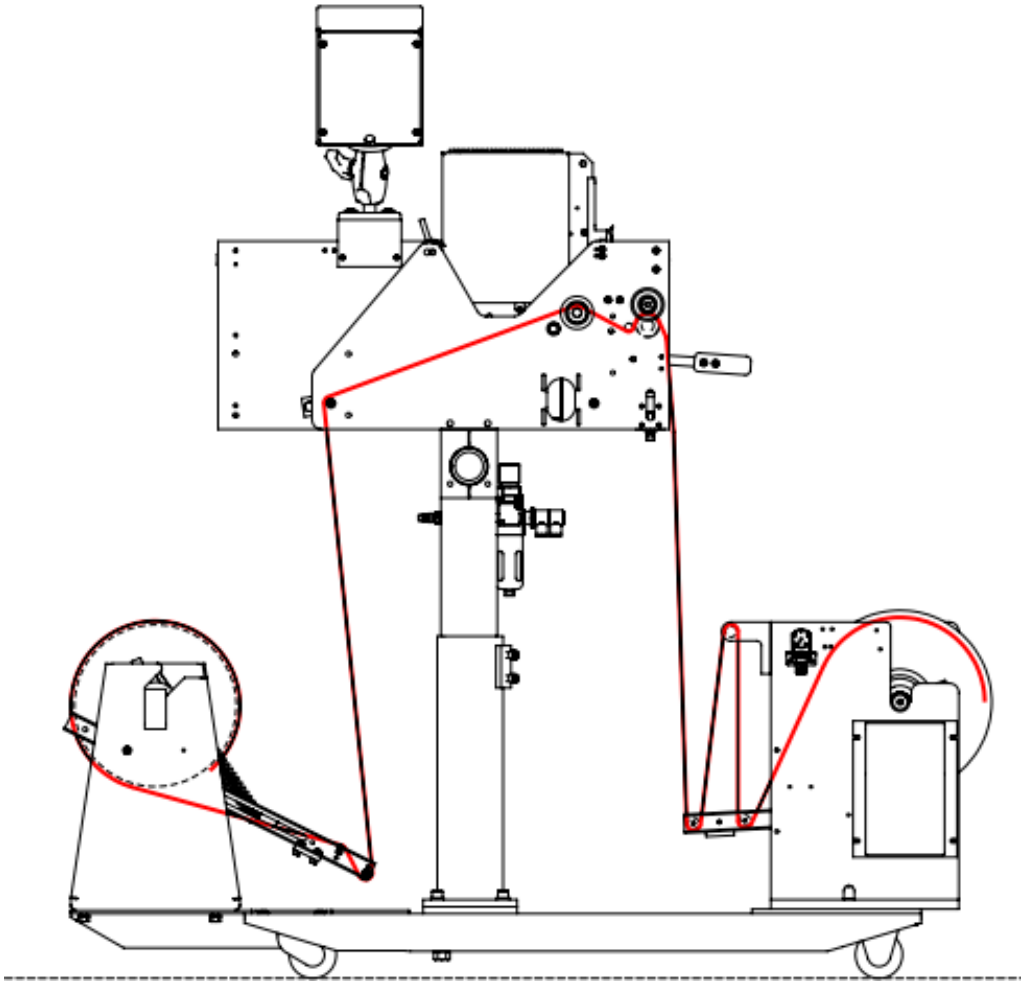

Figure 2-7

T-1000-S14 NBO80Z RIBBON CHANGE PROCEDURE

Follow the following step-by-step guide to replace the ribbon on the T-1000-S14 NBO80Z,

1. Remove the screw. (Figure 2-8)
2. Pull up on latches to unlatch assembly.
3. Tilt up as pictured. (Figure 2-9)
4. Push ribbon sleeve up to replace ribbon.
5. Push assembly back down. Operator should feel it “click” back into place.
6. Replace screw.

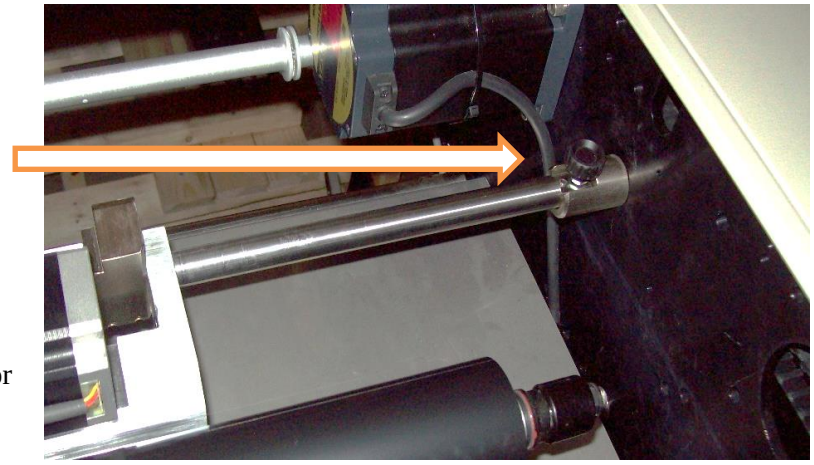

Figure 2-8

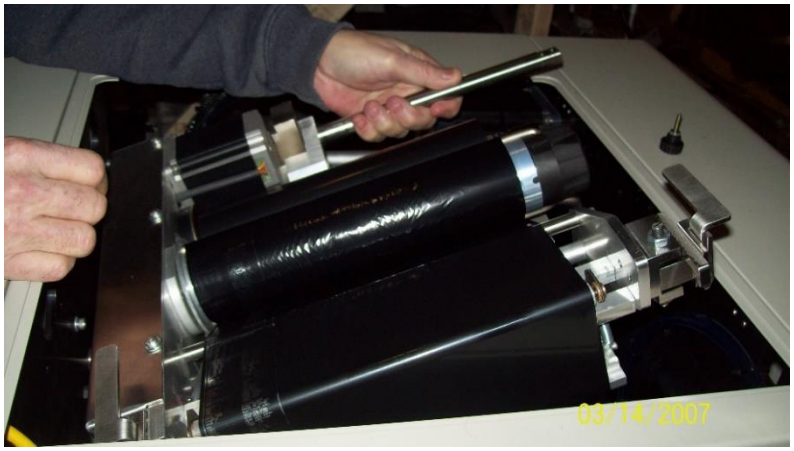

Figure 2-9

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Chapter 3: Operation with T-1000-S14

Chapter Summary
Touch Screen Identification
Touch Screen Specifications / Features
Touch Screen Program
Ti-1000Z Operation
Roll-a-Print Operation
T-1000-S14 NBO 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. TIZ-INL Printer Setup

The TIZ-INL 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.

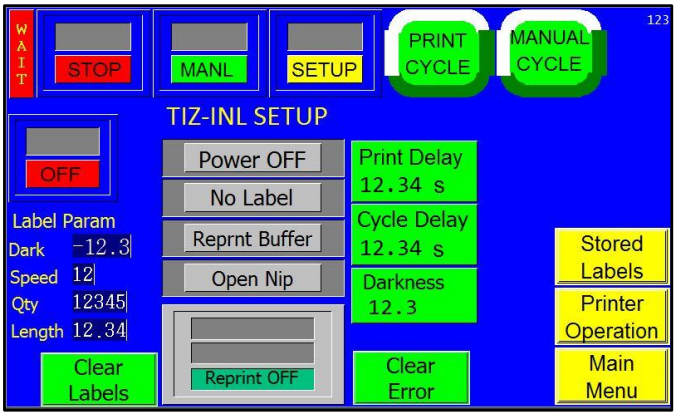

Figure 3- 1

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.

The 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 number 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 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.

The **Stored Label** button will expand the options to include **Label #** and **Length**.

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.

Note: If the label number being recalled does not exist in printer memory, an error screen is displayed (See Figure 3- 18).

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. TIZ-INL Printer Operation

The TIZ-INL 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 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.

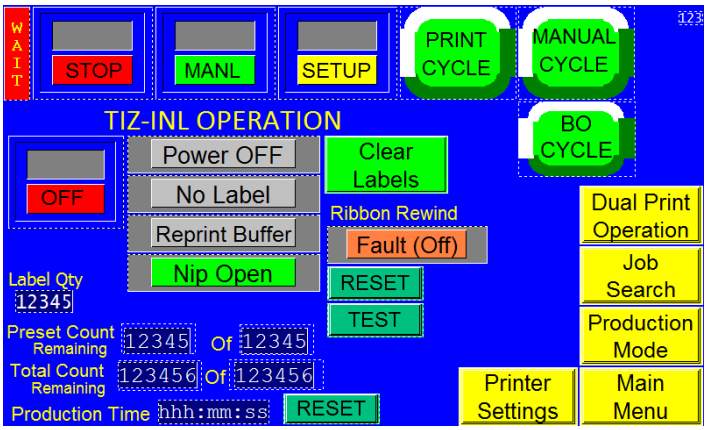

Figure 3- 2

Label Quantity: Displays the number 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. For extended options including **Label #** and **Length**, press the **Stored Labels** button. See Figure 3-4.

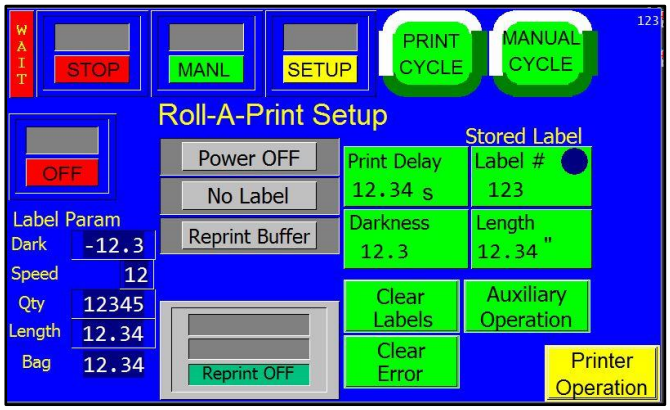

Figure 3- 3

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:

- **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 number 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.

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.

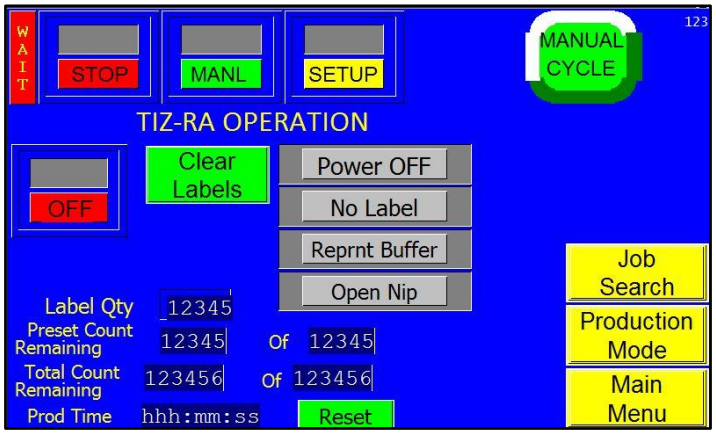

Figure 3- 4

Label Quantity: Displays the number 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.

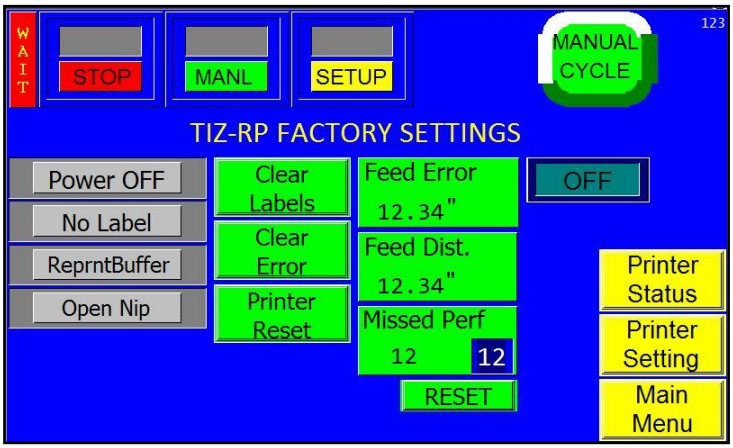

Figure 3- 5

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.

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 Next Bag Out Printer has the option between two different size print heads, yet functionality and operation remain the same between the two sizes. Please see Chapter 5.3 for the parts and assembly of the T-1000-S14NB, and Chapter 5.4 for the T-1000-S14NB08Z.

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.

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

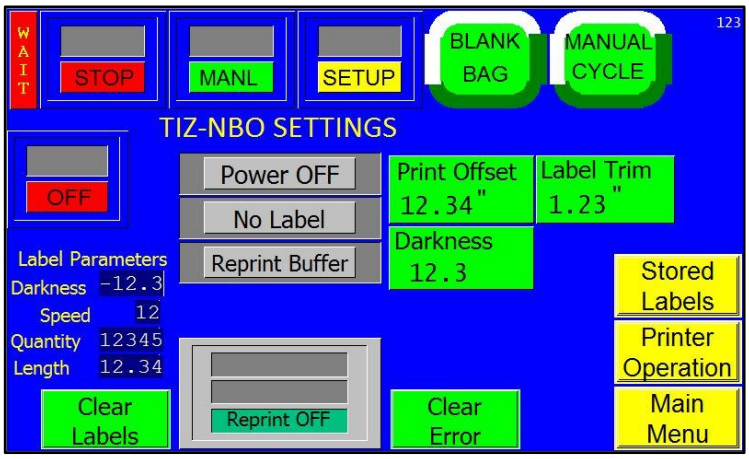

Figure 3- 6

- **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 number 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.

Label Trim: The Label Trim is an adjustable distance where the print head goes up while the label is still being printed. This function eliminates possible wrinkles depending on the size of the label. To adjust this setting, press the **Label Trim** 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.

Press **Stored Labels** to reach these extra options:

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.

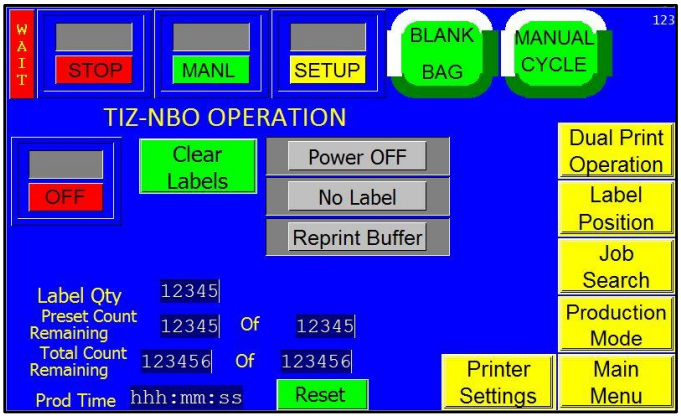

Figure 3- 7

Label Quantity: Displays the number 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.

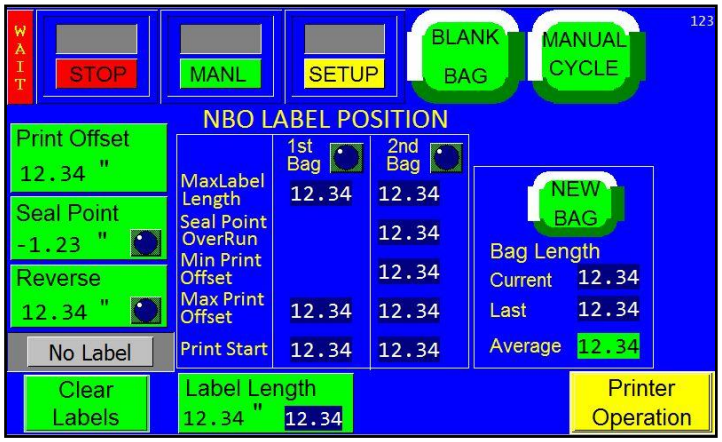

Figure 3- 8

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.

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. Printer 1 and Printer 2 Setup

Both Printer Setup screens display the printer's status and label parameters. It also allows for adjustment of the stored label settings. See Figure 3- 9 and Figure 3- 10. The Printer Setup Screen is accessed by pressing the **Ti-1000Z** button on the Bagger Options Menu, pressing Dual Printer Operations, then selecting either Printer 1 Settings or Printer 2 Settings.

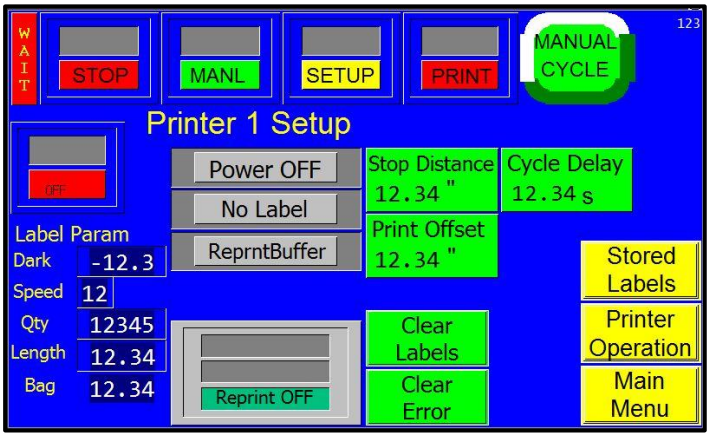

Figure 3- 9

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

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

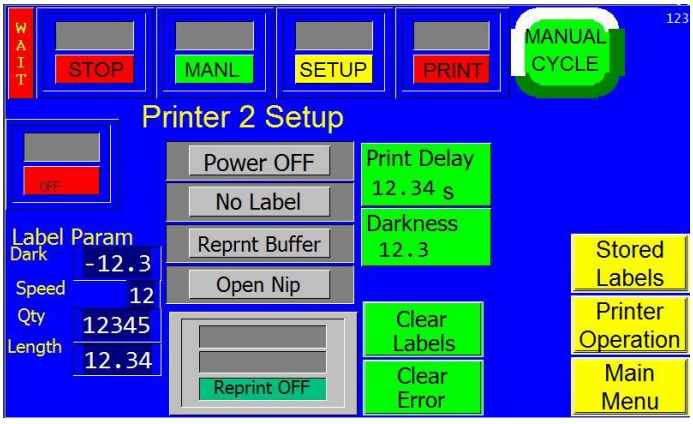

Figure 3- 10

- **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 number 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, and make minor changes and labels. See Figure 3- 11. This screen is accessed by pressing the **Printer Operation** button on the either Printer 1 Setup or Printer 2 Setup screen.

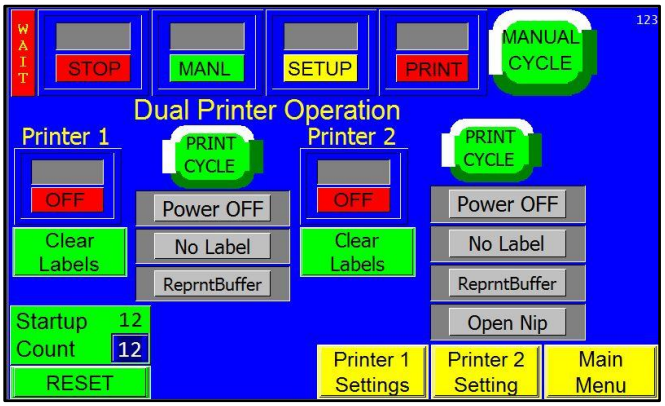

Figure 3- 11

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

The Dual Printer Operation screen features two column of rectangular indicators that display each 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 number 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.

C. Dual Printer Status

The TIZ Status screen and Printer 2 Status screen are used to troubleshoot the dual printers and should only be accessed by qualified technicians or the factory. See Figure 3- 12 and Figure 3- 13.

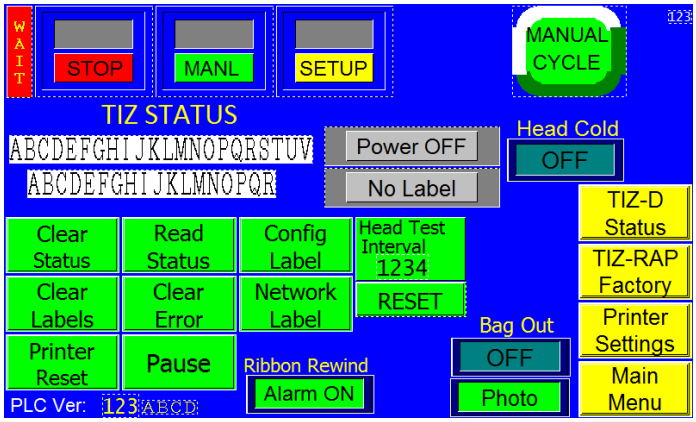

Figure 3- 12

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.

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.

Head Test 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.

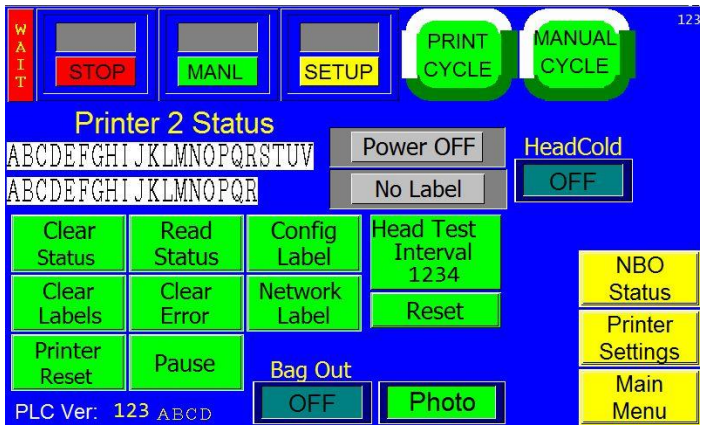

Figure 3- 13

Ribbon Rewind Alarm ON/OFF: If a hardware error occurs with the DC Motor Driver that would prevent the ribbon from being rewound, a feedback signal to the PLC generates a Warning Screen. Touching the screen will automatically reset the alarm. The Alarm ON/OFF button allows the alarm to be disabled. If the alarm is disabled, the Warning Screen (See Figure 3- 17) will be generated, but the Printer/Bagger will continue to run.

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.

3.9 PLC I/O Screens

Navigate to the Bagger PLC Main I/O Screen (Figure 3- 14). To access the PLC I/O Screens showing Inputs (Figure 3- 15) and Outputs (Figure 3- 16), tap on the Input or Output area of the Bagger Main PLC I/O Screen.

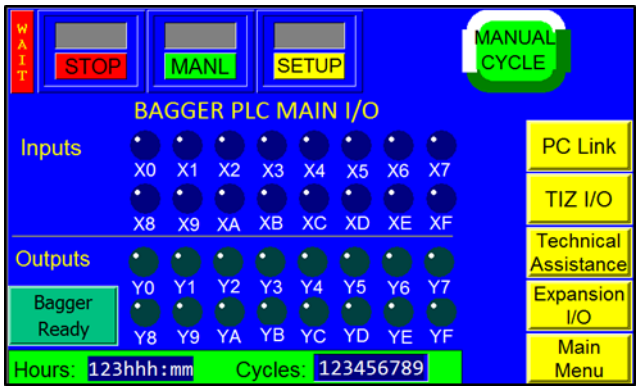

Figure 3- 14

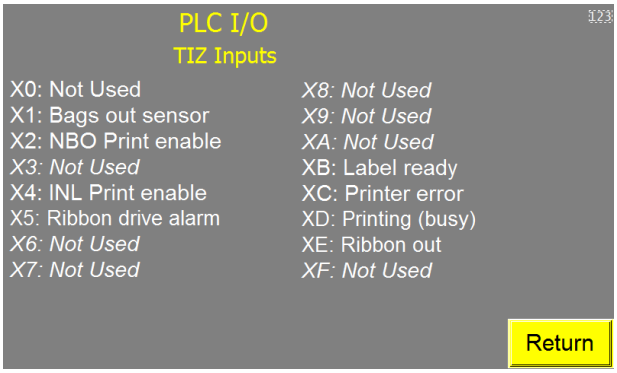

Figure 3- 15

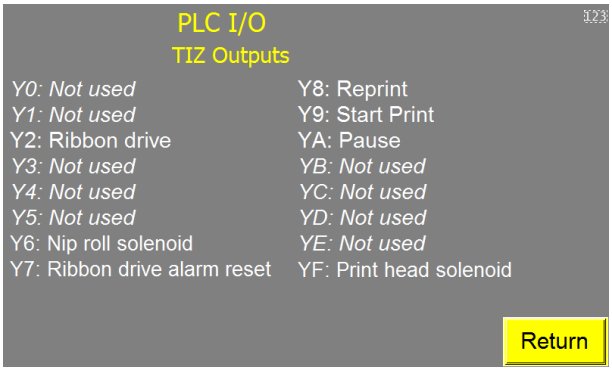

Figure 3- 16

3.10 Warning Screens

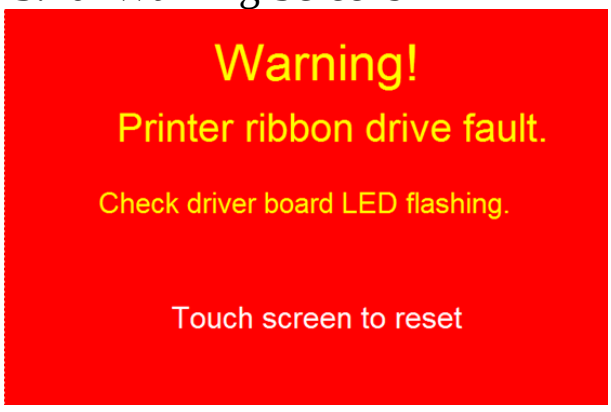

Figure 3- 17

Figure 3- 18

Chapter 4: Settings, Adjustments, Maintenance and Troubleshooting

LabelView Setup Parameters Software Settings
ZebraDesigner Driver Settings
Machine Adjustments
Machine Maintenance
Troubleshooting Guide

4.1 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.

4.2 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.

4.3 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.

4.4 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.

4.5 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.

4.6 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.

4.7 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

4.8 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.

4.9 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.

4.10 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										

4.11 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.

4.12 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

4.13 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 Bag 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	Ribbon Drive Alarm	Y5	Auxiliary Printer Ready
	X6	Spare	Y6	RAP: Nip Roll Solenoid
	X7	Spare	Y7	Ribbon Drive Alarm Reset
	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	AB180 Cycle
	XC	Printer Error - Zebra	YC	Spare
	XD	End Print (Printing) - Zebra	YD	RAP: H/V Trigger
	XE	Ribbon Out - Zebra	YE	Spare
	XF	Foot Switch	YF	Print Head Down Solenoid

4.14 Electrical Drawings

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

A. TIZ-E1_110VAC

Electrical Drawing

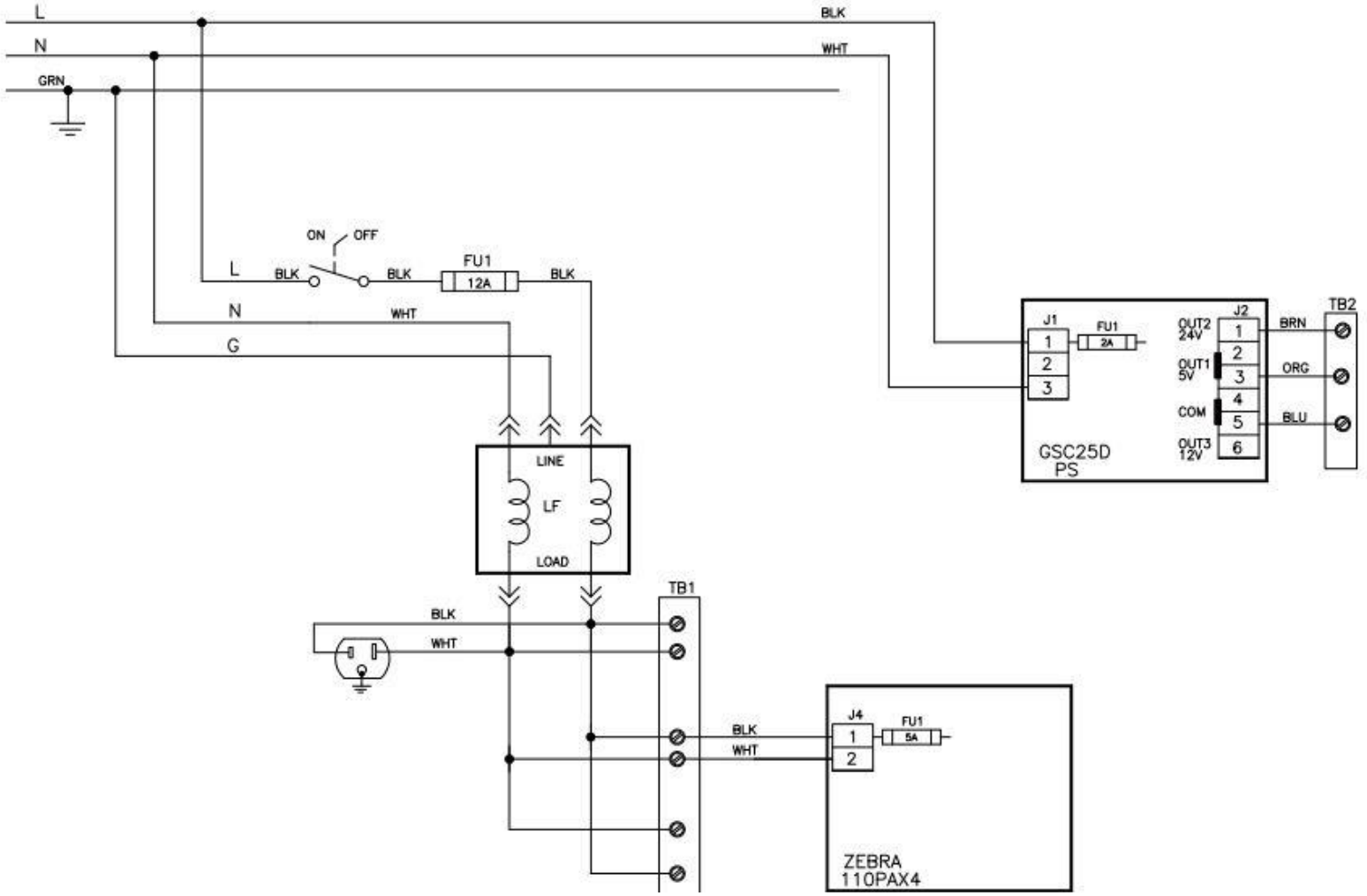

Figure 4-1

B. TIZ-E2_FPG-IO_Rev 8

Electrical Drawing

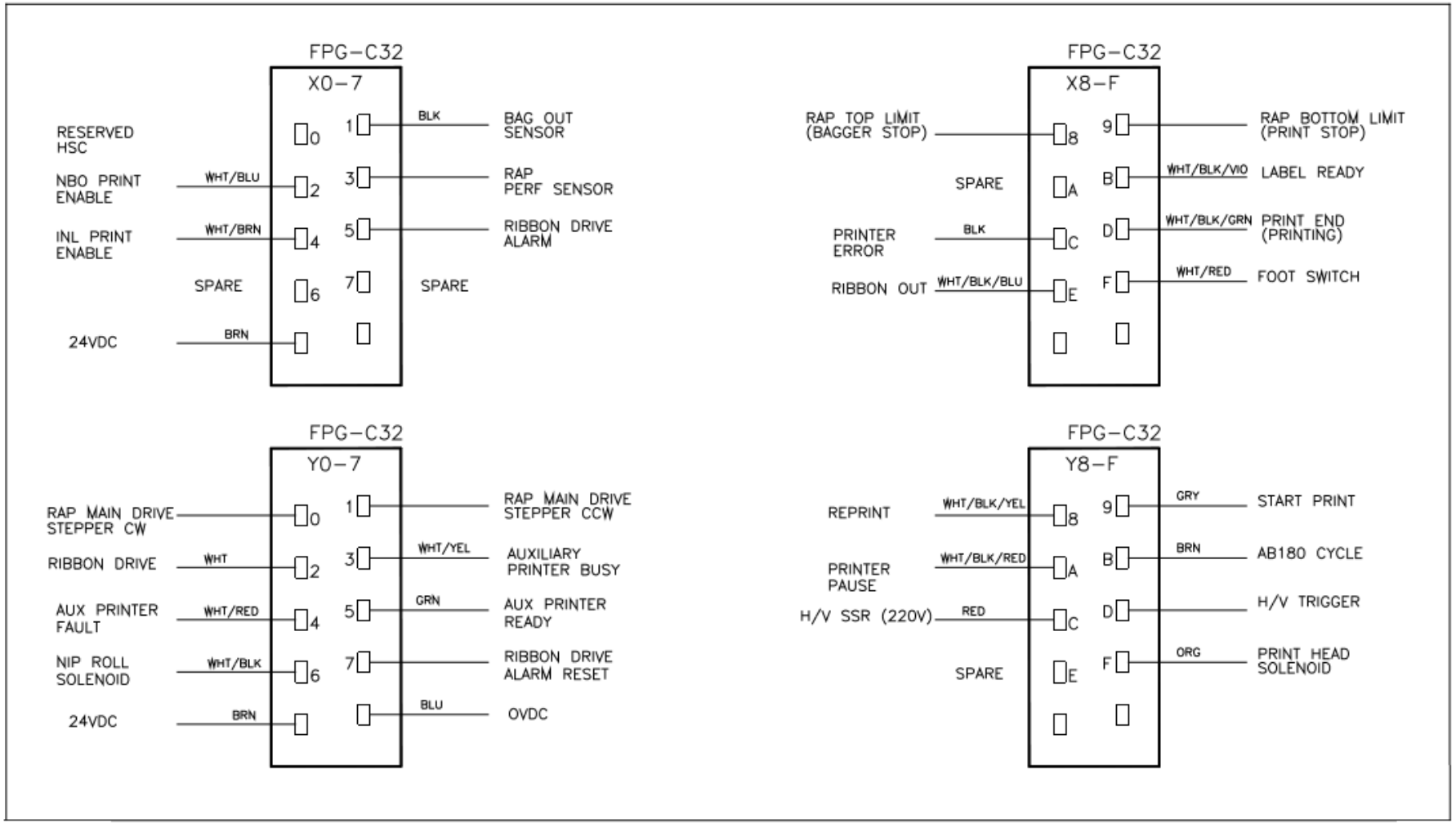

Figure 4-2

C. TIZ-E3_AXH Rev 1

Electrical Drawing

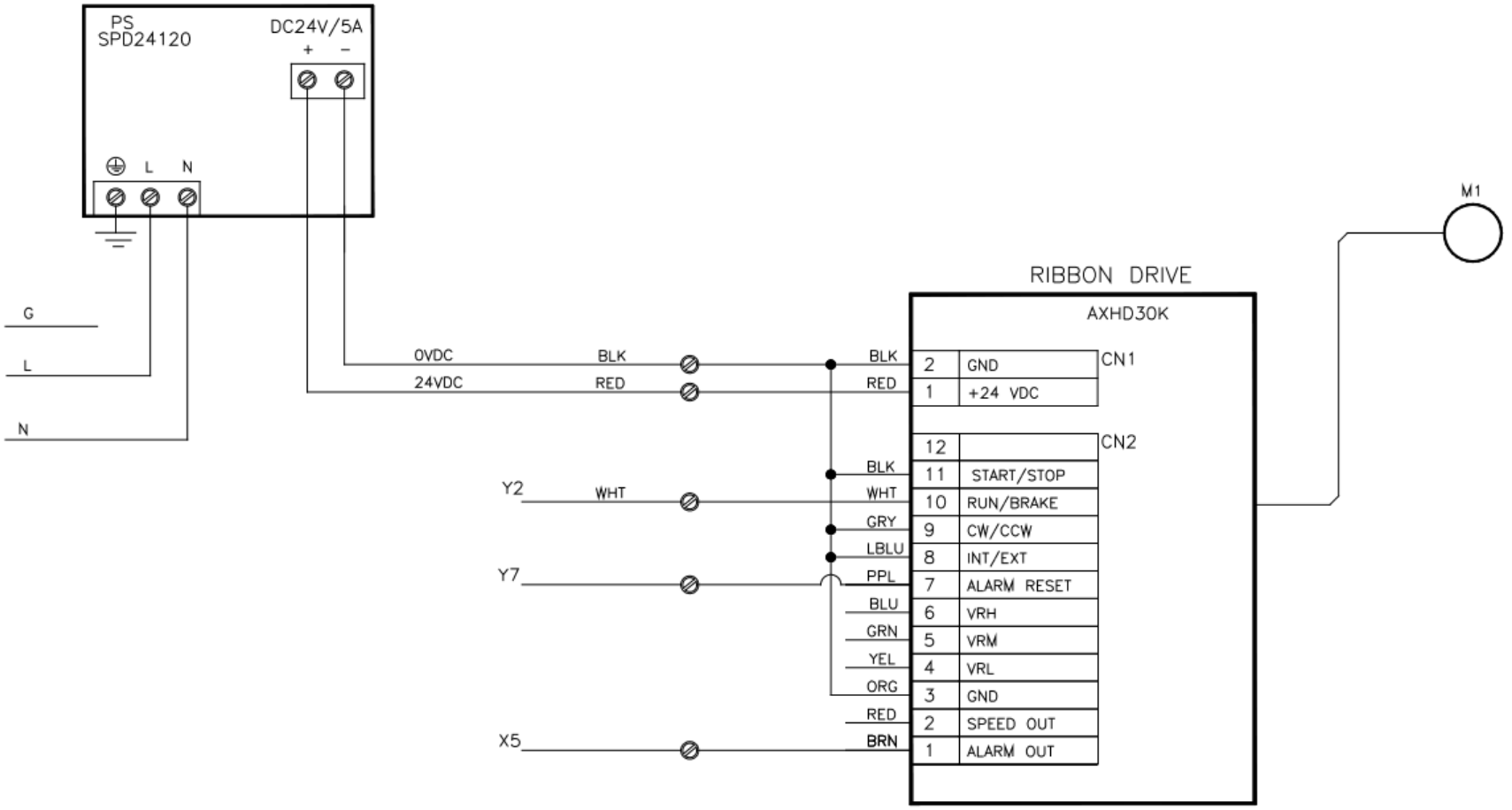

Figure 4-3

D. TIZ-E6_ZebraIF

Electrical Drawing

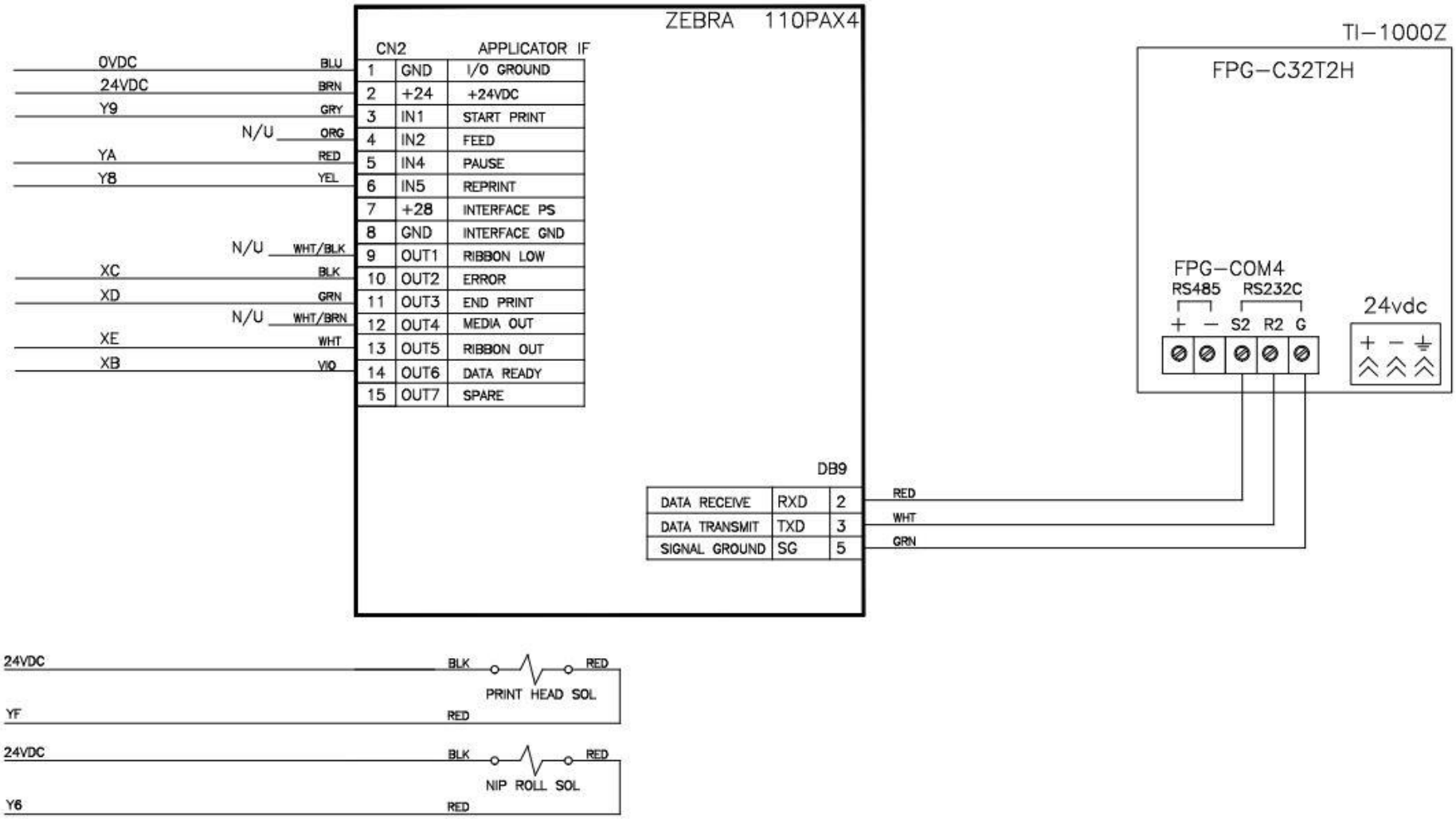

Figure 4-4

E. TIZ-E4_COM4

Electrical Drawing

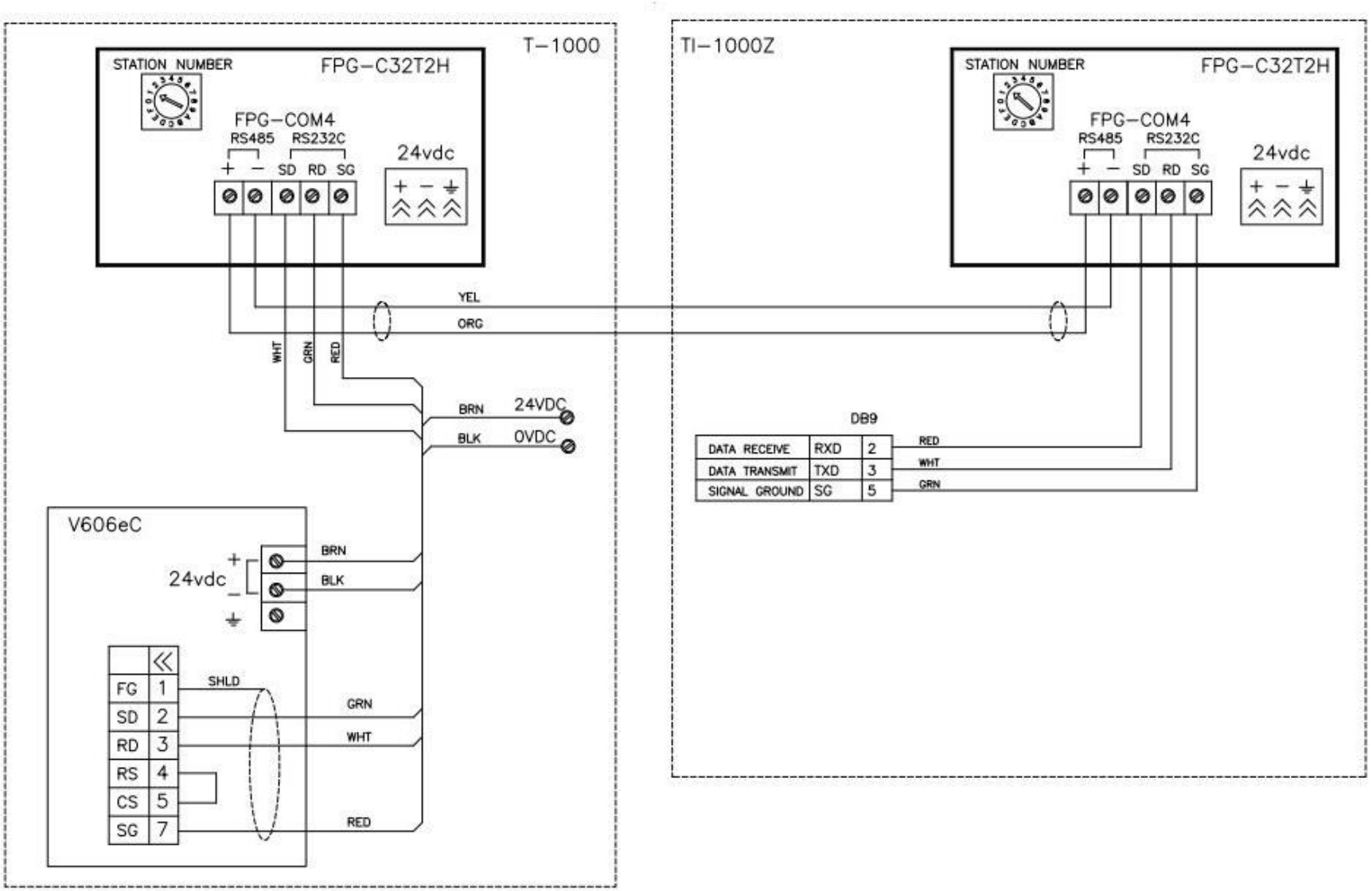

Figure 4-5

F. TIZ-E9_PCLinkIF_rev3

Electrical Drawing

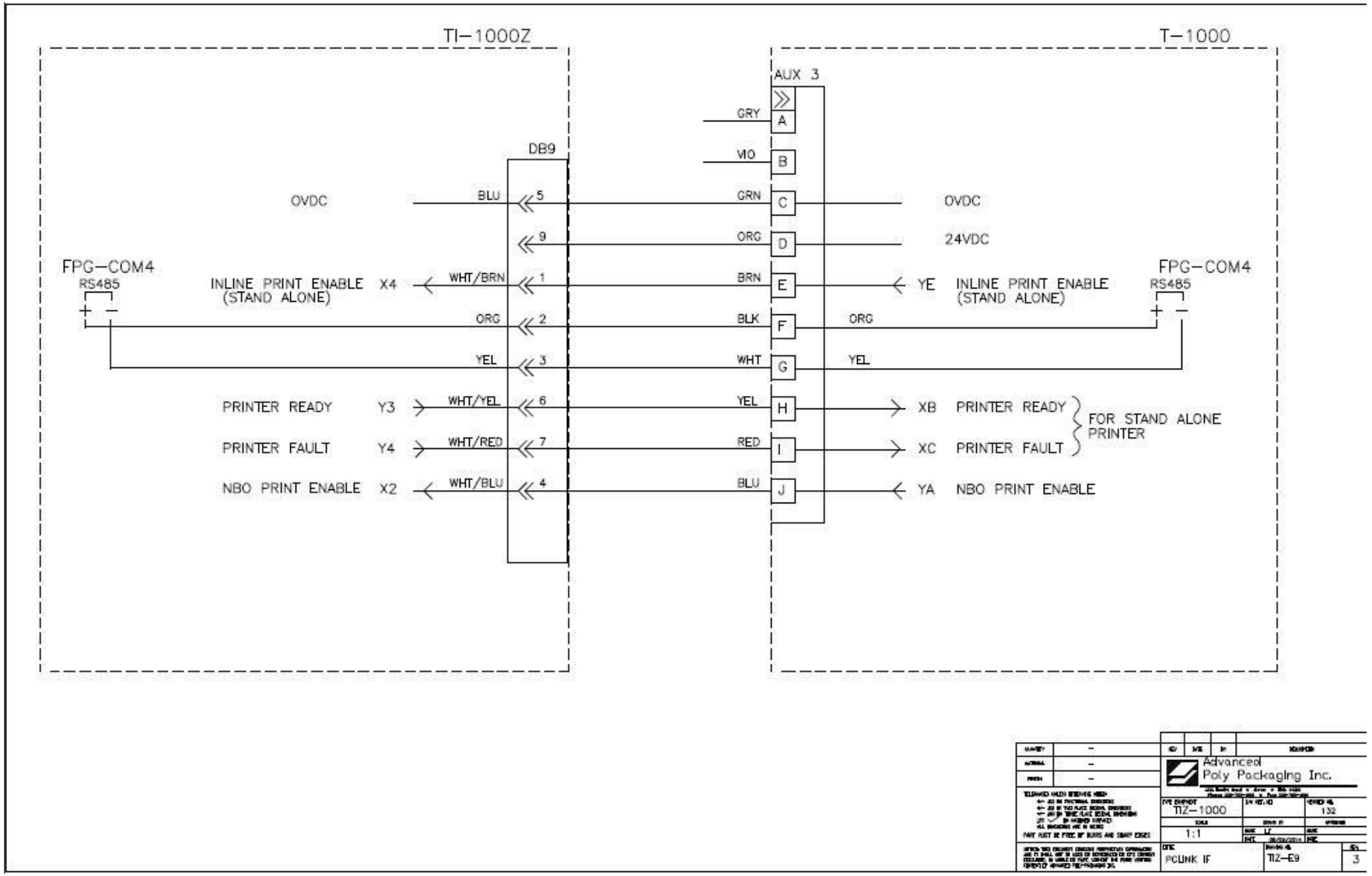

Figure 4-6

G. TIZ-E8_AuxIF_rev3

Electrical Drawing

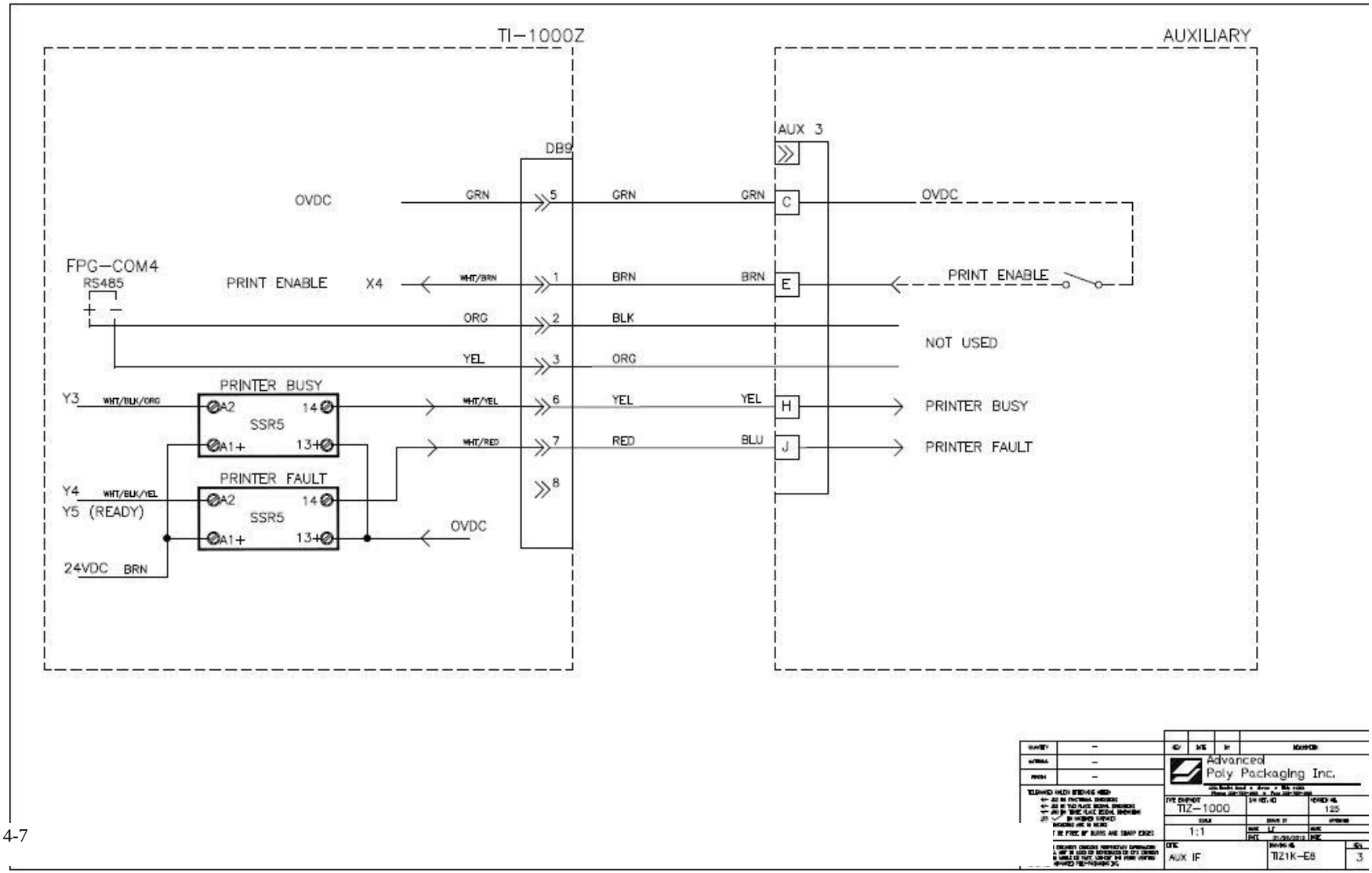

Figure 4-7

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Chapter 5: Parts and Drawings

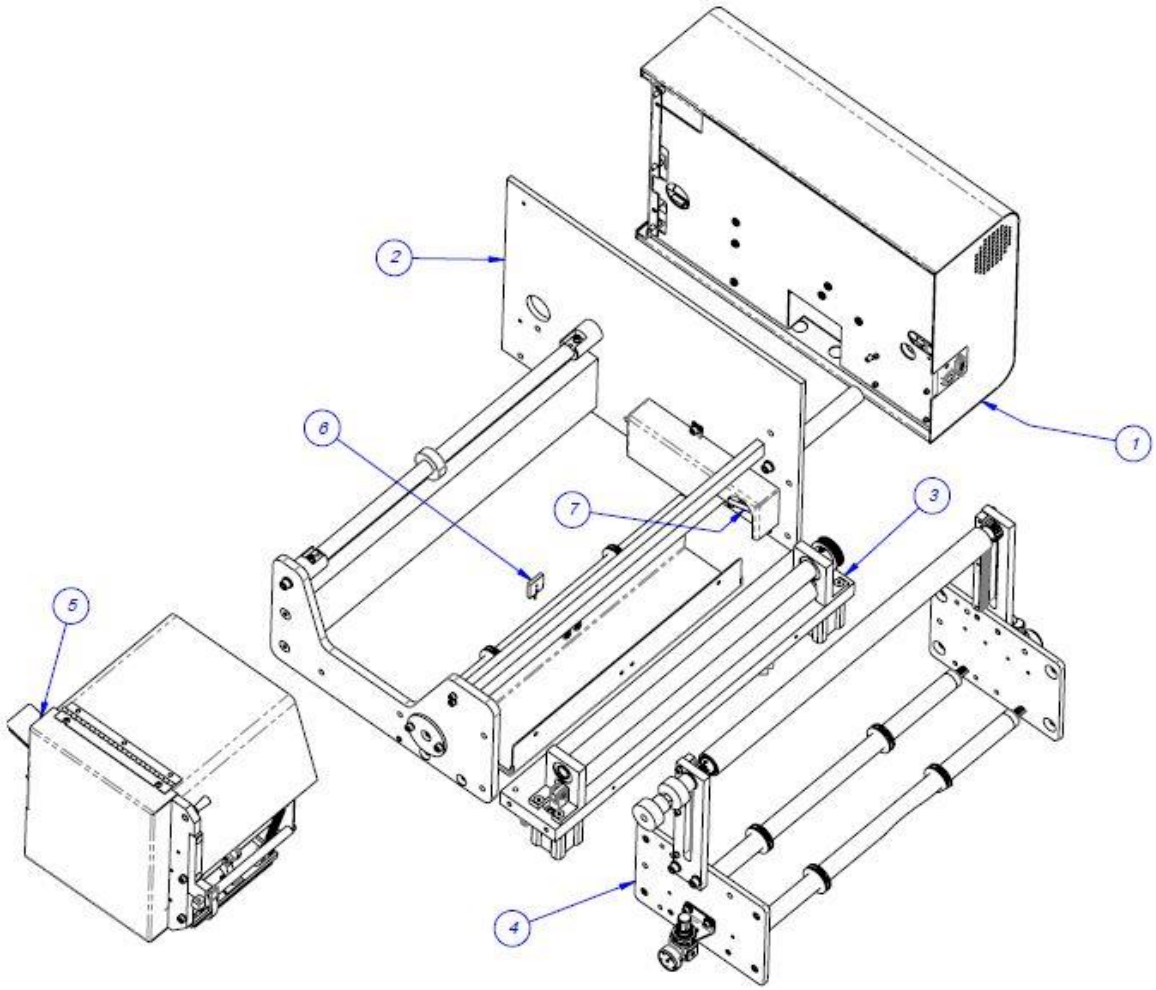
Ti-1000Z Inline Thermal Printer
Ti-1000Z Roll-A-Print
T-1000-S14 Next Bag Out Printer/Bagger
Zebra NBO Inline Thermal Printer

5.1 Ti-1000Z Inline Thermal Printer

T-Ti1000Z

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TA-T2Z1000	PRINTER ELECTRONICS ASSEMBLY
2	1	TA-T2Z2000	MOUNTING ASSEMBLY
3	1	TA-T2Z2000-1	PRINTER NIP ASSEMBLY
4	1	TA-T2Z4000	PRINTER REGISTER
5	1	TA-T2Z8010	ZEBRA PRINTER ASSEMBLY
6	1	TA-T2Z-BO10	BAG OUT DETECTOR ASSEMBLY
7	1	TP-503188	BELT

Ti-1000Z Inline Thermal Printer

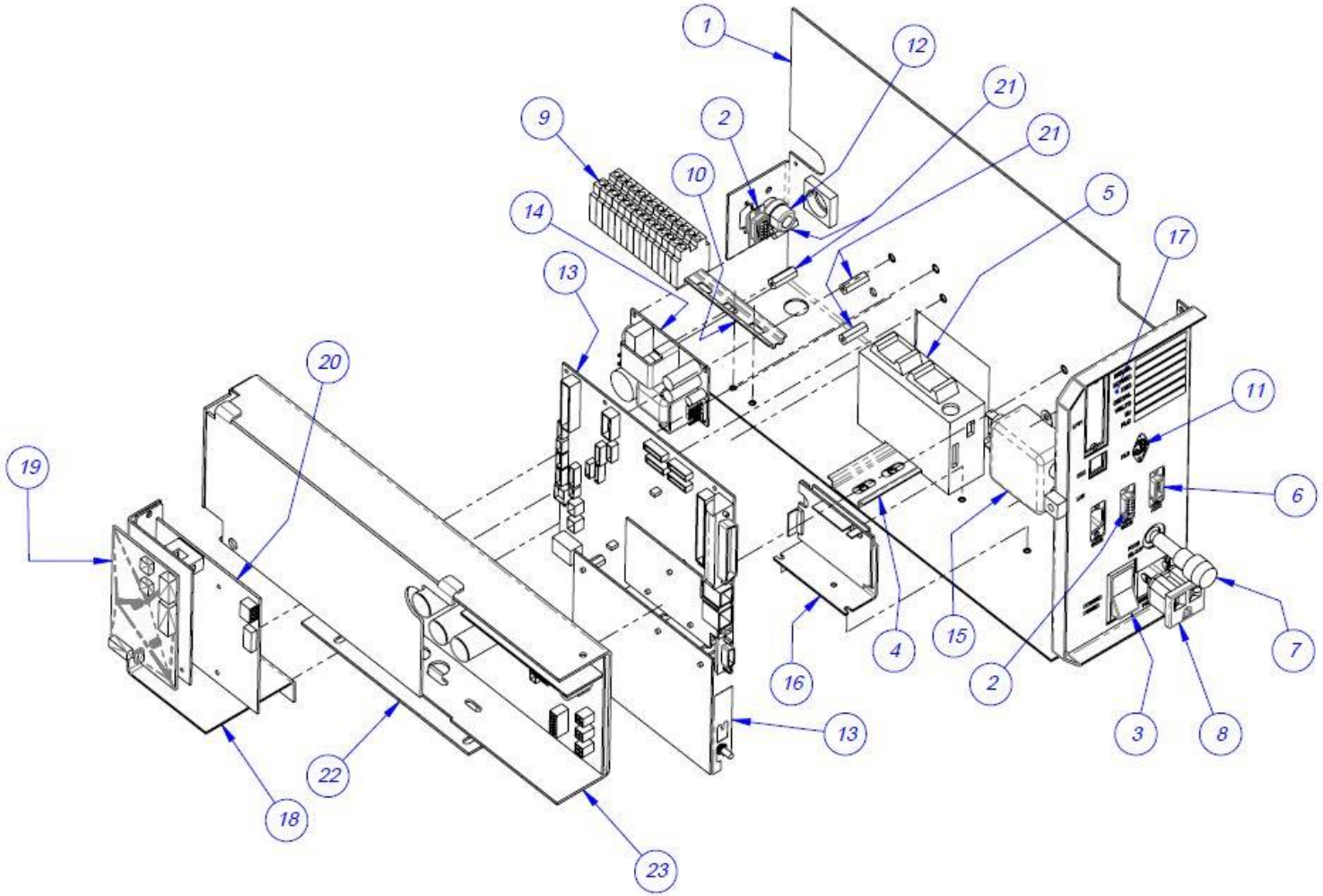


A. Electronics Assembly

PN: TA-T2Z1000

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TP-T2Z1005	ELECTRONICS BASE
2	2	TP-212247 9	PIN D-SUB FEMALE
3	1	TP-215384	POWER SWITCH
4	1	TP-218020	PART #3 DIM RAIL
5	1	TP-220511,214111,220513	PLC, BATTERY & COMM 2 CAS
6	1	TP-212246	CONNECTOR, MULTIPOLE RECTANGULAR
7	1	TP-207216, TP-207344	FUSE HOLDER & FUSE
8	1	TP-212410	AC OUTLET
9	14	TP-208142	LARGE TERMINAL BLOCK
10	1	TP-218021	DIN RAIL
11	1	TP-212160	5 POS MINI DIM
12	1	TP-112240	POWER CORD STRAIN RELIEF
13	1	V-Z-P1053360-016	LOGIC BOARD
14	1	TP-213361	24VDC, 3AMP POWER SUPPLY
15	1	TP-205108	EMI FILTER, CORCOM
16	1	TP-501156	DC MOTOR DRIVE, DRIVEN PRINT ROLL
17	1	TP-T2Z1007	OVERLAY
18	1	TP-T2Z1004	APPLICATOR BOARD MOUNT
19	1	VP-Z-P1011156	xi4 24-28V APPLICATOR INTERFACE OPTION. MAINT KIT
20	1	VP-Z-57389M	APPLICATOR INTERFACE ASSEMBLY 24V
21	4	TP-214273	STAND-OFF, NYLON, 1/2", #4-40
22	1	TP-T2Z1018	POWER SUPPLY MOUNT
23	1	VP-Z-1058301	ZEBRA POWER SUPPLY (REV A)

Electronics Assembly



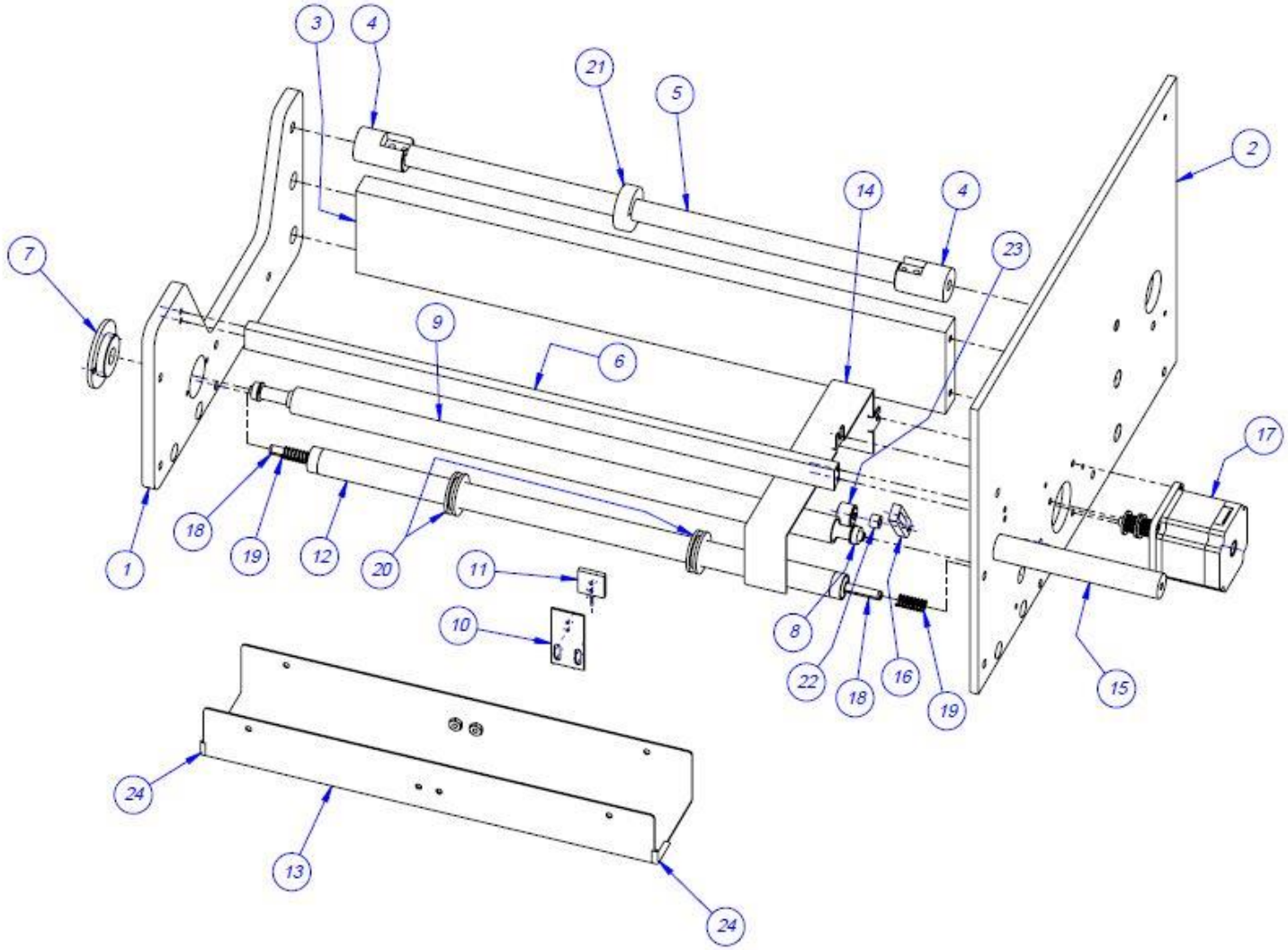
B. 203 DPI Zebra Motor

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-T2AC10-012	BAG-OUT SENSOR MOUNT
11	1	TP-216155	SENSOR
12	1	TP-T1MC00052	STANDARD ROLLER
13	1	TP-T2Z2022	TUBING COVER
14	1	TP-T2Z2013	BELT COVER
15	1	TP-T2Z2012	COVER PANEL STAND-OFF
16	1	TP-T15M8007	BELT TENSIONER
17	1	VP-Z-46198M	203 DPI ZEBRA MOTOR
18	2	TP-106106	SPRING PIN
19	2	TP-108099	COMPRESSION SPRING, .040 GAUGE, 0.359 OD.
20	2	TP-111010	SPRING CLOSURE COLLAR
21	1	TP-111108	5/8” BORE, BLACK OXIDE, ONE PIECE SHAFT COLLAR, 6435K150
22	1	TP-104186	SPACER
23	1	TP-503138	CAM FOLLOWER
24	1	TP-306010	RUBBER EDGE TRIM

**NOTE: If the Ti-1000Z is operating with the combined T-1000-S14/US-9000 system, Item 3 becomes TP-T2Z9002: Support Brace Modification.*

203 DPI Zebra Motor



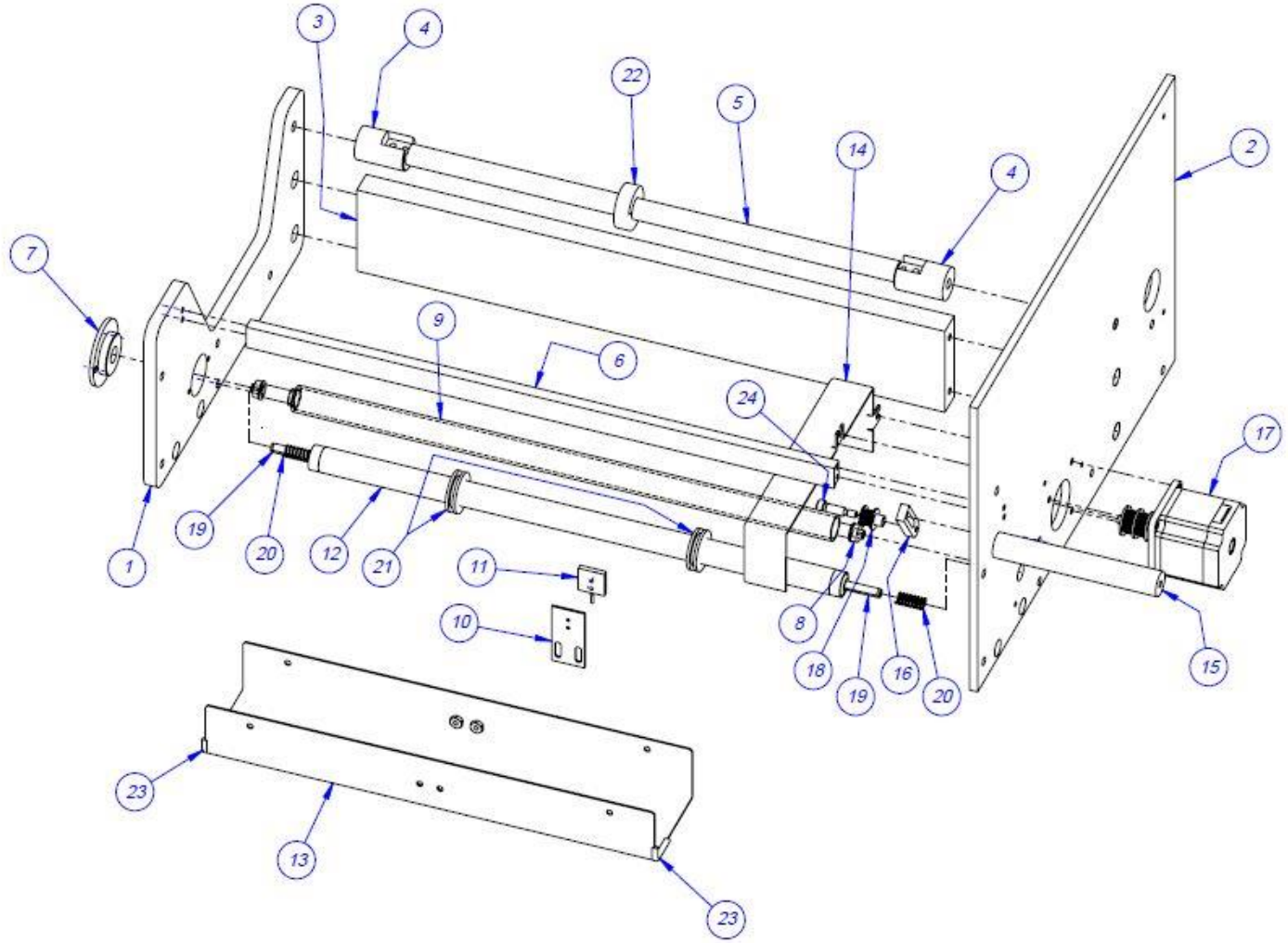
C. 300 DPI Zebra Motor

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-T2AC10-012	BAG-OUT SENSOR MOUNT
11	1	TP-216155	SENSOR
12	1	TP-T1MC00052	STANDARD ROLLER
13	1	TP-T2Z2022	TUBING COVER
14	1	TP-T2Z2013	BELT COVER
15	1	TP-T2Z2012	COVER PANEL STAND-OFF
16	1	TP-T15M8007	BELT TENSIONER
17	1	VP-Z-G46199M	300 DPI ZEBRA MOTOR
18	1	TP-T2Z2024	NIP TENSIONER PULLY
19	2	TP-106106	SPRING PIN
20	2	TP-108099	COMPRESSION SPRING, .040 GAUGE, .359 OD.
21	2	TP-111010	Spring Closure Collar
22	1	TP-111108	5/8 BORE, BLACK OXIDE, ONE PIECE SHAFT COLLAR, 6435K150
23	1	TP-306010	RUBBER EDGE TRIM
24	1	TP-103304-1	SCREW, SHOULDER 1/4"D x 5/8"L x 10-24

**NOTE: If the Ti-1000Z is operating with the combined T-1000-S14/US-9000 system, Item 3 becomes TP-T2Z9002: Support Brace Modification*

300 DPI Zebra Motor



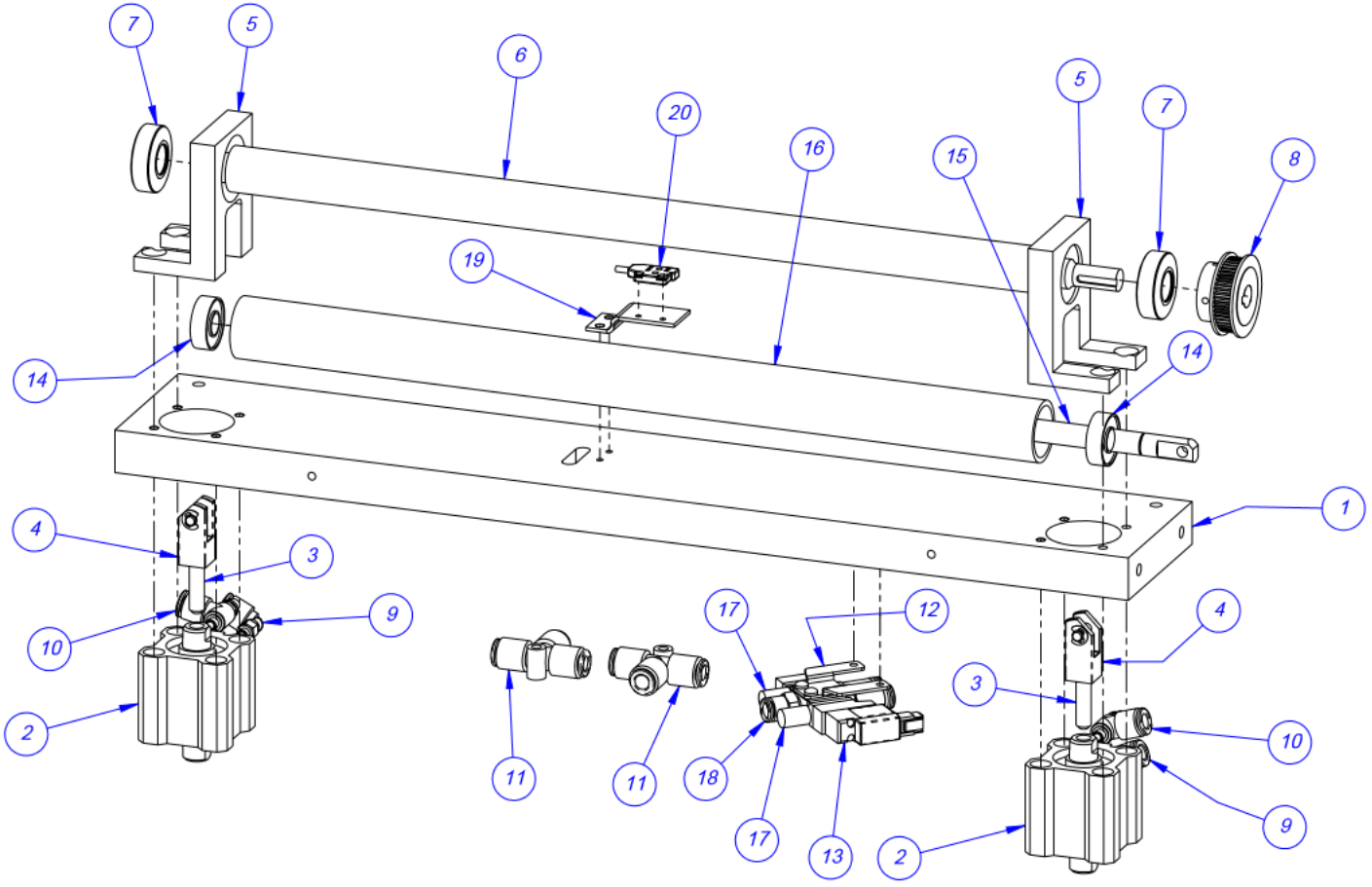
D. Nip Roll Assembly

PN: TA-T2Z2000-1

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TP-T2Z2016	NIP ROLL SUPPORT BRACE
2	2	TP-403236	AIR CYLINDER
3	2	TP-103533	SCREW, 1/4-28 X 1 SET
4	2	TP-T2Z2029	MODIFIED CLEVIS
5	2	TP-T2Z2028	BEARING HOUSING
6	2	TP-T2Z2027	DRIVEN NIP ROLL
7	1	TP-504129	BEARING, RADIAL TYPE, 1/2" BORE, 1-1/8" O.D., 3/8" WIDE
8	2	TP-T2Z2019	DRIVEN NIP ROLL PULLEY
9	1	TP-401277	ELBOW, 1/4 TUBE x 10-32 THREAD
10	2	TP-402186	FLOW CONTROL, #10-32
11	2	TP-401254	UNION TEE FITTING
12	2	TP-402175	BRACKET
13	1	TP-402255	VALVE
14	1	TP-504106	BEARING, NICE
15	2	TP-T2Z2025	NIP ROLL DEAD SHAFT
16	1	TP-T2Z2026	ROLLER TUBE
17	1	TP-404263	MUFFLER
18	2	TP-401265	1/4" FITTING
19	1	TP-T2Z2032	SENSOR BRACKET
20	1	TP-216112	PHOTOELECTRIC SENSOR

**NOTE: If the Ti-1000Z is operating with the combined T-1000-S14/US-9000 system, Item 9 becomes TP-T2Z9002: Nip Roll Support Brace Modification.*

Nip Roll Assembly

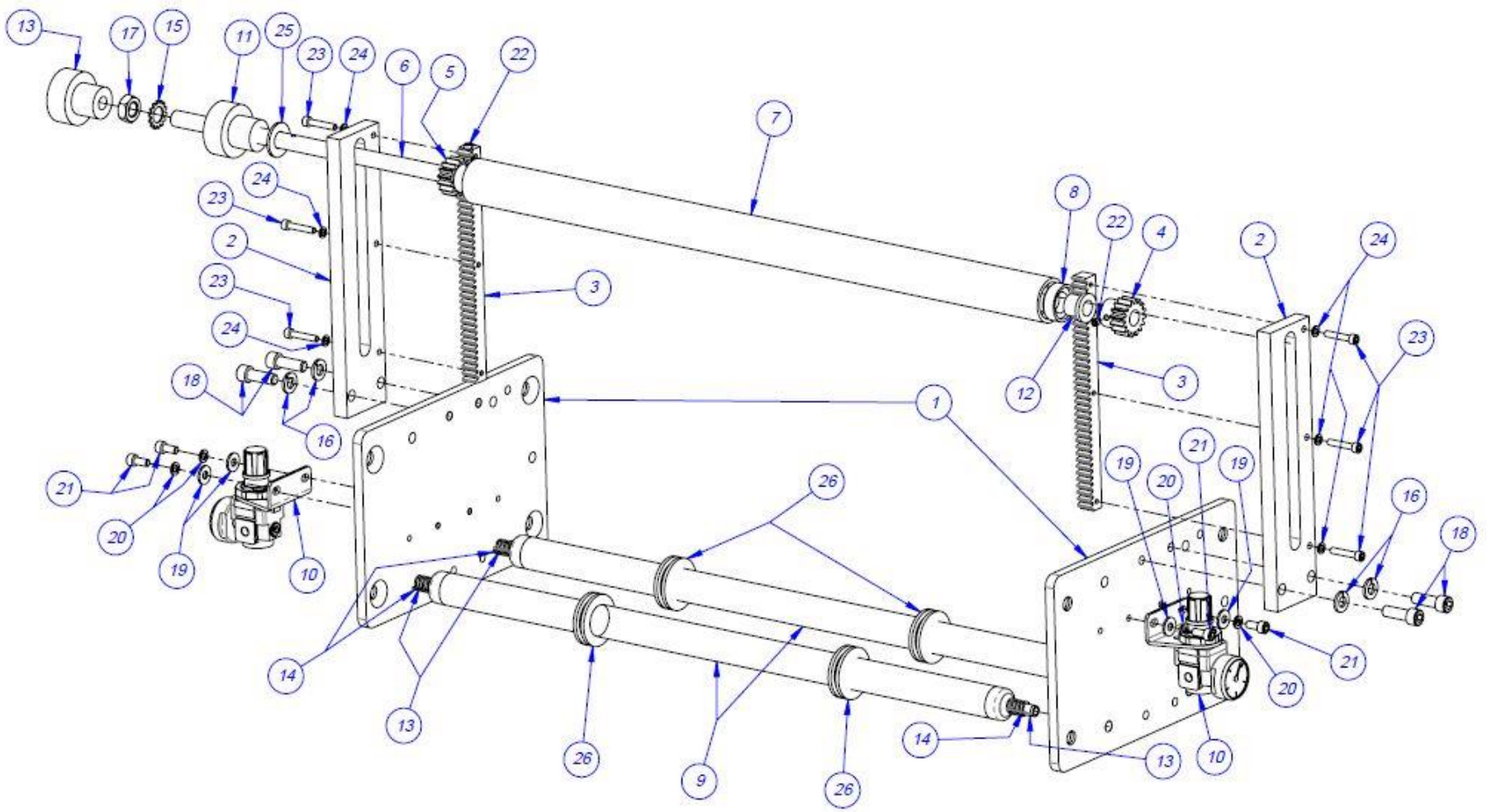


E. Printer Register

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-T2Z4003	SHORT GEAR RACK
4	1	TP-T2Z4004	GEAR
5	1	TP-T2Z4005	GEAR
6	1	TP-T2Z4006	ROLLER SHAFT
7	1	TP-T2Z4007	ROLLER TUBE
8	2	TP-T2Z4010	BUSHING CAGE
9	2	TP-T1MC00052	GUIDE ROLLER
10	2	TP-406259	MINIREG. BRACKET, GAUGE
11	2	TP-109149	HANDLE, KNURLED STEEL
12	2	TP-107108	BEARING
13	4	TP-106106	SPRING PIN
14	4	TP-108099	COMPRESSION SPRING, .040 GAUGE
15	1	TP-102126	WASHER, 3/8” EXT. TOOTH LW
16	4	TP-102155	WASHER, 1/4 LOCK
17	1	TP-101123	NUT, 3/8-16 HEX JAM NUT
18	4	TP-103139	SCREW, SHCS 1/4-20 x 3/4"
19	4	TP-102133	WASHER, #8 FLAT
20	4	TP-102153	WASHER, #8 LOCK
21	4	TP-103015	SCREW, SHCS 8-32 x 3/8
22	2	TP-103518	SCREW, #8-32 x 1/8 SET
23	6	TP-103112	SCREW, SHCS 6-32 x 3/4
24	6	TP-102152	WASHER, #6 LOCK
25	1	TP-102144	WASHER, 3/8 FLAT
26	4	TP-111010	SPRING CLOSURE COLLAR

Printer Register

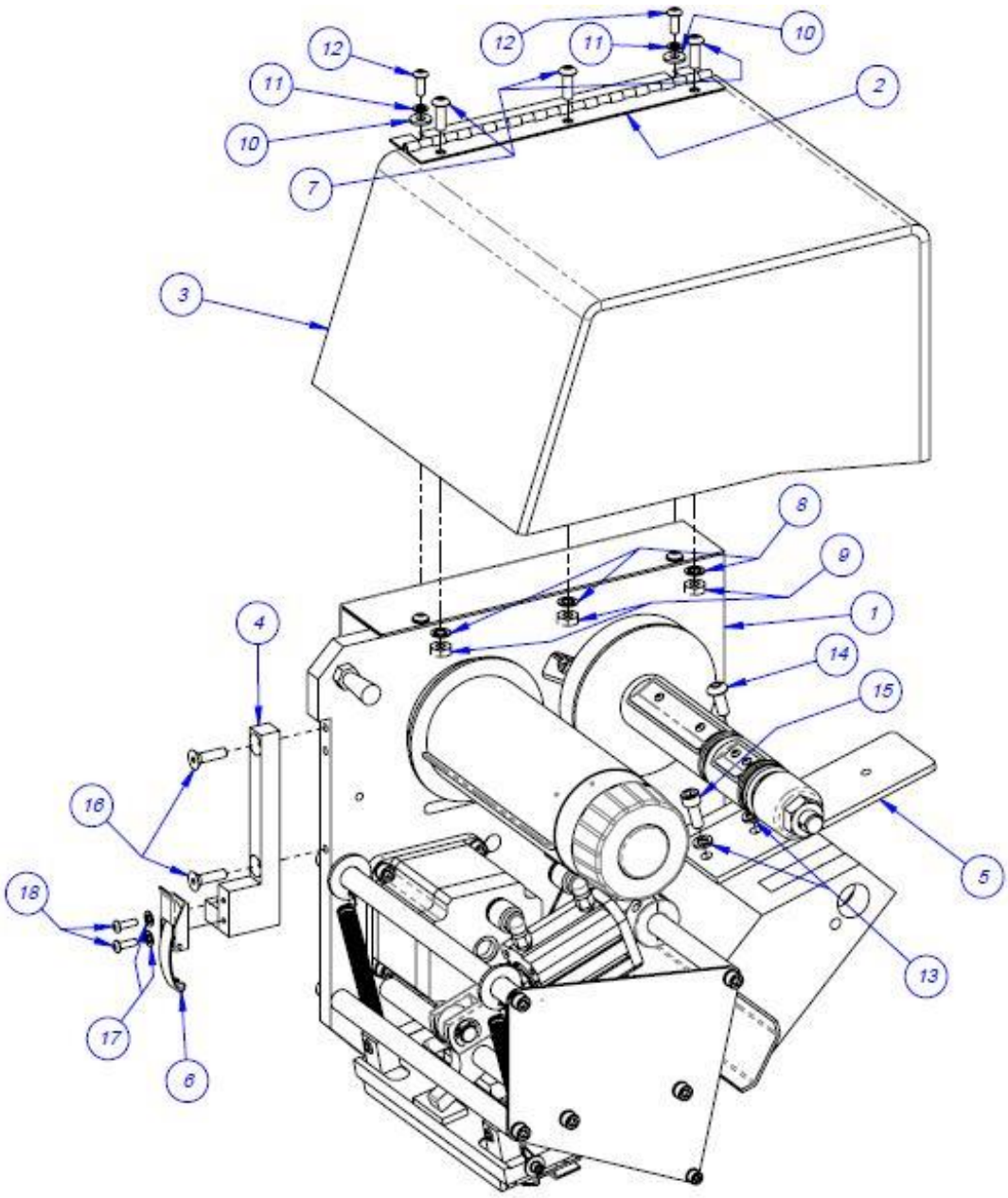


F. Zebra Printer Assembly

PN: TA-T2Z8010

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TA-T15-8000-Z	ZEBRA PRINTER ASSEMBLY
2	1	TP-T2Z8101	HINGE ASSEMBLY
3	1	TP-T2Z8102	LEXAN PRINTER GUARD
4	1	TP-T2Z2010	STOP BAR
5	1	TP-T2Z2014	PIVOT BLOCK BRACKET
6	1	TP-T15M8105	BLADE DRAW LATCH
7	3	TP-103212	SCREW, BHCS 8-32 x 1/2 S.S.
8	3	TP-102103	WASHER, #8 Int. TOOTH LW
9	3	TP-101103	NUT, #8-32 HEX
10	2	TP-102132	WASHER, #6 FLAT
11	2	TP-102152	WASHER, #6 LOCK
12	2	TP-103207	SCREW, BHCS 6-32 x 3/8
13	2	TP-102154	WASHER, #10 LOCK
14	1	TP-103216	SCREW, BHCS 10-24 x 1/2" S.S.
15	1	TP-103123	SCREW, SHCS 10-24 x 1/2" S.S.
16	2	TP-103395	SCREW, FHCS #8-32 x 5/8
17	2	TP-102101	WASHER, #4 INT. TOOTH LW
18	2	TP-103203	SCREW, BHCS 4-40 3/8 S.S.

Zebra Printer Assembly



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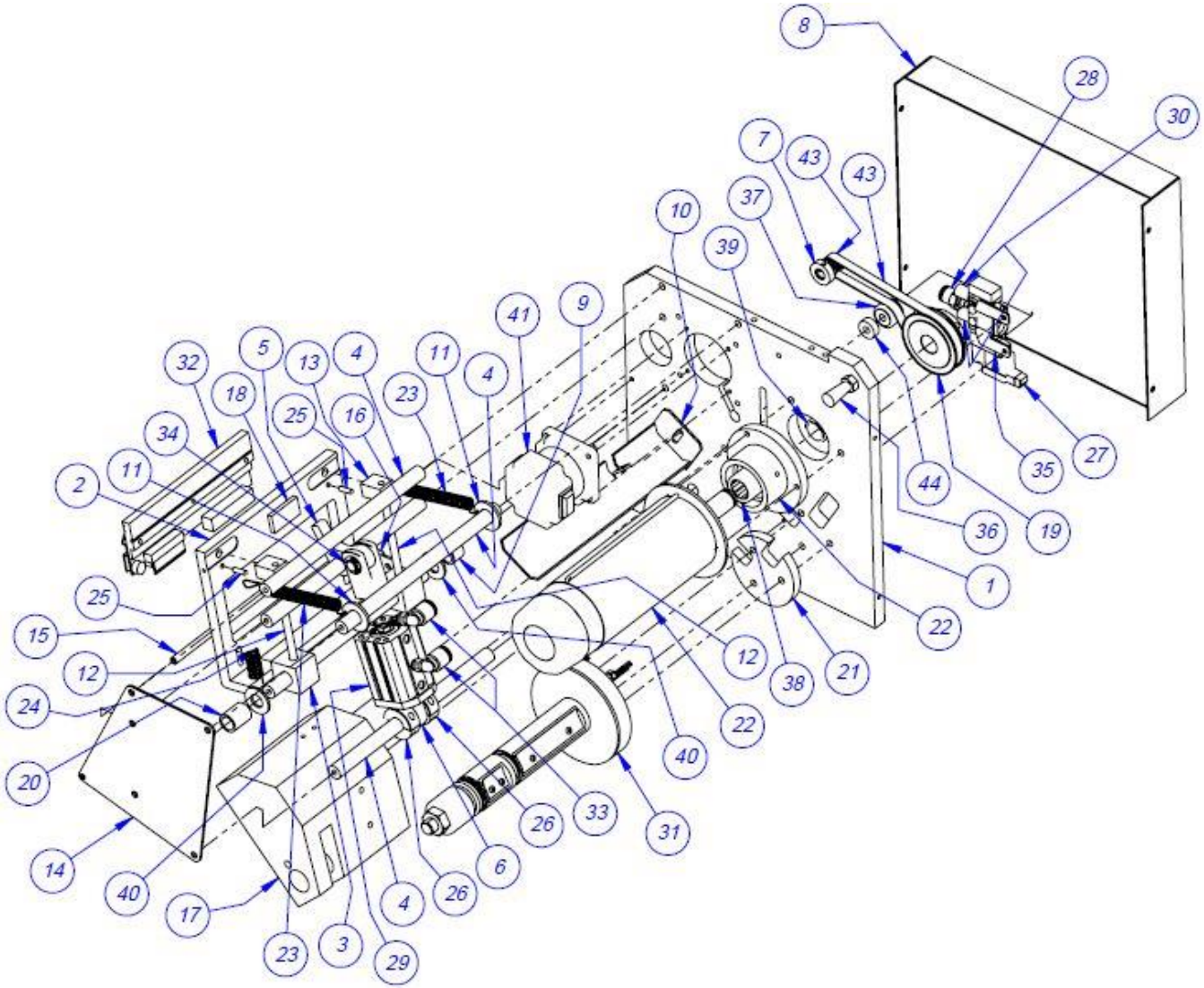
E. Zebra Printer Assembly, Continued

PN: TA-T15-8000

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TP-T15M-8001	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-T14M1107	COLLAR
8	1	TP-T15M8008	BELT GUARD
9	1	TP-T15M8010	LOCATING SPACER
10	1	TP-T15M-8011	SENSOR BRACKET
11	2	TP-T15M8012	SPRING MOUNT
12	2	TP-T15M8013	ADJUSTMENT ROD
13	2	TP-T15M8014	ADJUSTMENT ROD BLOCK
14	1	TP-T15M8030	END PLATE
15	1	TP-T15M-8031	ROLLER SHAFT
16	1	TP-T15M8032	SHAFT MOUNT
17	1	TP-T15M0036	PIVOT BLOCK
18	1	TP-T15M8038	WEAR SURFACE
19	1	TP-T15M8042	RIBBON TAKE-UP PULLEY
20	1	TP-T15M8043	LOCATING SPACER
21	1	TP-T15M8044	SUPPLY SPOOL SPACER
22	1	TP-T15M8051	RIBBON TAKE-UP SPINDLE
23	2	TP-108133	SPRING
24	2	TP-108099	COMPRESSION SPRING, .040 GAUGE
25	2	TP-106304	10mm DOWEL PIN
26	2	TP-111107	6435K33 COLLAR CLAMP
27	1	TP-402260	PNEUMATIC VALVE
28	1	TP-401265	AIR FITTING
29	1	TP-403140	AIR CYLINDER
30	2	TP-404263	MUFFLER
31	1	VP-Z-P1006058	xi4 RIBBON SUPPLY SPINDLE MAINT KIT
32	1	VP-Z-P1004230	PRINT HEAD
33	2	TP-401277	ELBOW, 1/4 TUBE x 10-32 THREAD.
34	1	TP-404148	CLEVIS
35	1	TP-402175	BRACKET
36	1	TP-109225	FINGER KNOB
37	1	TP-504138	CAM FOLLOWER
38	1	TP- 504175	CLUTCH BEARING
39	1	TP-107116	SLEEVE BUSHING
40	2	TP-102119	NYLON WASHER

41	1	TP-501155	DC MOTOR - PRINTER
42	1	TP-T14M1100	PRINTER RIBBON MOTOR PULLEY
43	1	TP-503187	BELT
44	1	TP-104112	NYLON SPACER

Zebra Printer Assembly

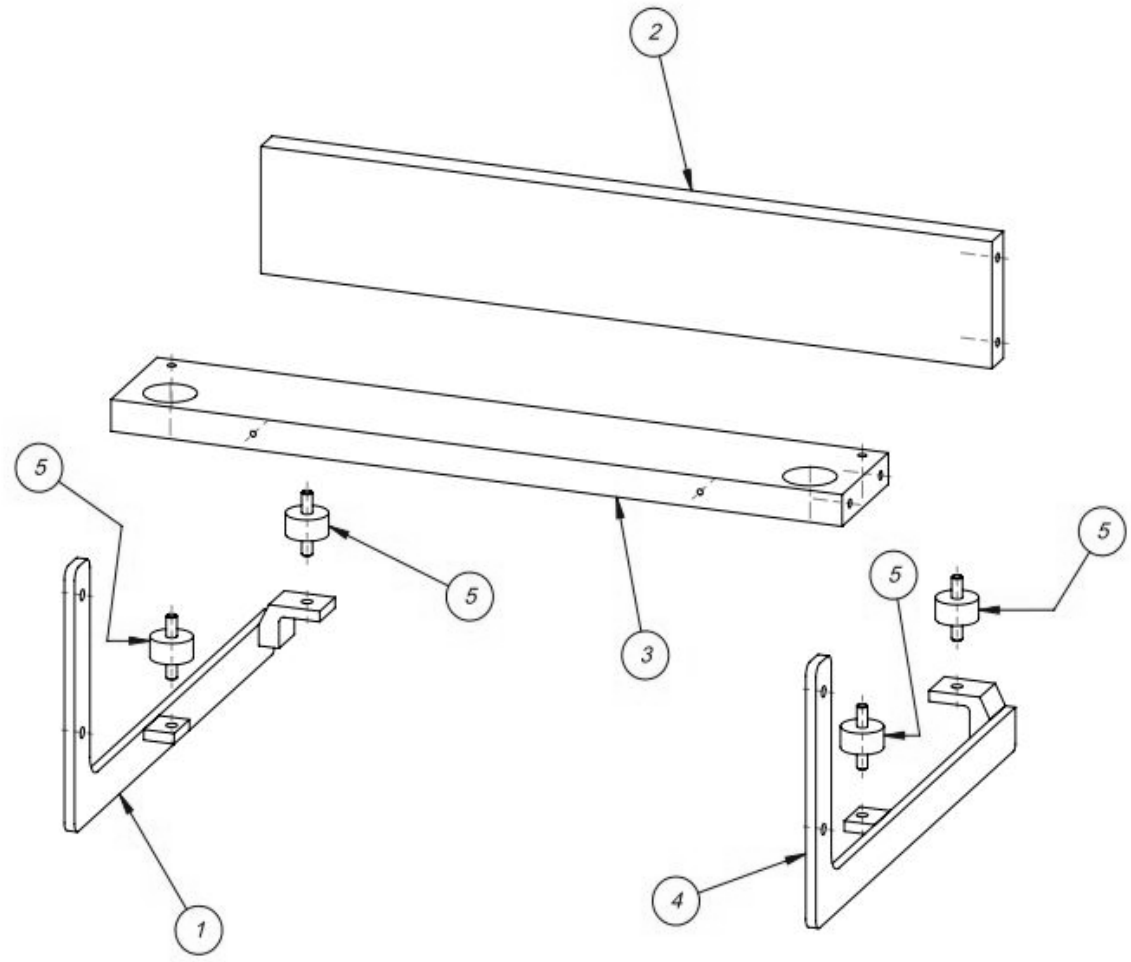


G. Mounting Assembly, Ti-1000Z to US-9000

PN: TA-T2Z2000-US9

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TP-T2Z9001	PRINTER MOUNT (LEFT)
2	1	TP-T2Z9002	SUPPORT BRACE MODIFICATION
3	1	TP-T2Z9003	NIP ROLL SUPPORT BRACE MODIFICATION
4	1	TP-T2Z9004	PRINTER MOUNT (RIGHT)
5	4	TP-110761	VIBRATION MOUNT

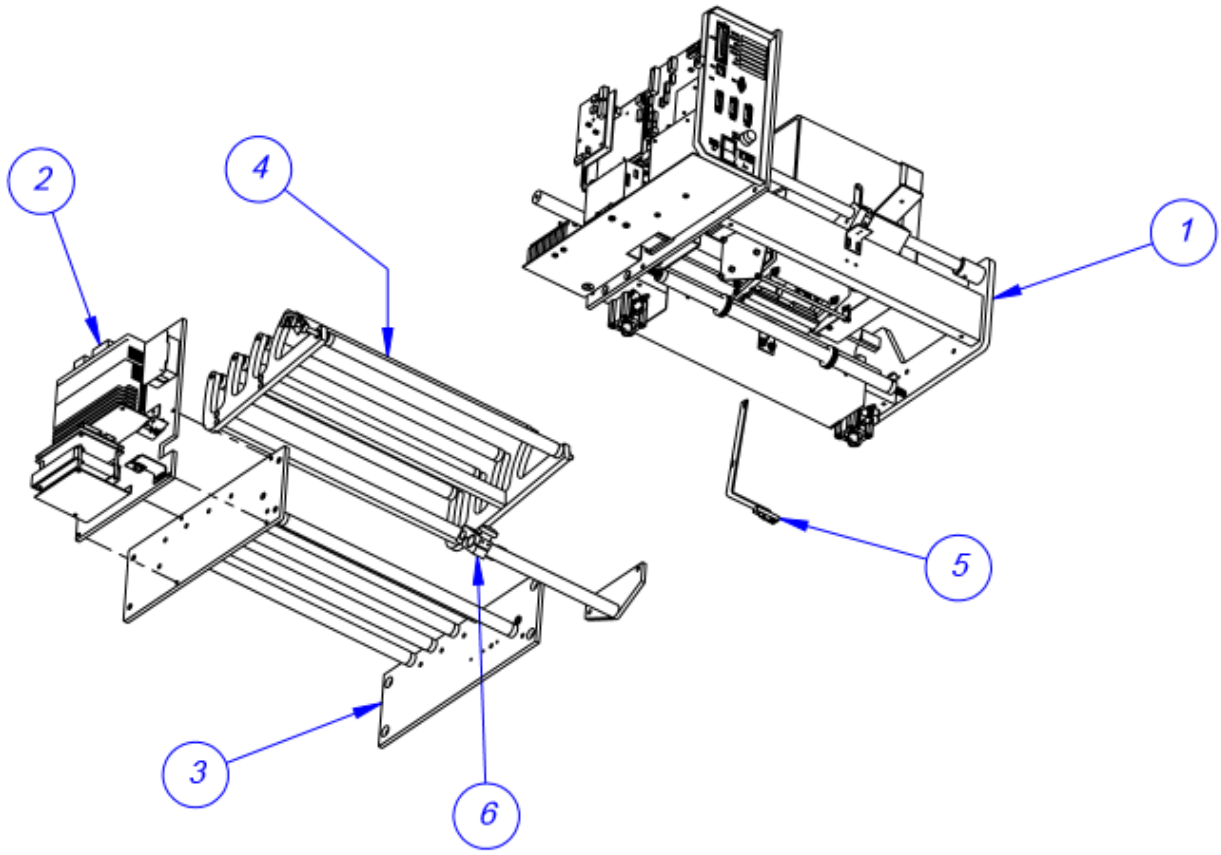
NOTE: This assembly is only included in the Ti-1000Z Inline Thermal Printer when the printer is operating with the combined T-1000-S14/US-9000 system.



5.2 Ti-1000Z Roll-A-Print

T-TI1000Z-RAP

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	T-Ti1000Z	INLINE PRINTER
2	1	TA-T2Z-1000RAP	RAP ELECTRONICS ASSEMBLY
3	1	TA-T2Z-2000RAP	RAP FRAME ASSEMBLY
4	1	TA-T2Z-3000RAP	RAP RACK ASSEMBLY
5	1	TA-T2Z-BO10	BAG OUT DETECTOR
6	1	HIGH VOLTAGE SENSOR ASSEMBLY	HIGH VOLTAGE SENSOR

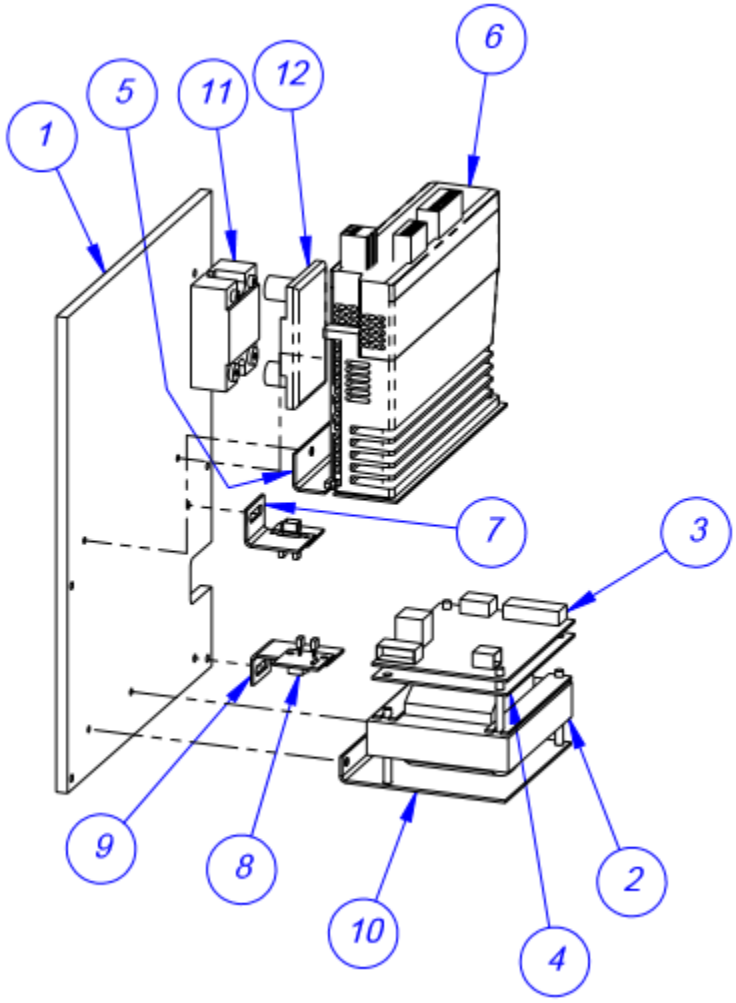


**NOTE: For parts lists and drawings of Item 1, the Ti-1000Z Inline Thermal Printer, please refer to section 5.1.*

A. RAP Electronics Assembly

PN: TA-T2Z-1000RAP

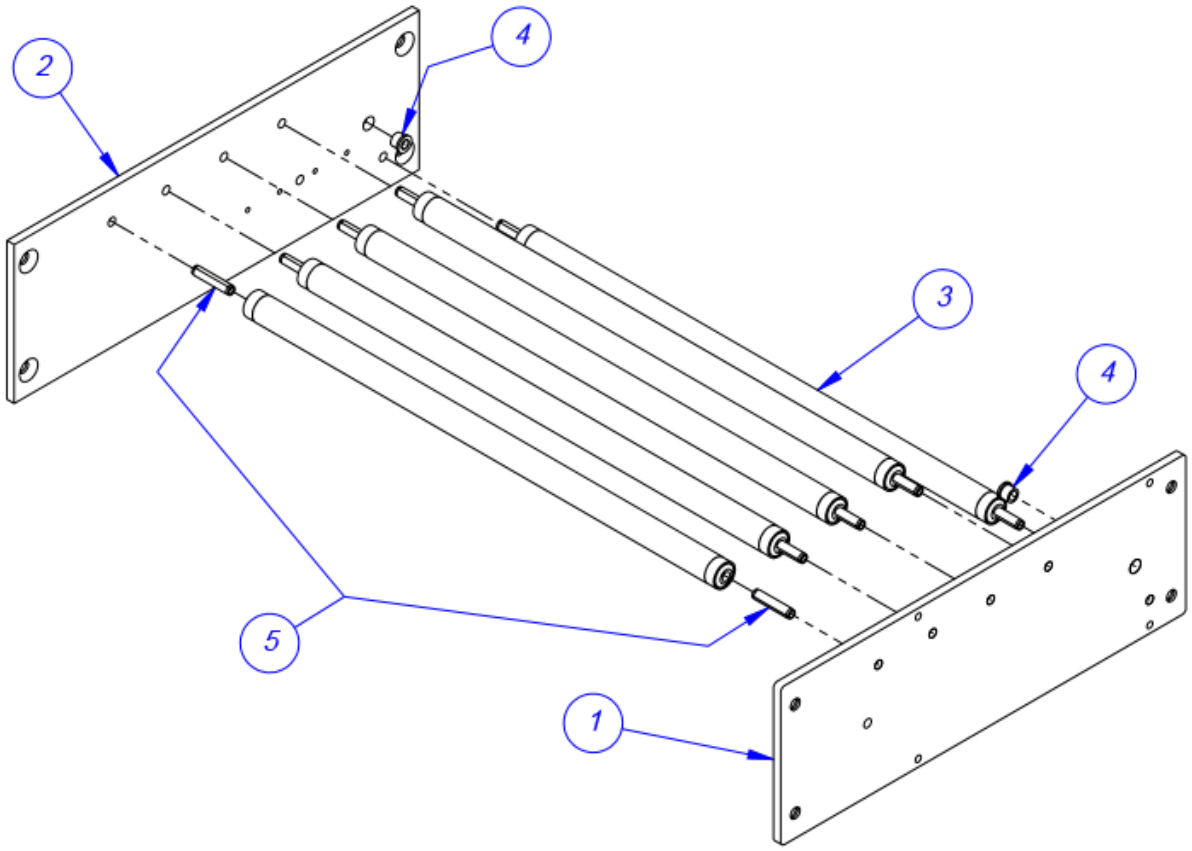
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TP-T2ZRAP101	ELECTRONICS BACK PANEL
2	1	TP-211386	TRANSFORMER
3	1	TP-T1ME00301	HIGH VOLTAGE BOARD
4	1	HP-58243A1	HEAT SHIELD
5	1	TP-T2ZRAP108	DRIVE MOUNT
6	1	TP-501175-1	MOTOR DRIVE
7	1	TP-T2ZRAP104	PRINTER STOP SENSOR MOUNT
8	2	TP-T8ME0161	ANTI-JAM SENSOR T-375
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

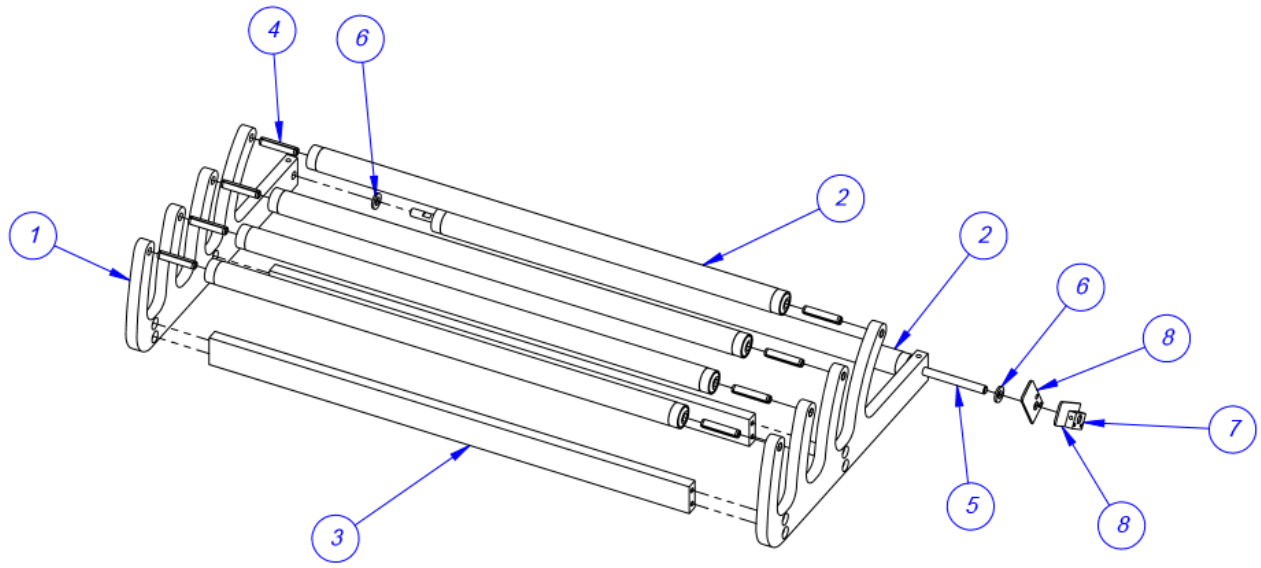
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TP-T2ZRAP201	SIDE FRAME (RIGHT)
2	1	TP-T2ZRAP202	SIDE FRAME (LEFT)
3	5	TP-T1MC00052	STANDARD ROLLER
4	2	TP-107152	FLANGED BEARING
5	10	TP-106106	SLOTTED SPRING PIN



C. RAP Rack Assembly

PN: TA-T2Z-3000RAP

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	2	TP-T2ZRAP301	RACK ARM
2	5	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



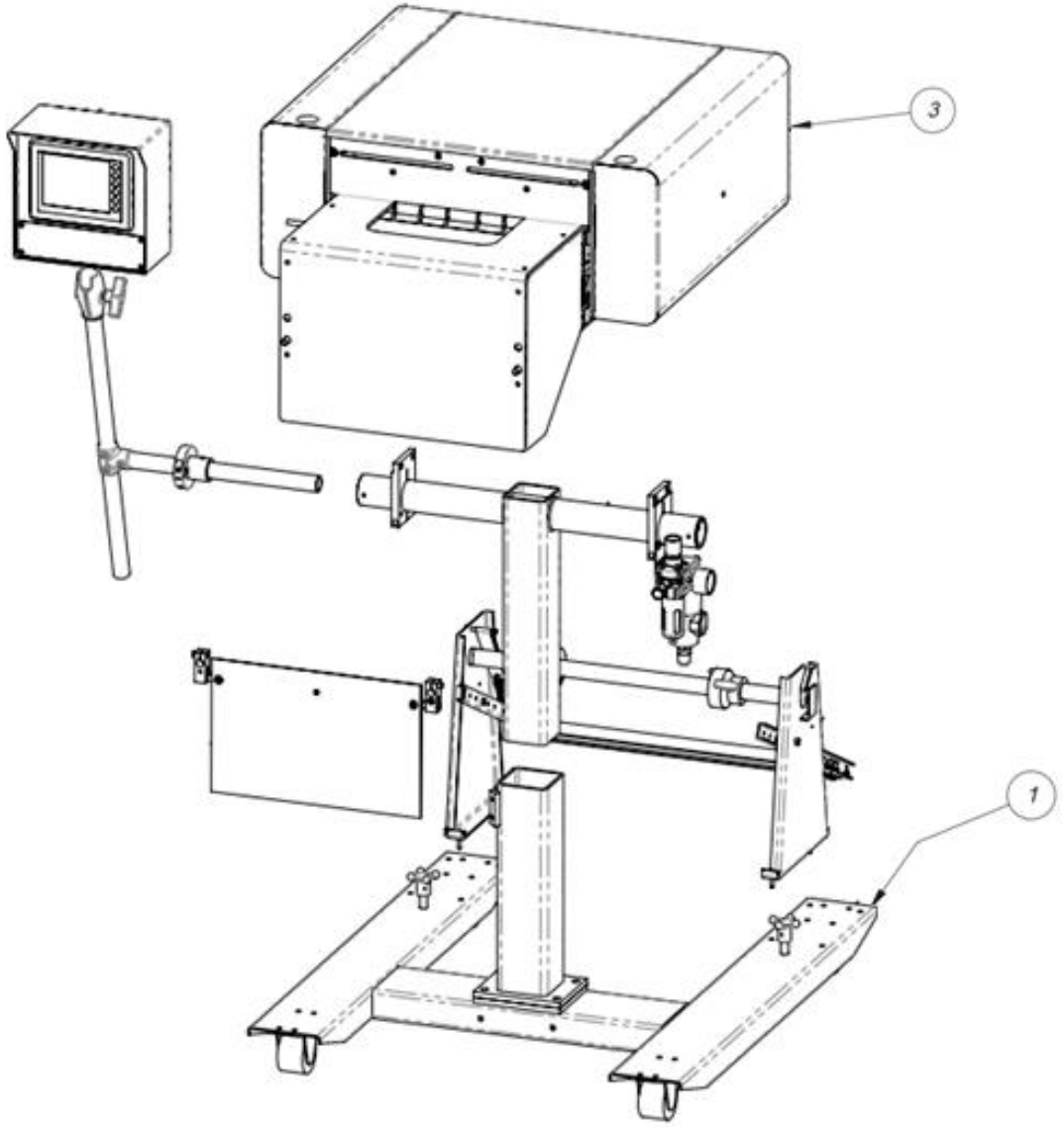
5.3 T-1000-S14 Next Bag Out Printer/Bagger

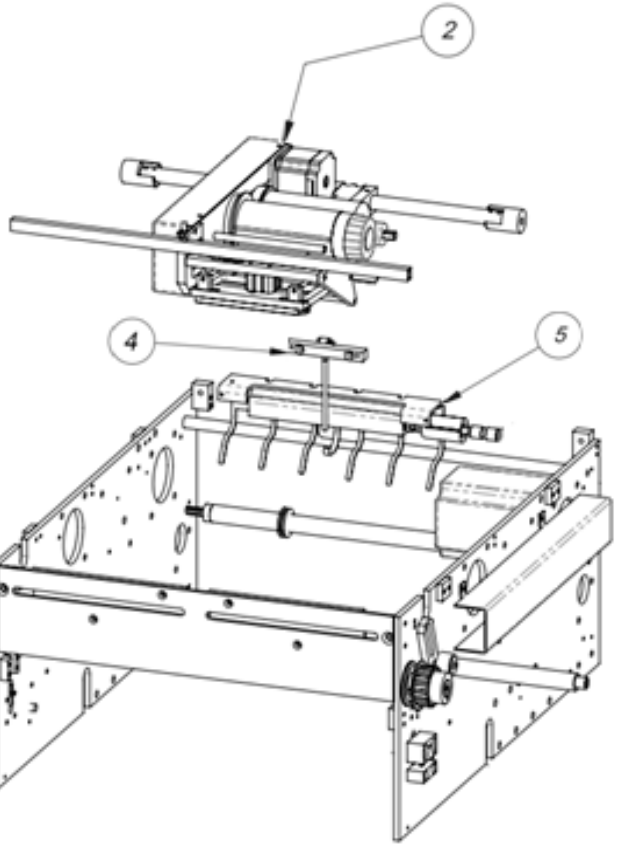
T-T1000-S14NB

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

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.

T-1000-S14 Next Bag Out Printer/Bagger

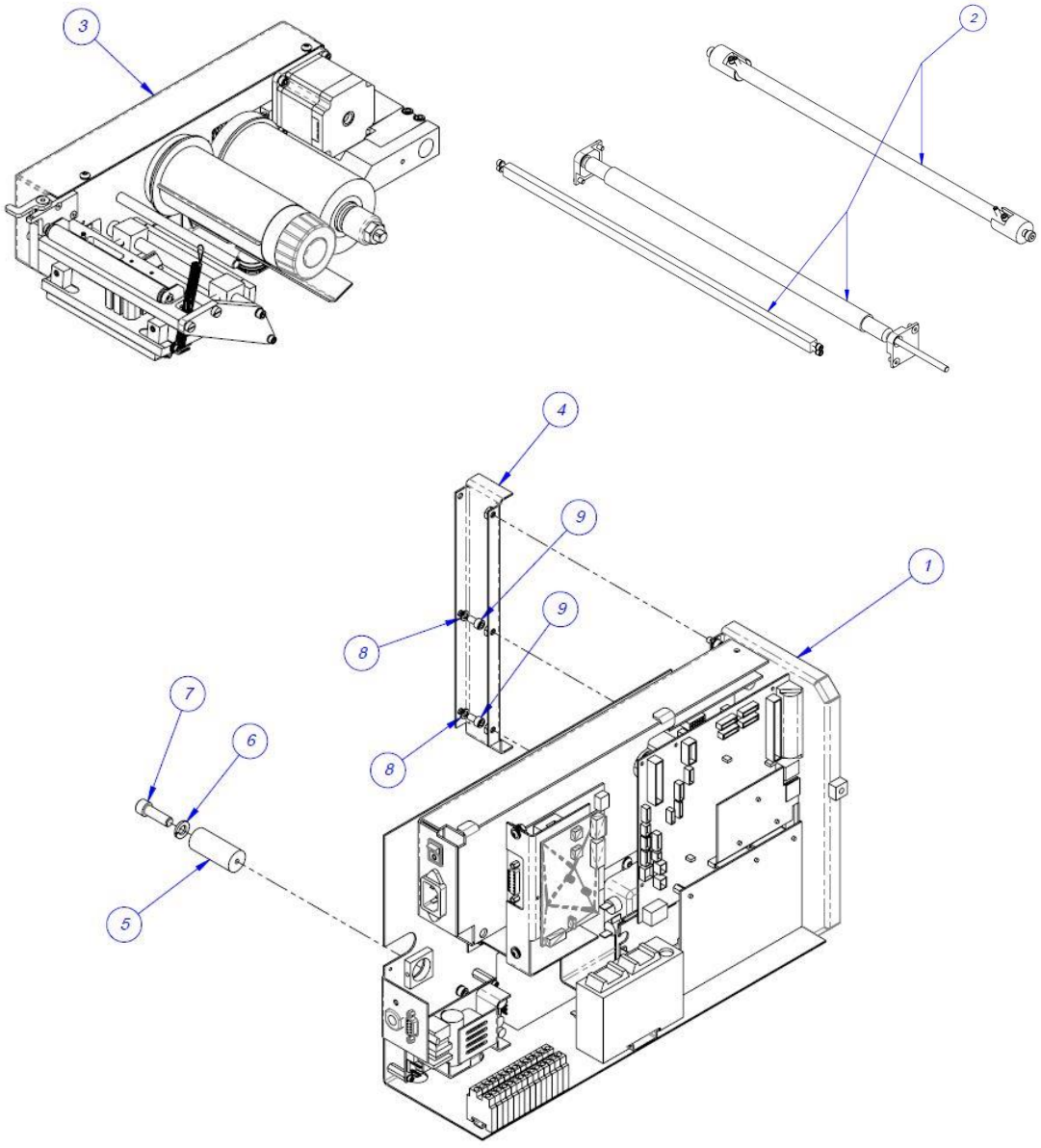




A. Zebra NBO Inline Thermal Printer

PN: TA-TI1000ZNB

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TA-T2Z1000	PRINTER ELECTRONICS ASSEMBLY
2	1	TA-T2Z2000NB	PRINTER MOUNTING ASSEMBLY
3	1	TA-T2Z8000ZNB	ZEBRA NBO PRINTER
4	1	TP-T2Z1009	ELECTRONICS ASSEMBLY SPACER
5	1	TP-T2Z1010	STAND-OFF
6	1	TP-102156	WASHER, 5/16 LOCK
7	1	TP-103145	SCREW, SHCS 5/16-18 x 1" S.S.
8	2	TP-102154	WASHER, #10 LOCK
9	2	TP-103128	SCREW, SHCS 10-32 x 3/8 S.S.

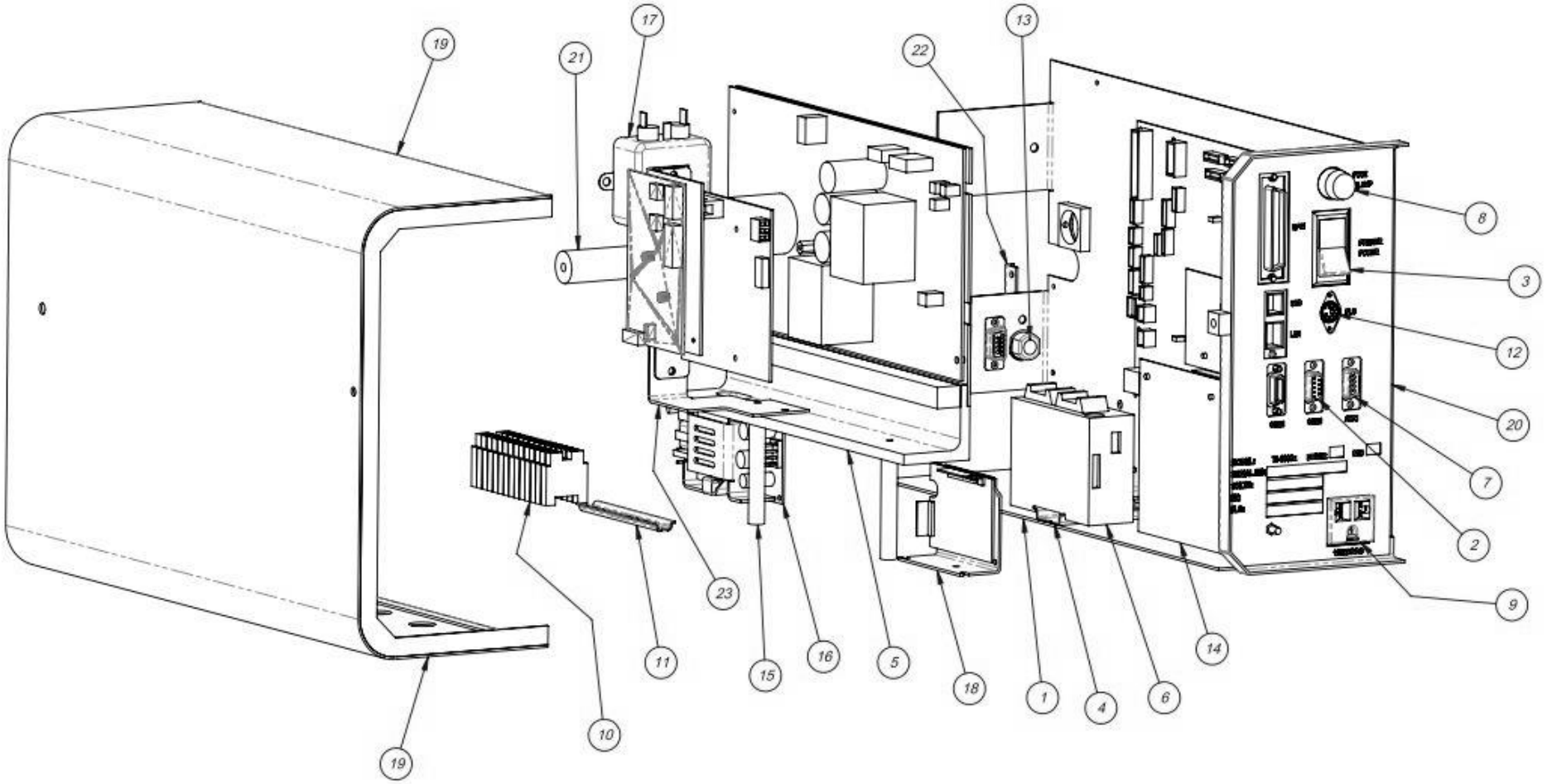


A.1 Electronics Assembly

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

Electronics Assembly

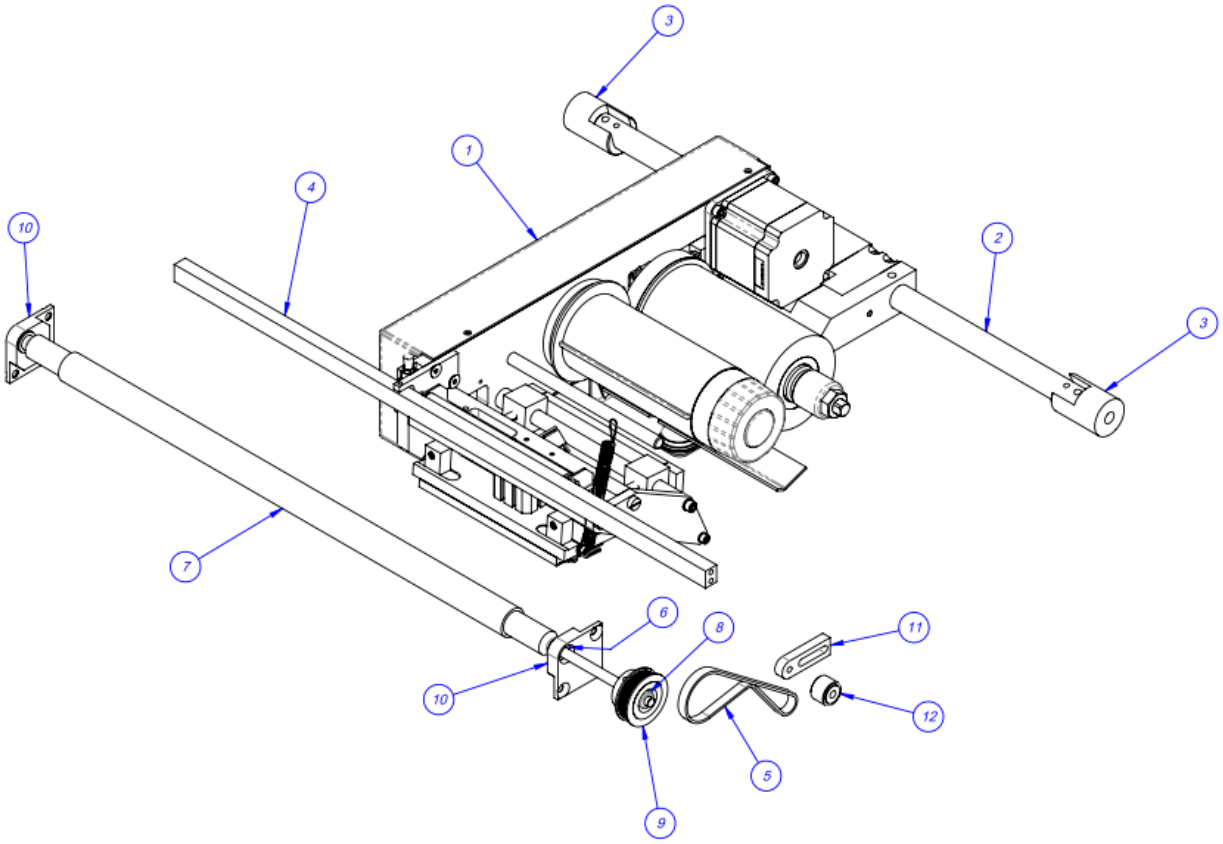


A.2 Mounting Assembly

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	PRECISION 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)

Mounting Assembly

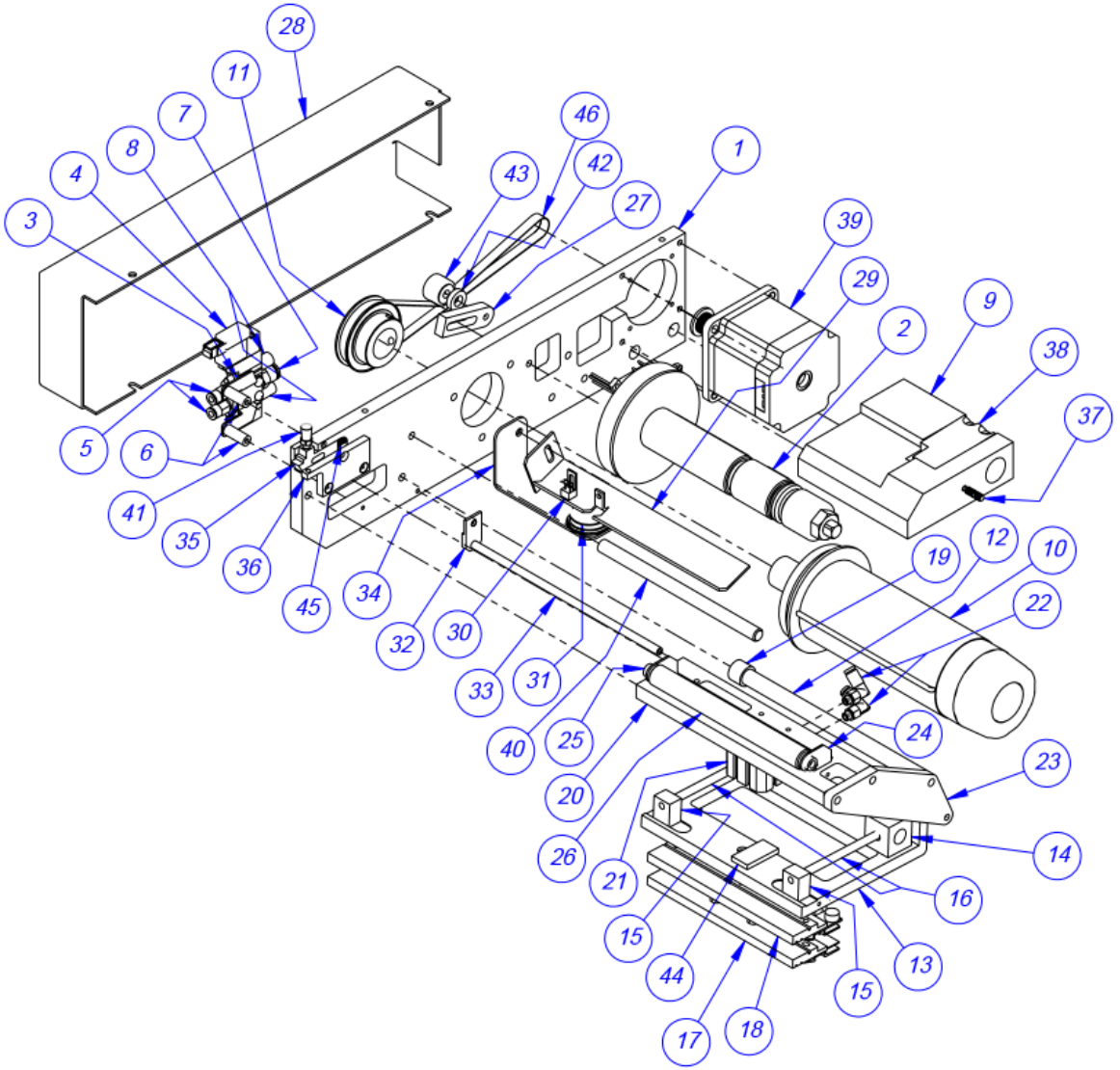


A.3 Zebra Printer Assembly

PN: TA-T2Z8000NB

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TP-T2Z-8001NB	PRINTER SIDE PLATE
2	1	VP-Z-P1006058	RIBBON SUPPLY SPINDLE
3	1	TP-402175	BRACKET
4	1	TP-402260	VALVE
5	2	TP-401294	1/8 INCH FITTING
6	2	TP-104137	NYLON SPACER
7	1	TP-401265	AIR FITTING
8	2	TP-404263	MUFFLER
9	1	TP-T2Z3004NB	PIVOT BLOCK
10	1	VP-Z-41150M	TAKE UP SPINDLE
11	1	TP-T15M-8042	RIBBON TAKE-UP PULLEY
12	1	TP-T15M8004	SUPPORT ROD
13	1	TP- T15M8002	MOUNTING PLATE PRINT HEAD
14	2	TP-T15M8003	ADJUSTMENT BLOCK
15	2	TP-T15M8014	ADJUSTMENT ROD BLOCK
16	2	TP-T15M8013	ADJUSTMENT ROD
17	1	VP-Z-41000M	PRINT HEAD
18	1	VP-Z-P1004230	PRINT HEAD
19	1	TP-T15M8010	LOCATING SPACER
20	1	TP-T2Z8004NB	PRINTHEAD MOUNT
21	1	TP-403052	PNEUMATIC CYLINDER
22	2	TP-401294-1	1/8"TUBE x 10-32 ELBOW (MALE)
23	1	TP-T2Z-8030NB	TIE PLATE
24	1	TP-T2Z8031	RIBBON ROLLER MOUNT
25	2	TP-107101	FLANGED BUSHING, 3/16" X 5/16" X 3/16"
26	1	TP-T2Z8032	ALIGNMENT ROLLER
27	1	TP- T15M8007	BELT TENSIONER
28	1	TP-T2Z-8008NB	PRINTER COVER
29	1	TP-T2Z8011NB	SENSOR BRACKET
30	1	VP-Z-P1006134	ZEBRA RIBBON OUT SENSOR
31	1	TP-216101	REFLECTOR 1" DIAMETER
32	1	TP-T15M8032	SHAFT MOUNT
33	1	TP-T15M8031	ROLLER SHAFT
34	1	TP-T2Z-8005NB	REFLECTOR MOUNT
35	1	TP-T2Z-8003NB	CATCH
36	1	TP-T2Z-8002NB	LATCH PLATE
37	1	TP-108223	SPRING PLUNGER
38	1	TP-T2Z8006NB	LATCH BLOCK
39	1	VP-Z-46198M	MOTOR
40	1	TP-T2Z8012NB	RIBBON ROD
41	1	TP-109228	STEEL MINIATURE HANDLE
42	1	TP-104121	NYLON SPACER
43	1	TP-504138	CAM FOLLOWER
44	1	TP- T15M8038	WEAR SURFACE
45	1	TP-108180	COMPRESSION SPRING
46	1	TP-503196	BELT

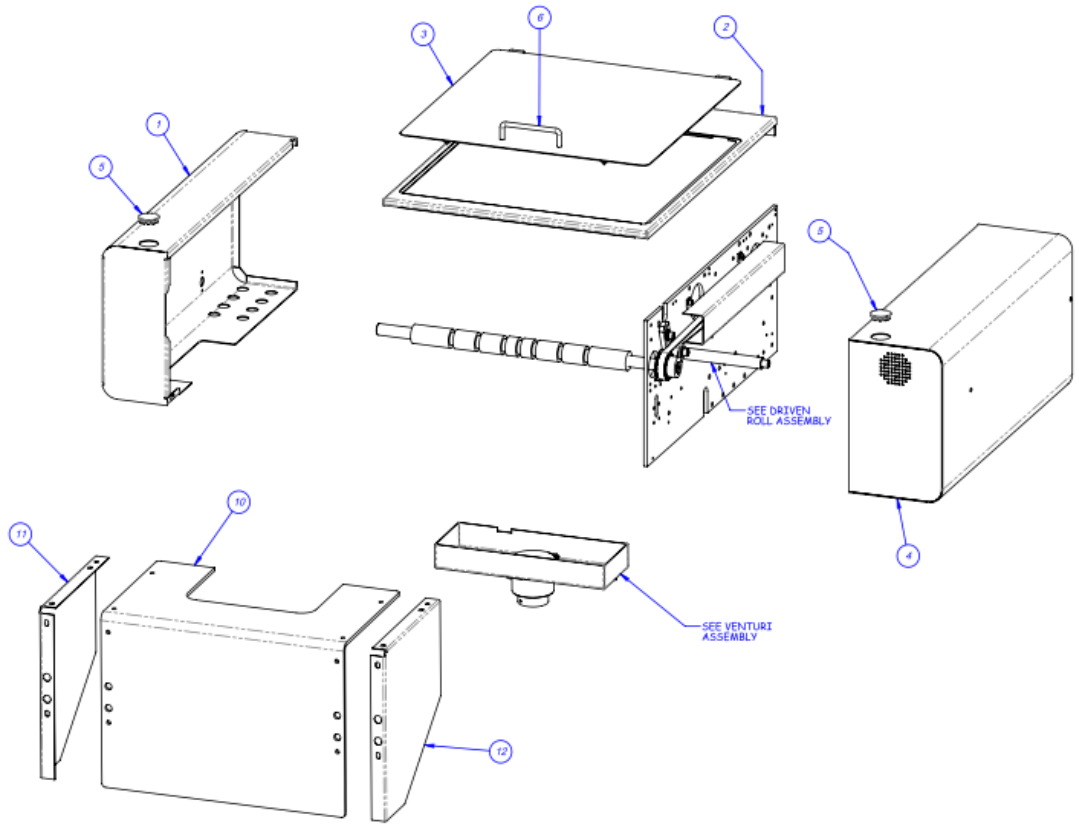
Zebra Printer Assembly



B. Covers and Guards

PN: TA-T1-S14PRINT

TI-S14 PRINT COVERS AND GUARDS			
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

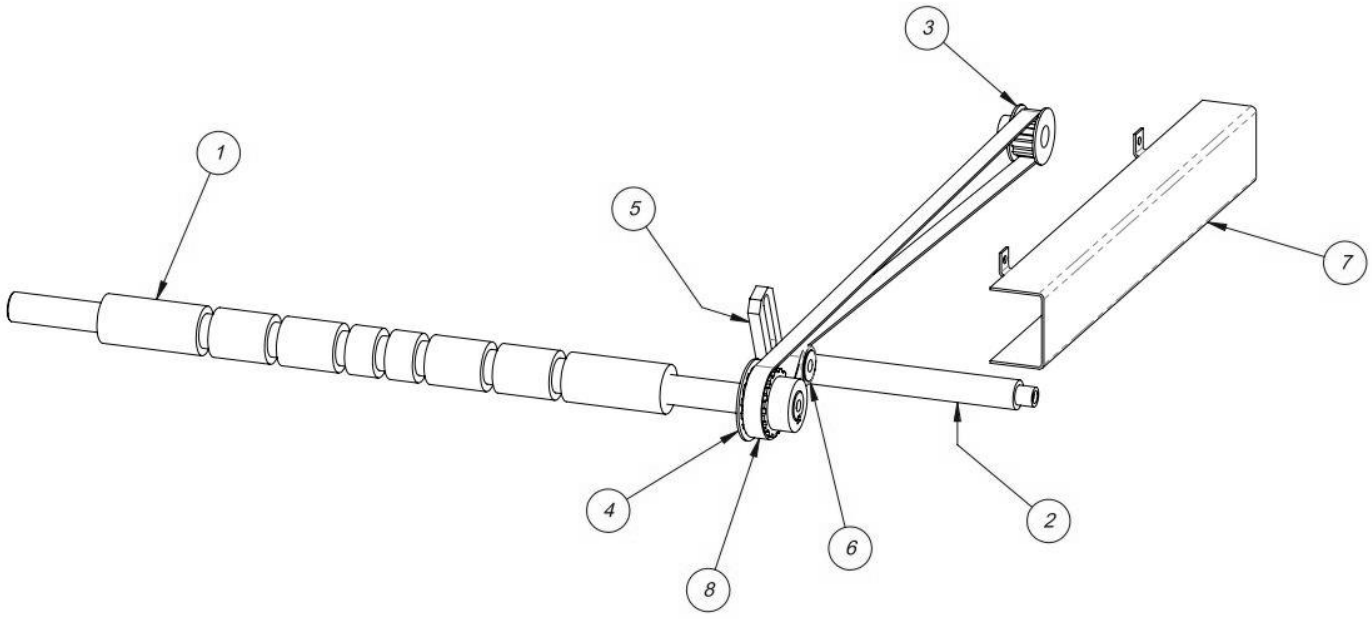


B.1 Covers and Guards, Continued

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

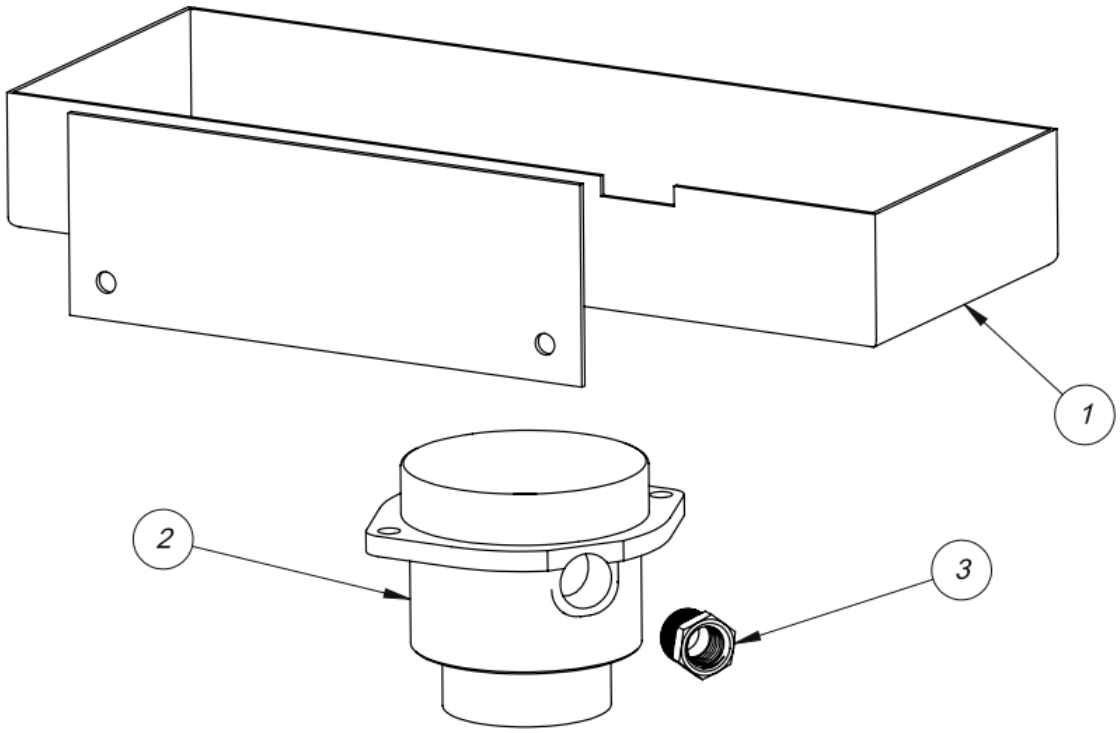


B.2 Covers and Guards, Continued

PN: TA-T1-S14PRINT

Venturi Enclosure Assembly

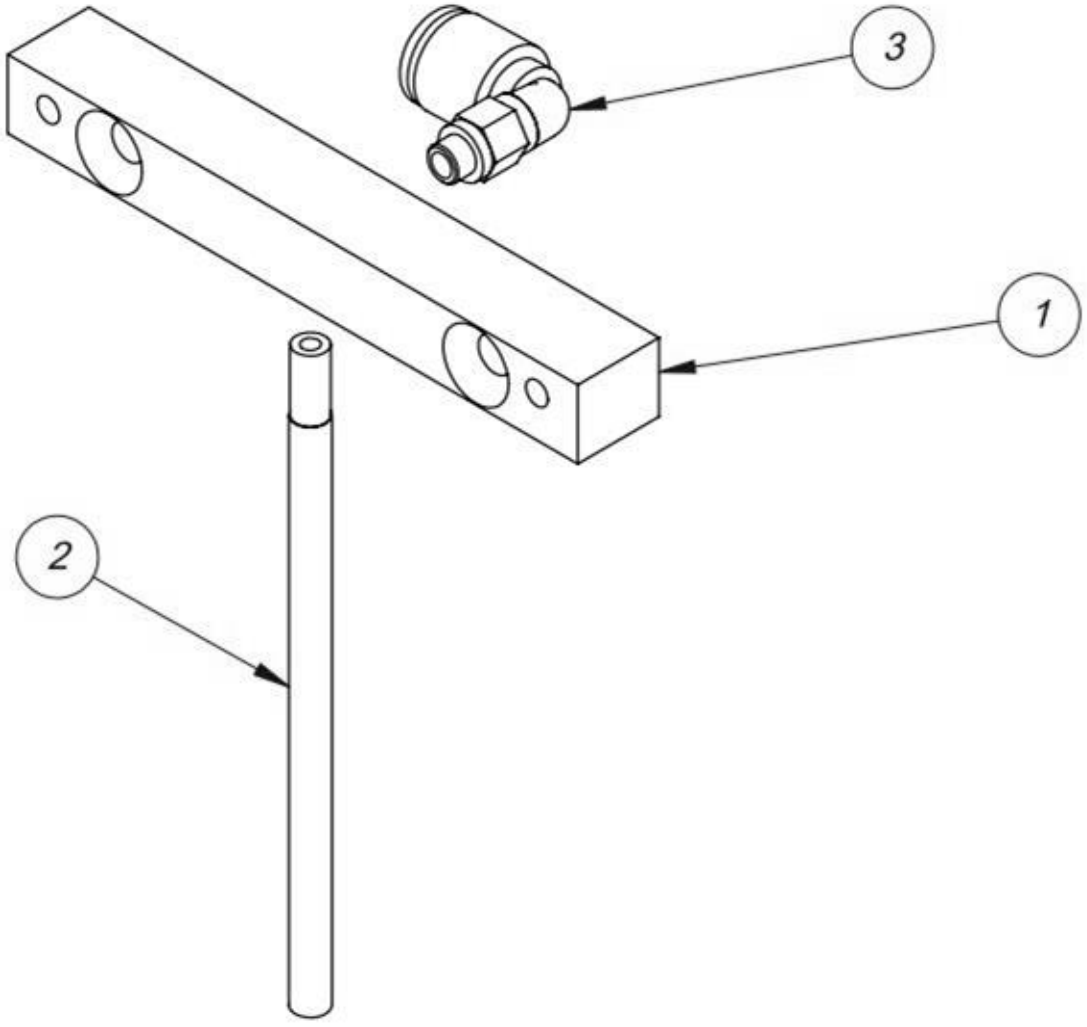
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TP-TS10-109	VACUUM ENCLOSURE
2	1	TP-405272	AIR AMPLIFIER
3	1	TP-106440	REDUCING HEX BUSHING (4429K412)



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

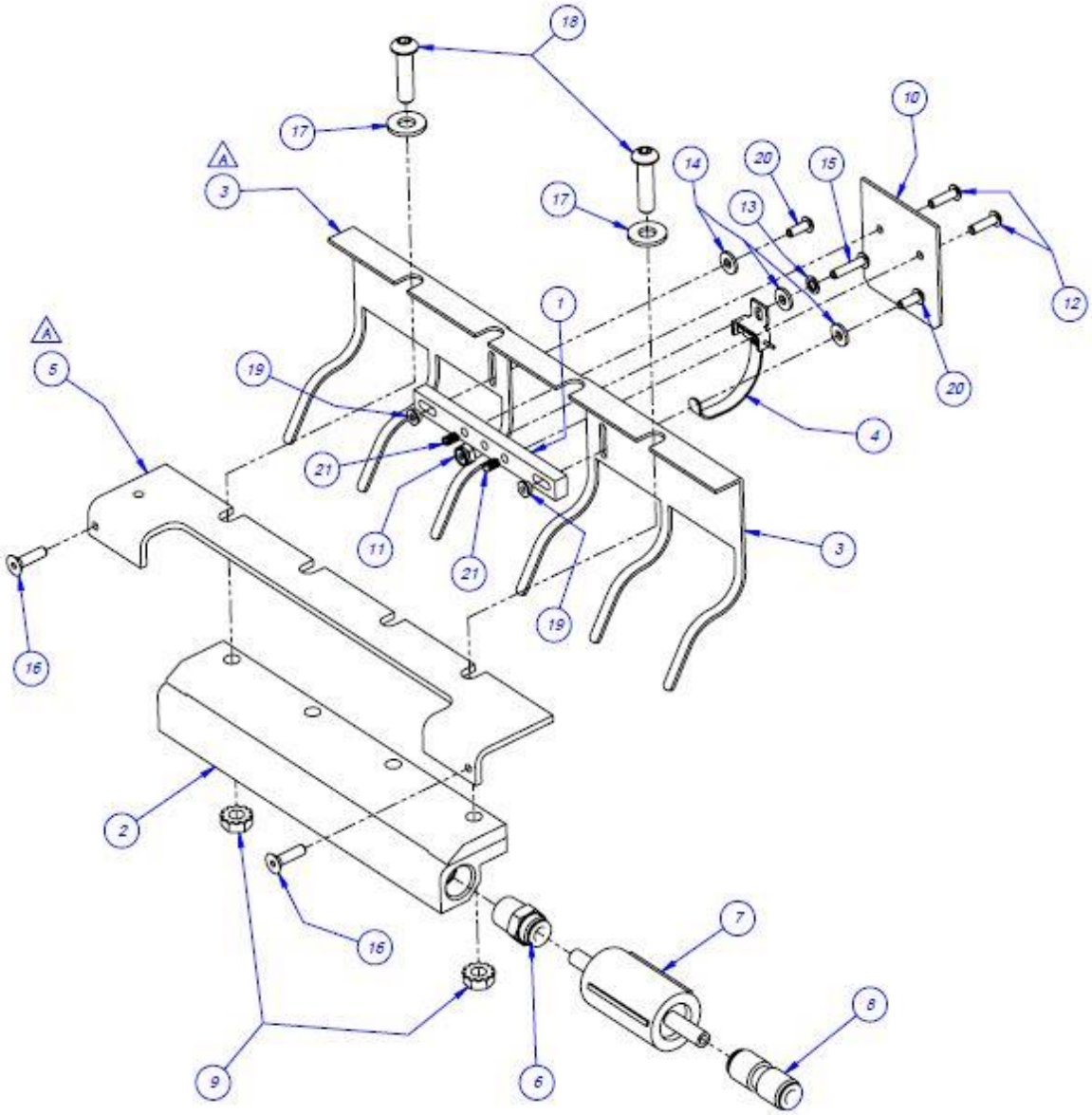


D. Air Knife Assembly

PN: TA-T10001-2NB

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TP-T1MC00083	INSULATOR, FOR HIGH VOLTAGE SENSOR
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 CONNECTOR, 1/4" TUBE x 1/4 NPT
7	1	TP-406181	MICRON FILTER
8	1	TP-401262	UNION, STRAIGHT 1/4" TUBE
9	2	TP-101092	NUT, 1/4-20 W/ TOOTH WASHER
10	1	TP-T1MC00025NB	HIGH VOLTAGE SHIELD
11	1	TP-101140	NYLON INSERT NUT
12	2	TP-103208	SCREW, BHCS 6-32 x 1/2
13	1	TP-102102	WASHER, #6 Int. TOOTH LW
14	3	TP-102132	WASHER, #6 FLAT
15	1	TP-103196	SCREW, BHCS 6-32 x 5/8
16	2	TP-103395	SCREW, FHCS 8-32 x 5/8
17	2	TP-102142	WASHER, 1/4 FLAT
18	2	TP-103226	SCREW, BHCS 1/4-20 x 1
19	2	TP-106540	CAPTIVE NUT
20	2	TP-103207	SCREW, BHCS 6-32 x 3/8
21	2	PURCHASED	#6-32 HELI-COIL

Air Knife Assembly



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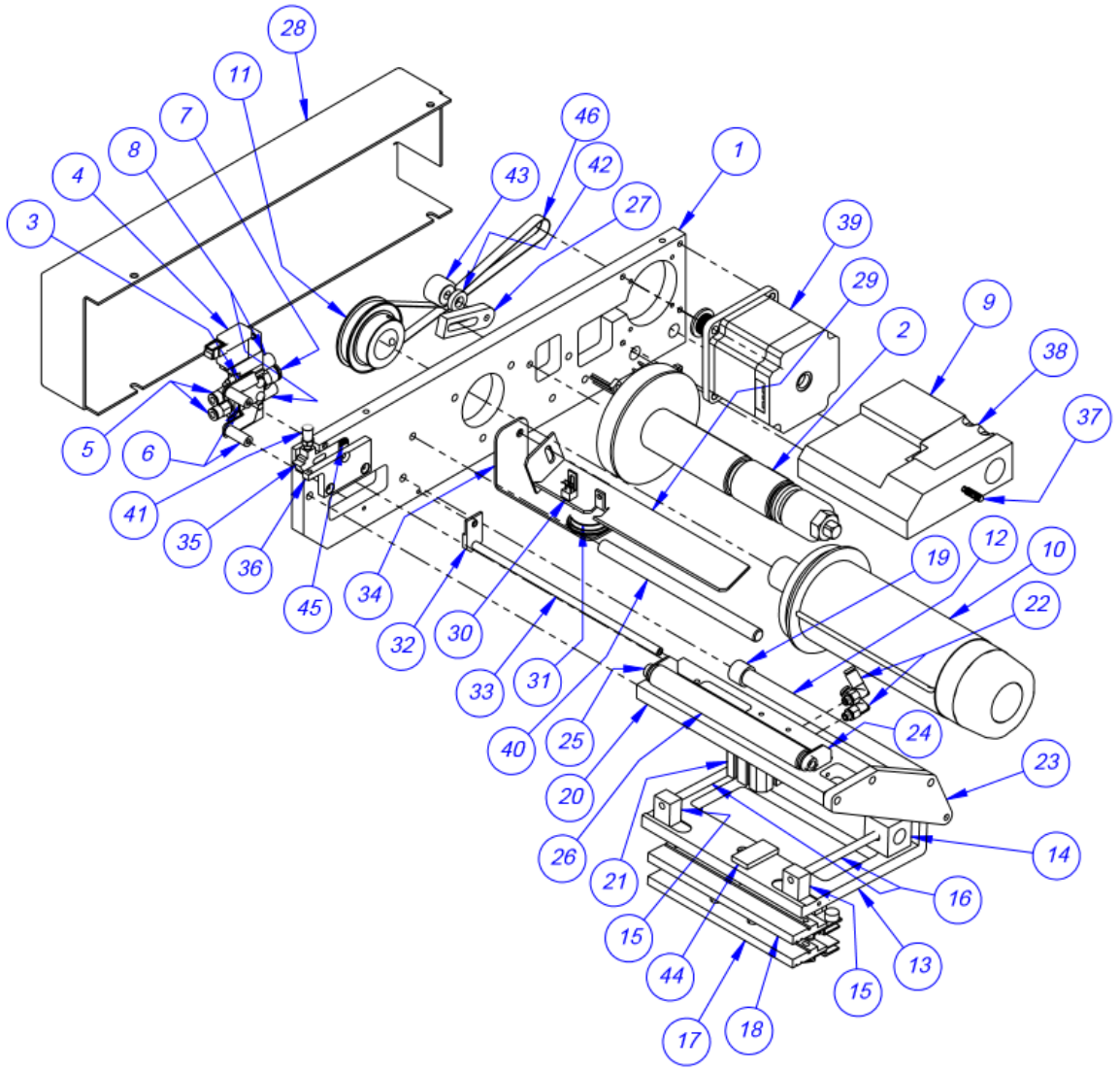
5.4 T-1000-S14NB08Z Assembly

TA-T2Z8000NB

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TP-T2Z-8001NB	PRINTER SIDE PLATE
2	1	VP-Z-P1006058	RIBBON SUPPLY SPINDLE
3	1	TP-402175	BRACKET
4	1	TP-402260	VALVE
5	2	TP-401294	1/8 INCH FITTING
6	2	TP-104137	NYLON SPACER
7	1	TP-401265	AIR FITTING
8	2	TP-404263	MUFFLER
9	1	TP-T2Z3004NB	PIVOT BLOCK
10	1	VP-Z-41150M	TAKE UP SPINDLE
11	1	TP-T15M-8042	RIBBON TAKE-UP PULLEY
12	1	TP-T15M8004	SUPPORT ROD
13	1	TP- T15M8002	MOUNTING PLATE PRINT HEAD
14	2	TP-T15M8003	ADJUSTMENT BLOCK
15	2	TP-T15M8014	ADJUSTMENT ROD BLOCK
16	2	TP-T15M8013	ADJUSTMENT ROD
17	1	VP-Z-41000M	PRINT HEAD
18	1	VP-Z-P1004230	PRINT HEAD
19	1	TP-T15M8010	LOCATING SPACER
20	1	TP-T2Z8004NB	PRINTHEAD MOUNT
21	1	TP-403052	PNEUMATIC CYLINDER
22	2	TP-401294-1	1/8" TUBE x 10-32 ELBOW (MALE)
23	1	TP-T2Z8030NB	TIE PLATE, NBO ZEBRA
25	2	TP-107101	FLANGED BUSHING, 3/16 X 5/16 X 3/16
26	1	TP-T2Z8032	ALIGNMENT ROLLER
27	1	TP-T15M8007	BELT TENSIONER
28	1	TP-T2Z-8008NB	PRINTER COVER
29	1	TP-T2Z8011NB	SENSOR BRACKET
30	1	VP-Z-P1006134	ZEBRA RIBBON OUT SENSOR
31	1	TP-216101	REFLECTOR 1" DIAMETER
32	1	TP-T15M8032	SHAFT MOUNT
33	1	TP-T15M8031	ROLLER SHAFT
34	1	TP-T2Z-8005NB	REFLECTOR MOUNT
35	1	TP-T2Z-8003NB	CATCH
36	1	TP-T2Z-8002NB	LATCH PLATE
37	1	TP-108223	SPRING PLUNGER
38	1	TP-T2Z8006NB	LATCH BLOCK
39	1	VP-Z-46198M	MOTOR

40	1	TP-T2Z8012NB	RIBBON ROD
41	1	TP-109228	STEEL MINIATURE HANDLE
42	1	TP-104121	NYLON SPACER
43	1	TP-504138	CAM FOLLOWER
44	1	TP-T15M8038	WEAR SURFACE
45	1	TP-108180	COMPRESSION SPRING
46	1	TP-503196	BELT

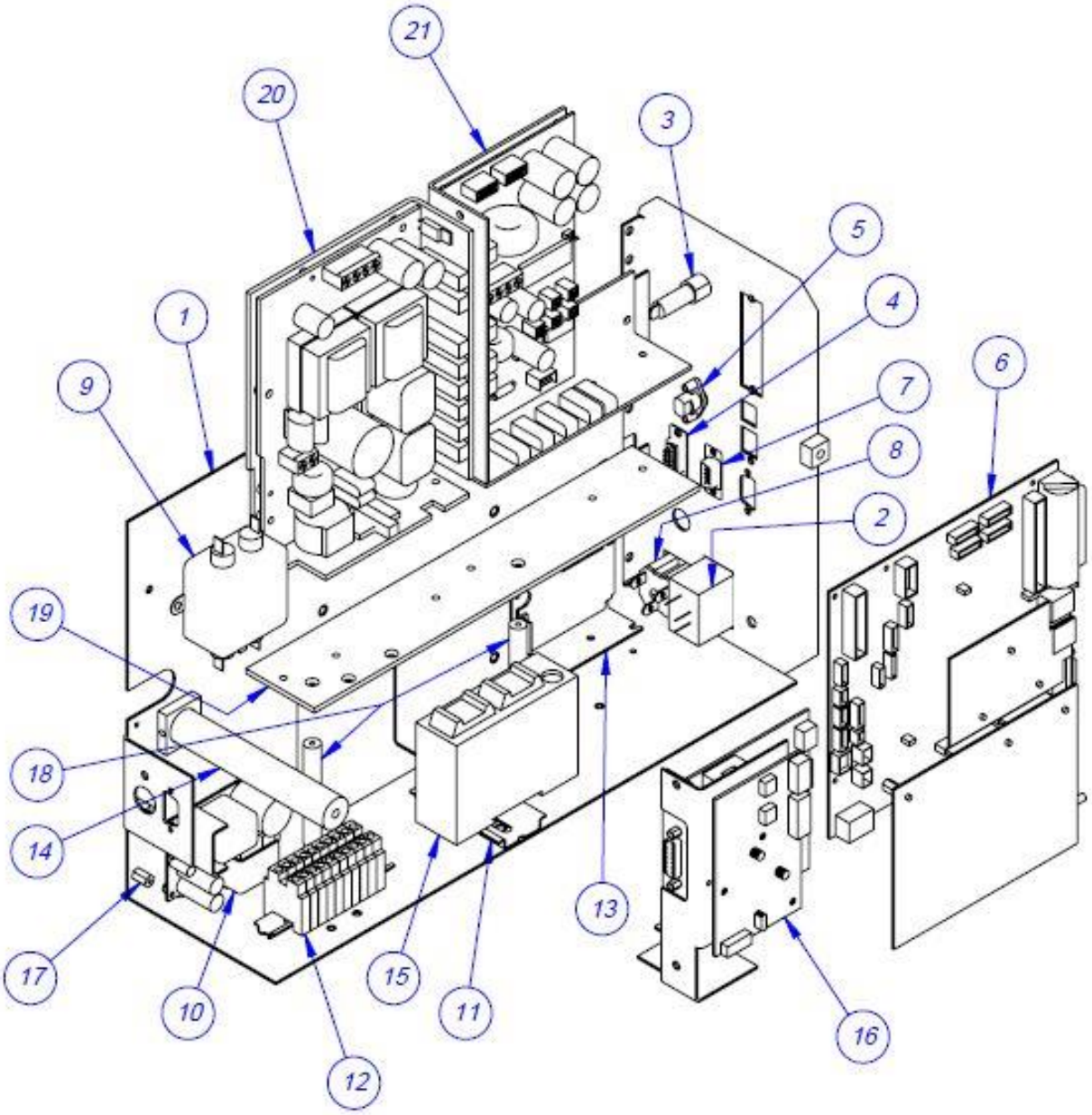
T-1000-S14NB08Z Assembl



A. Electronics Assembly

T2Z1000-08Z

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TP-T2Z1005	MOD ELECTRONICS BASE
2	1	TP-215384	POWER SWITCH
3	1	TP-207216, TP-207344	FUSE HOLDER & FUSE
4	1	TP-212247	9-PIN D-SUB FEMALE
5	1	TP-212160	5-POS MINI DIN
6	1	V-Z-P1053360-016	LOGIC BOARD
7	1	TP-212246	CONNECTOR, MULTIPLE RECTANGULAR
8	1	TP-212410	AC OUTLET
9	1	TP-205108	EMI FILTER, CORCOM
10	1	TP-213361	24VDC, 3AMP POWER SUPPLY
11	1	TP-218020	DIN RAIL
12	1	TP-208142, TP-218021	DIN RAIL & TERM BLOCK
13	1	TP-501156	MOTOR DRIVE, DRIVEN PRINT ROLL
14	1	TP-T2Z2012	COVER PANEL STAND-OFF
15	1	TP-220511,214111,220513	PLC, BATTERY & COMM 2 CAS
16	1	TP-T2Z1004	APP BOARD & MOUNT
17	4	TP-214268	STAND-OFF .38"
18	2	TP-T2Z1008	STAND-OFF - 2.5"
19	1	TP-T2Z1012	POWER SUPPLY MOUNT
20	1	VP-Z-P1007557	AC POWER SUPPLY
21	1	TP-Z-P1040670	DC POWER SUPPLY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B. Mounting Assembly

TA-T2Z2000NB-08Z

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	TP-T2Z2004	PIVOT SHAFT
2	2	TP-T14M1035	GUIDE ROD HOLDER
3	1	TP-T2Z2005NB	LATCH BAR
4	2	TP-504097	PRECISION FLANGED BALL BEARING
5	2	TP-T2Z2011NB	BEARING PLATE
6	1	TP-T2Z2006NB	DRIVEN PRINT ROLL