Roll-a-Print 1400/2800 Print Station

Operation Guide

Installation, Setup and Operation Guide

(Refer to the Ti-1000 Manual for additional information regarding the print head assembly which is mounted in the RAP 1400 / 2800)

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Acknowledgments

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Limited Warranty and Disclaimer

Warranty period is 12 months or 1,000,000 cycles whichever comes first. The warranty commences on the date of delivery of the equipment to the Purchaser. The warranty for the printer(s) is specified in the Ti-1000 manual.

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

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

APPI will not be liable for loss of production, profits, lost savings, special, incidental, consequential, indirect, or other similar damages arising from breach of warranty, breach of contract, negligence, or their legal action even if APPI or its agent has been advised of the possibility of such damages or for any claim brought against the Purchaser by another party.

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

Warranty on equipment is considered void when outstanding balances become delinquent (over 30 days late - 60 days after ship date).

Equipment Integration to other Equipment: APPI assumes no responsibility for the integration of its products to other products or within a system unless APPI performs the integration, testing and provides the results of the tests to the purchaser in writing. Furthermore, APPI assumes no responsibility for bag sizing whether suggested or recommended.

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Chapter 1

Introduction

Welcome
Overview
Using This Manual
Special Features
Available Options
Note on Safety
Specifications
Unpacking & Setup
Operating Environment

1.1 Welcome

Thank you for selecting the Roll-a-Print (RAP). The Roll-a-Print is easy to operate and quick to set up, making it ideal for long or short packaging runs.

1.2 Overview

The RAP is designed to print on a variety of films including polyethylene, polypropylene, laminated films, foils, and various paper materials. The RAP can print on continuous bags or rolls stock material either inline or out of line. With the variety of uses, the RAP should demonstrate to be a versatile printer.

1.3 Using This Manual

The following manual conventions are frequently used to assist in understanding important information, alerting the operator of potentially dangerous or damaging practices, and the normal functions of the RAP.

Text normal text

Italics Used for emphasis

BOLDFACE Used to identify heading names

CAUTION: Warning messages. To avoid physical harm, damage to equipment or damage to the product. Be sure to read these messages carefully.

1.4 Special Features of the Roll-a-Print

The Roll-a-Print has been designed with simplicity of operation and ease of maintenance in mind. The unit is built with a modular design so that an additional printer can easily be installed (Model RAP-2800). Additionally, printers can be easily removed for service or returned to the factory for maintenance.

One operator touch screen panel controls all the functionality of the RAP. Printer screens are also included to troubleshoot the print head mechanism. Functions of the touch screen include a totalizing counter that counts cycles of operation, error/diagnostic screens, multiple registration or random print operations, job saves and test screens.

1.5 Available Options

Spare Parts Kit: Print heads, valves, cylinders, and other components make this kit a must. Contact APPI for a quote and listing of components in this kit.

Bar code verifiers integrate to provide 100% inspection of bar-codes.
Thermal ribbon: APPI selects only the best quality ribbon so that print head life is extended. Savings with less quality ribbons are quickly lost when print heads are replaced due to excessive wear, caused by lesser quality ribbons.

Rewind units: print and rewind so that bags are in the correct direction after printing.

Other options are available for the RAP - please contact APPI for additional information.

1.6 Special Note on Safety

Although many safety features have been included in the mechanical, electronic, and pneumatic systems, improper use, improper adjustments, or neglect of preventative maintenance may result in serious personal injury. Do not attempt to repair the unit while plugged in. Do not attempt to operate the unit with guards or covers removed.

1.7 Specifications

RAP-1400:
Dimensions: 42” wide x 46” deep x 46” tall (adjustable)
Print specifications: see Ti-1000 print specifications
Weight: 225 lbs.
Air: 80 PSI
Electric: 117V/60Hz
Film / Bag sizes: 2” wide up to 13” wide

RAP-2800:
Dimensions: 42” wide x 64” deep x 46” tall (adjustable)
Print specifications: see Ti-1000 print specifications
Weight: 275 lbs.
Air: 80 PSI
Electric: 117V/60Hz
Film / Bag sizes: 2” wide up to 13” wide

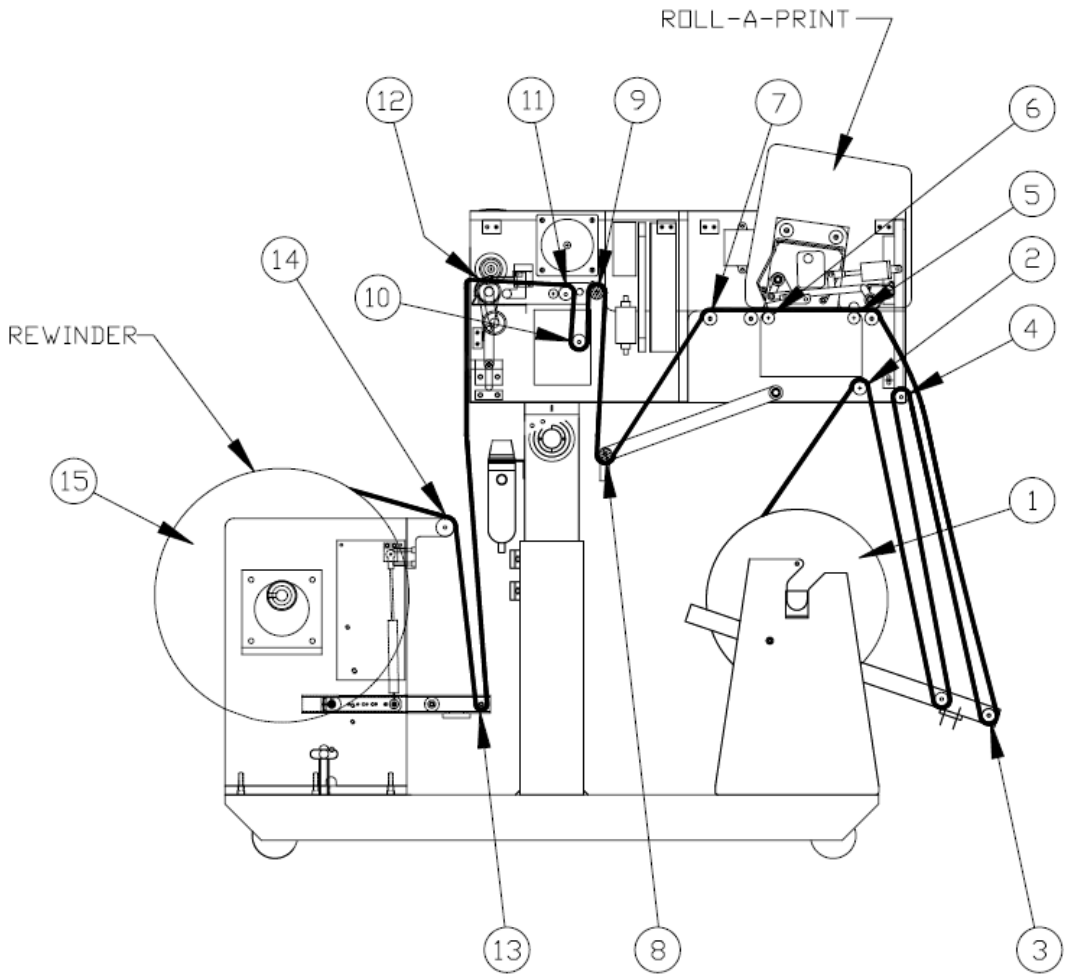
Note: Specifications may change based upon RAP-2800 printer configurations

1.8 Unpacking & Setup

The RAP is shipped completely assembled and, in a carton, or crate. Remove all tape, banding or packing materials that secure the machine. To ensure the highest production possible, consider product flow to the printer and packaged product flow away from the printer when positioning the unit into your packaging areas.

1.9 Operating Environment

When you choose a location for installation, make sure the area is free of excess dust, dirt, and moisture.



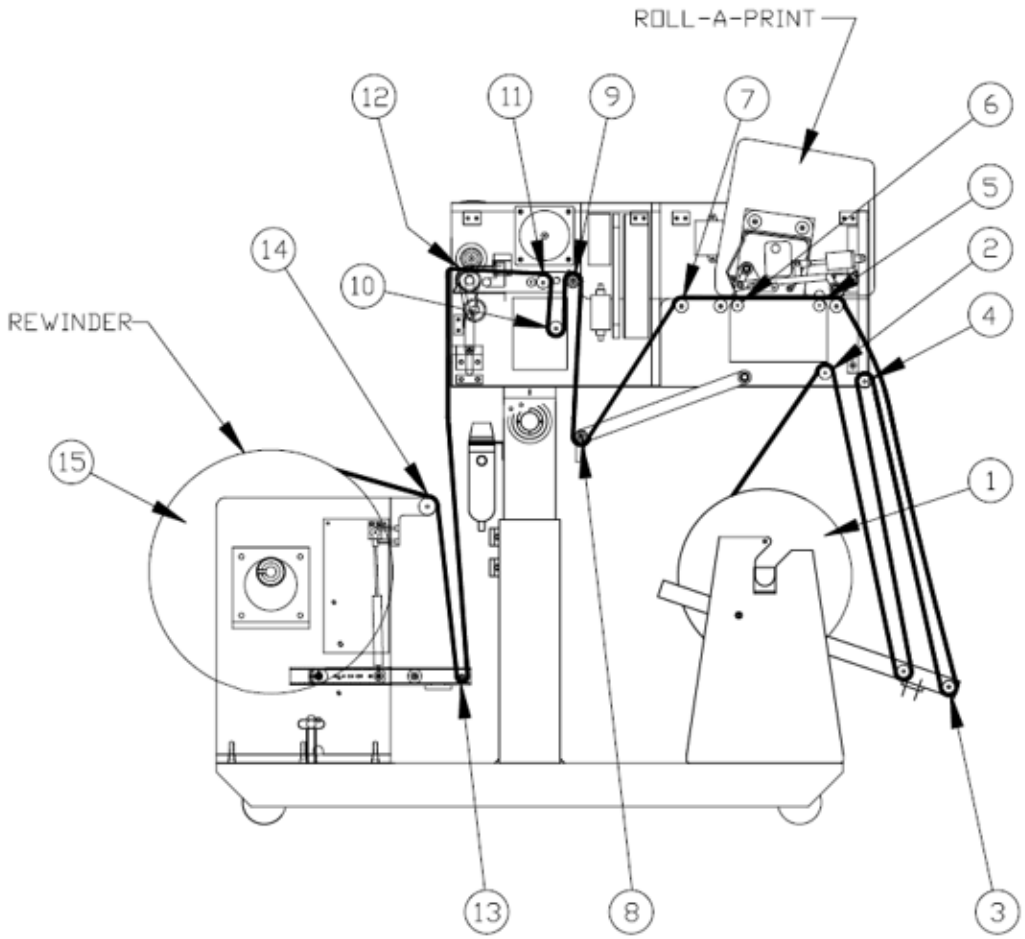
1 UNWIND (FULL ROLL)
2 BAG OUT SENSOR
3 DANCER BAR ROLLER
4 IDLER ROLL
5 REAR PINCH ROLLER
6 PRINT ROLLER
7 IDLER ROLL
8 PRINT POSITIONING ROLLER
9 PERF SENSOR SHAFT
10 IDLER ROLL
11 IDLER ROLL
12 PINCH ROLLER ASSEMBLY
13 DANCER BAR ROLLER
14 STATIONARY TRANSPORT ROLLER
15 REWIND ROLLER

		B	2/7/01	MELODY	ADDED SECOND ROLLER ON IMAGE
		A	1/30/01	CAM.	ADDED ROLL NUMBERS SHOWING SEQUENCE OF THREADING
QUANTITY	–	REV	DATE	BY	DESCRIPTION
MATERIAL	–				
FINISH	–				

TOLERANCES UNLESS OTHERWISE NOTED
+/- .025 ON FRACTIONAL DIMENSIONS
+/- .010 ON TWO PLACE DECIMAL DIMENSIONS
+/- .005 ON THREE PLACE DECIMAL DIMENSIONS
125 √ ON MACHINED SURFACES
ALL DIMENSIONS ARE IN INCHES
PART MUST BE FREE OF BURRS AND SHARP EDGES

Advanced Poly Packaging Inc.

TYPE EQUIPMENT	ROLL-A-PRINT	S/N REF. NO.	PART NO. –
SCALE	1:3	DRAWN BY NAME MELODY DATE 10/5/00	APPROVED NAME DATE
TITLE	THREADING	DRAWING NO.	REV. B



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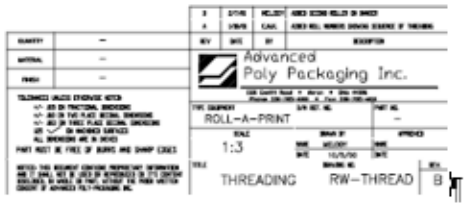
11 IDLER ROLL
12 PINCH ROLLER ASSEMBLY
13 DANCER BAR ROLLER
14 STATIONARY TRANSPORT ROLLER
15 REWIND ROLLER



Chapter 2

Getting Started & Equipment Operation

Air & Power Hookup
Roll Mounting and Threading
Main Power
Operation Tests Prior to Production

2.2 Air & Power Hookup

The RAP is equipment with an internal regulator and the air supply should be fed to the bagger with ¼ min. inch O. D. poly tubing. Make the connection at the rear of the sealer. Set the air pressure on the RAP to 50 PSI. Additionally, each printer may be equipped with a separate regulator; each printer should be set to 50 PSI. For the RAP 2800, the unwind stand will have a regulator to control the amount of tension on the film. The regulator on the unwind stand should be set to a minimum level to maintain a consistent level of film tension without stretching the film or breaking the web of bags.

2.3 Roll mounting and threading

Loosen one of the knobs located on the chuck which secures the roll into position. Mount the roll of bags or film onto the bag roll shaft and secure the bag roll into position with the chuck. Follow the threading diagram carefully to ensure the film is threaded properly. See Threading Diagram.

Note: Improper threading may cause printing or feeding problems.

2.4 Main Power

The power switch is located on the lower leg support. In the On or “up” position, the switch is illuminated indicating that power is supplied to the unit.

2.5 Operation / Component Test Prior to Production

Prior to production, test the following components to ensure safe operation of the unit: remove bags from film sensor; the touch screen should display “Bag Sensor Activated”. This option ensures that the printer does not print on the roller when the film has run out. Printing onto the roller without film/bags could damage the print head.

Chapter 3

Touch Screen Operation

Getting to Know the Touch Screen
Panel LEDs
System Function Keys / Settings
Contrast Settings
Auto Screen Off
Parameter / Communication Settings
Color Scheme
Intro Screen
Main Menu
Operation Screen
Setting Screen
Counter Screen
Job Save / Recall Screen
Technical Assistance Screen
PLC Information Screen / IO
Message Screens

3.1 Getting to Know the Touch Screen

The touch screen is comprised of LEDs, System & Function Buttons, and the Screen Operation itself. This section provides the necessary information to navigate the touch screen to change settings.

3.2 Panel LEDs

Power - Green LED is lit when machine is turned on.
Run - Green LED is lit when touch screen is in run mode and program is operating properly.

3.3 Back Panel Identification

CN4 Port - Printer connector (Optional output)
TB1 Screws - Touch Screen power terminal block.
CN1 Port - Bar code reader port (Optional)
CN2 Port - Program port/data communication port between Touch Screen and PLC.

3.4 System & Function Keys

There are three levels of access to the System Settings: 1) Press **Function Keys** (F1 to F5) directly. 2) Press the **System Key first, then press the Function keys** and 3) Press the **System key, then hold down the F1 and F5 keys** for parameter settings.

3.5 System Settings; Function Keys

Function Keys: function keys are programmed as "hot" keys and may be changed dependent upon the program version.

3.6 System Settings; System Key for Screen Contrast Settings

System Key first, then press the Function keys: Pressing the System key followed by F2 through F5 allows for screen contract adjustments, as follows:
F2 - Function key 2: Reduces the screen contrast.
F3 - Function key 3: Sets the screen contrast to mid-scale.
F4 - Function key 4: Increases the screen contrast.
F5 - Function key 5: Backlight ON/OFF (locked in ON position).

The contrast control for the touch screen is accessed through the function keys to the right of the touch screen. To enable the function keys, press the lavender SYSTEM key. Hold down the F2 key or depress it repeatedly to *decrease* the contrast and darken the touch screen display. Hold down the F4 key or depress it repeatedly to *increase* the contrast and brighten the touch screen display. Press the F3 key to set the contrast to the mid-scale position. Press the SYSTEM key again to disable the function keys.

Note: The function keys will only remain active for 5 seconds after the last key is pressed.

3.7 Auto Screen Off / Manual Screen Off

The backlight will automatically turn off after 30 minutes of nonuse of the touch screen for longevity of the screen components. If the backlight is off, simply touch the screen or press the system or function key to illuminate the screen.
To turn off the backlight manually, press the System key, followed by the F5 function key. Again, pressing any key or the touch screen will illuminate the screen.

3.8 System Settings; Parameter & Communication Settings

Note: Parameter setting are set at the factory and should not be altered; any changes may cause the touch screen to become inoperative.

System settings can only be accessed by pressing the SYSTEM key and then holding the F1 and F5 function keys simultaneously.

System settings provide access to the COMM parameters, I/O test, and Memory Card information.

COMM parameters are set at the factory as follows:
SIG LEVEL: RS232C
CONNECT: 1:1
PC Stat: No: 1
Baud Rate: 19,200
Data: 8
Stop Bit: 1
Parity: ODD

I/O test provides for TOUCH/CONTACT SWITCH tests. Each button can be tested to ensure proper operation of the screen. Press the right corner of screen to return to the main menu. From the main menu, press System / Mode to return to normal operation.

3.9 Touch Screen Program / Color Scheme

The touch screen displays 16 true colors and 16 shaded colors to provide a vivid display. A particular color scheme is used to assist the operator to locate functions:

Blue is the background color used for text information. No "buttons" or functions are blue.

Green is the color used for "buttons" that change settings. Pop-up windows may be displayed or a function is turned on/off for instance.

Red indicates that a function is off or stopped. Pressing a red button may turn a function on for instance.

Yellow is the color used for menu buttons. A menu button displays another screen and allows for movement throughout the entire program.

With an understanding of this basic color scheme, the operator will quickly setup the system or make minor adjustments during operation.

3.10 Touch Screen Program / Operation Settings

The touch screen program is a "user-friendly" menu-driven setup and operation program. Moving through the system is accomplished by touching the area of the screen that describes the desired operation.

3.11 Introduction Screen

When the unit is turned on, an Introduction screen is "flashed" on the touch screen momentarily. See Fig. 3-1. Press the Main Menu button to display the main menu.

3.12 Main Menu

The Main Menu screen is provided to navigate quickly through the entire program, linking to other screens on the program. See Figure 3-2. The menu command buttons are the yellow buttons located in the center side of the Main Menu screen. Pressing one of the menu command buttons will change which screen is currently being displayed on the touch screen. To access another screen, simply press the corresponding menu command button.

Fig 3-1

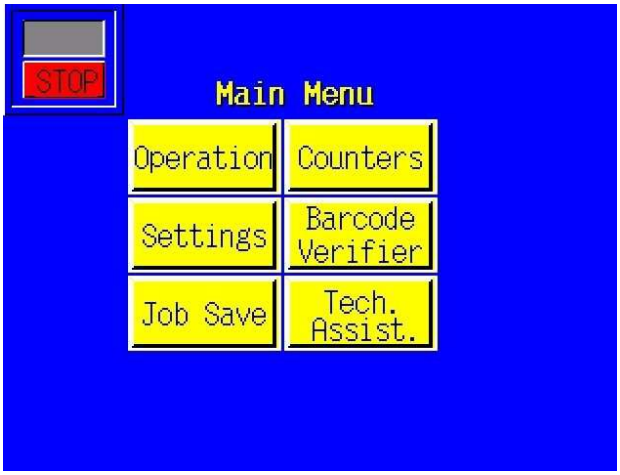


Fig 3-2

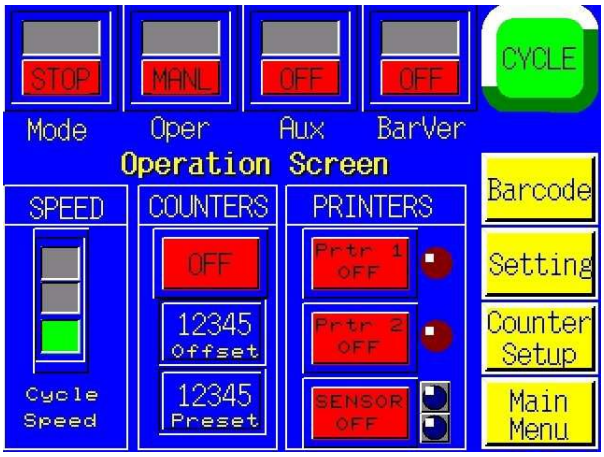


Fig 3-3

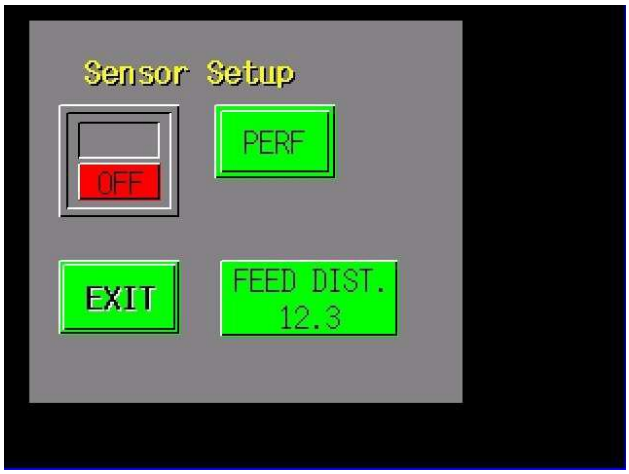


Fig 3-4

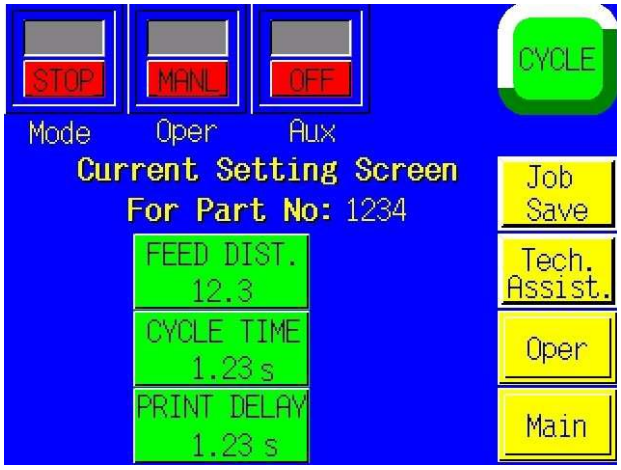


Fig 3-5

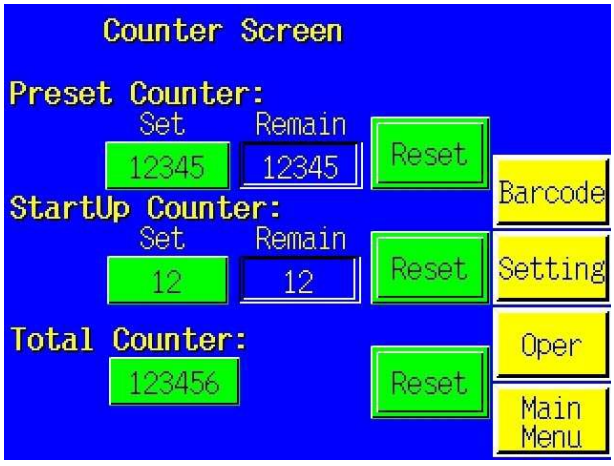


Fig 3-6

Menu buttons appear through the touch screen program to assist in navigating throughout the program, normally located on the right side of the screen.

3.13 Operation Screen

The operation of the RAP will be controlled from the Operation Screen. For instance, the operator can manually cycle, turn ON/OFF printers, and turn ON/OFF auxiliary communication. See Fig. 3-3.

Mode: STOP / RUN - The RAP must be in the RUN mode to operate. When powered up, the unit will be in the STOP mode. Additionally, the unit will go to a stop mode when a fault conditions exist such as out of bag or material, open frame, printer fault or other condition.

Oper: MANL/AUTO - The RAP must be in the AUTO operation mode to run automatically. Otherwise, in a MANL (manual) mode, press the CYCLE button to cycle the unit one time. The MANL mode is used for testing the first printed images or for short runs. Additionally, in the AUTO mode with the AUX button toggled ON, the unit will receive communication from baggers or other machines.

Aux: OFF / ON - To setup auxiliary communications between the RAP and other machines such as the T-1000 Advanced Poly-bagger, the Aux button must be turned ON. If running the unit as a stand-alone printer, the Aux button must be OFF.

BarVer: If a barcode verifier was ordered (optional equipment), then this toggle switch must be turned ON to setup the communication with the verifier. To see the status of the barcode verifier, once turned on, switch to Barcode Verifier Screen (Fig. 3-7). Further information is available regarding the barcode verifier screen later in this chapter.

SPEED: The RAP is equipped to feed at three speed levels. Slower speeds are recommended for: 1) smaller or narrower bags or webs that may break in a faster feed condition, 2) tighter registration jobs, 3) print jobs that the print images are closer together. Faster speeds are recommended for: 1) larger bags or wider web widths, 2) wider registration tolerances, 3) print images are far apart. To change the feed speed, press the SPEED graph. When all three green panels are lit on the SPEED graph, the unit is printing at the fasted speed. Press the SPEED graph one more time to return to the slowest speed.

Note: Speed adjustment on the Operation Screen is the index speed and does not affect print quality but may affect registration or print location consistency. Print speed can be adjusted in the label software which does affect print quality.

COUNTERS: OFF / ON: For the RAP 2800 (two printers), the unit is equipped with two counters that allow for an offset printing routine. For instance, if there are four bags between the first and second printer, set the Offset Counter to 4. This will cause the “rear” printer or Printer 2 to print first for four cycles, then the “front” printer will begin printing on the first bag printed by the rear printer. A secondary counter (Preset counter) is also provided to stop the printers to indicate completion of a print job. To set the counter values, press the Counter Setup button or press either the Offset value or Preset value.

Note: If equipped with only one printer (RAP-1400), the counter offset should be set to zero.

PRINTERS: ON/OFF on Printer 1 or 2. For the RAP 1400, Prtr 1 should be turned ON. For the RAP 2800, Prtr 1 or Prtr 2 ON / OFF button will function to turn on either printer, both printers or neither printer.

SENSOR ON / OFF: The RAP can register print several ways: 1) Perforation - print is registered based upon the position of the print head when the bag stops after “seeing” a registration or other hole in the bag. A static perf sensor is equipped on the center of machine to detect perforations or other holes in the bag. When the perforation is detected, the film/bag will stop. 2) Photo Sensor - print is registered based upon the position of preprinted graphics on the bag or film. After the photo sensor “sees” the print, the

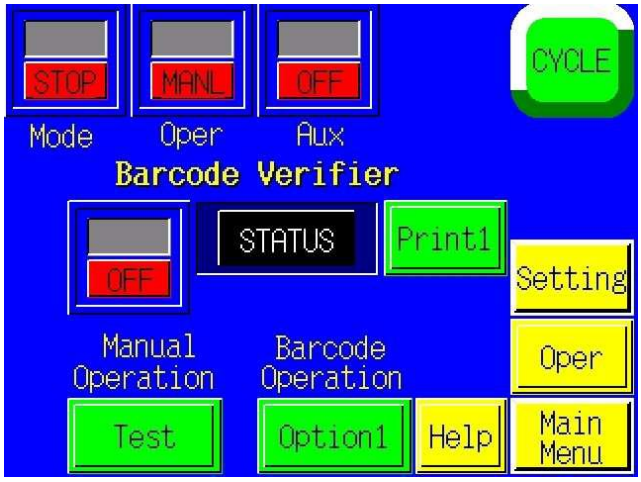


Fig 3-7

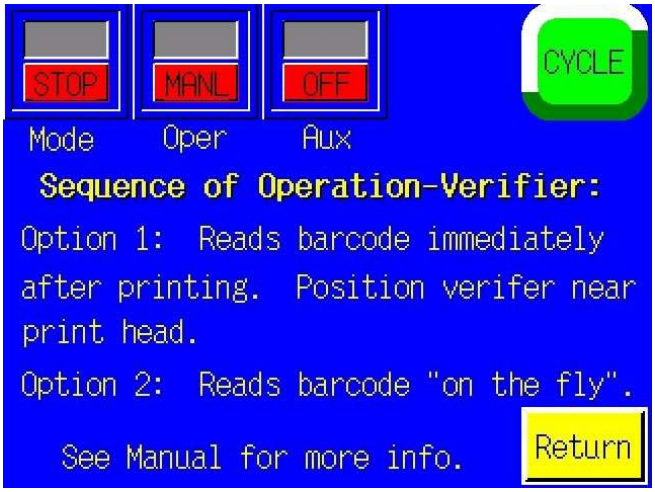


Fig 3-8

Fig 3-9

Fig 3-10

Fig 3-11

Fig 3-12

unit will stop the film. 3) No sensor - the unit will not “look” for print or perforation, but will stop feeding and print after a preset distance of film / bags have been fed. See Figure 3-4.

FEED DISTANCE: When the film starts feeding through the rollers, the feed distance setting allows the unit to pass over areas of the film before “looking” for the perforation or preprinted graphics. This allows you to skip over print or perforations. If no sensors are selected, the feed distance is the distance of material that will be fed before the print head begins printing.

LEDs: Prtr 1, Prtr 2 LED illuminate when either printer is printing. Sensor Green LED indicates that the sensor is armed. Sensor Red LED indicates when the perf or print is detected.

3.14 Setting Screen

The setting screen is used to adjust timers that affect the operation of the RAP.

FEED DIST: This is the distance that the film will feed before looking for a perf or graphics, or if the sensor is turned off, the amount of film that will be fed before printing.

CYCLE TIME: Timer used to slow down the unit when cycling in AUTO mode. With a zero setting, the RAP will operate with no delay times between cycles.

PRINT DELAY: Timer used to delay the printers after the material has stopped. This delay timer is used to allow the film to stop and retention before the print head drops down onto the film.

PART NO: Once the settings are made, the job can be saved as a Part No. The Part No is then displayed showing the job that you are currently running.

3.15 Counter Setup Screen

For the RAP 2800, the counter screen is used to: 1) stop the RAP after the Preset count has been reached, 2) provide an offset printing routine between printer one and printer two and 3) provide a total production count (for shift or daily production).

Preset Counter: To enable this option, set the counter value to a number above zero. If set to zero, this feature will be disabled. Press the Set Button (green) and enter the value on the number key pad. Once this number of cycles has been reached, the RAP will pause and display a screen indicating that the count has been reached. See Fig. 3-24. To clear the message and begin production again, touch the screen anywhere. If the count indicated the end of a print run, the memory buffer may need to be cleared by powering off the printer. The power switch to clear the printer is located on the rear of the print; this will not power down the RAP, it will only clear the printer. Turn the switch to the off position and wait for three seconds before turning the printer on.

Startup Counter: To enable this feature, the Startup button must be pressed on the Operation Screen. Additionally, a value greater than zero must be entered. To set the value, press the Set button and enter the value using the number keypad. Once set, printer one will have a delayed startup so that printer one will start to print at the moment that the first print image is below the print head of printer one. This feature decreases scrap caused from starting up a new print run.

Total Counter: Press the reset button at the beginning of a run, shift or day to keep track of production.

3.16 Barcode Verifier Screen

The RAP is prewired to accept a barcode verifier input from a barcode scanner. Since the verifier signals the RAP with several possible scanning conditions, the status of a barcode is illustrated on the Barcode Verifier Screen.

ON/OFF: To turn on the option, toggle the ON/OFF button to **the ON position.**

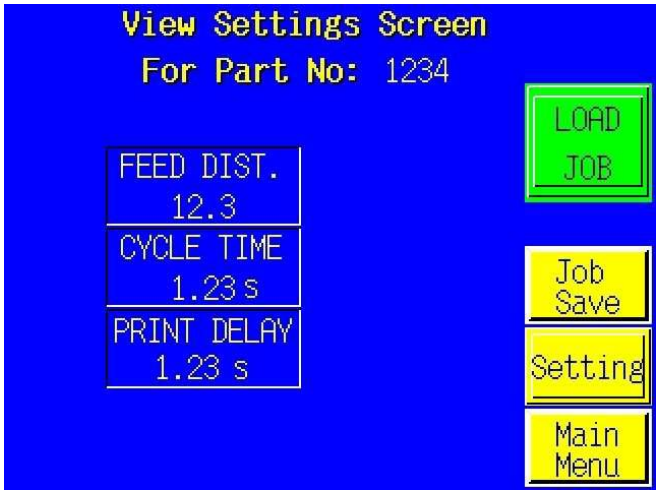


Fig 3-13

Fig 3-14

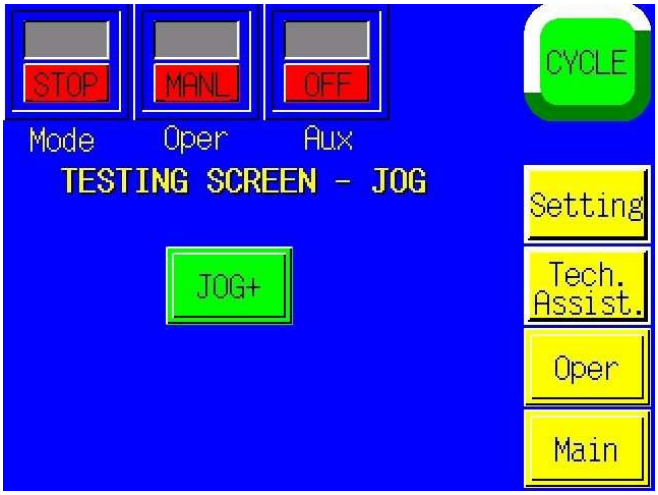


Fig 3-15

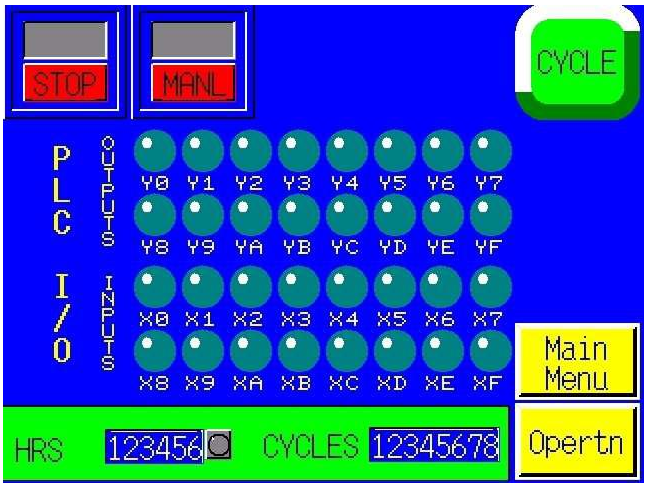


Fig 3-16

Fig 3-17

Fig 3-18

Status display: Indicates the status of the barcode that has most recently been scanned.

Manual Operation Test Button: To manually initiate the scanner, press the Test button.

Barcode Option (Sequence of Operation): There are two sequences of operations for the barcode verifier.

Option 1 sequence: The verifier begins to scan the print image that has just been printed. For this sequence to operate correctly, the verifier must be position near the print head so that before printing is complete, the verifier has "seen" the barcode.

Note: Label setup in the label software must accommodate the requirement for the barcode to advance from the print head far enough for the scanner to detect a barcode. In many cases, the barcode must print first, then other text, graphics, etc. can print.

Option 2 sequence: The verifier begins to scan the print image during the entire cycle feed operation. For this operation, the scanner can be positioned anywhere along the film path so that the barcode is scanned "on the fly".

Note: This sequence is not as accurate as option 1 since in option 1, the film is advancing slower (during the print cycle) and also stops immediately after the print cycle. Additionally, if a "NO READ" condition occurs in this mode, the barcode has already passed the verifier. See Figure 3-9.

Help button: Provides additional information regarding sequences of operation. See Figure 3-8.

3.17 Job Save / Recall

The RAP has the capacity to store 96 "jobs" for later recall. These jobs do not include the label format information, but they do include the recipe for the RAP to operate correctly from one bag or film to the next. For instance, one printed bag, setup to run with an optical sensor would have very different settings from a bag that is not printed and setup to run with the perf. sensor.

Once the settings are correct and bags or film are printing, feeding, and registering properly, save the settings and type in a part number for your reference. From the Main Menu, press the Job Save button. Then, press a green button that has no part number listed (blank). If no job is stored at that location, a message will appear. See Figure 3-23. If a job has been stored at that memory address, a warning message will appear. On the number key, type in your part number and press the enter key. Then press the Save button.

To recall the job, press the button identified by your part number, then press view. The View Screen lists the settings for that job. Fig. 3-13. Press the Load Job button to run those settings.

To view other memory addresses for jobs 33 through 96, press the Next Job or Prev Job buttons.

3.18 Technical Assistance Screen

The Technical Assistance Screen provides maintenance personnel with a tool to troubleshoot and test the operation of the unit. The screen also provides is an operator information screen. See Fig. 3-14.

Contact information for technical assistance - The contact information includes the toll-free customer service number, the company address, fax number, and the office hours of the service department.

TS (touch screen) and PLC (programmable logic controller) program version are displayed on this screen. A service technician may require this information to provide accurate assistance.

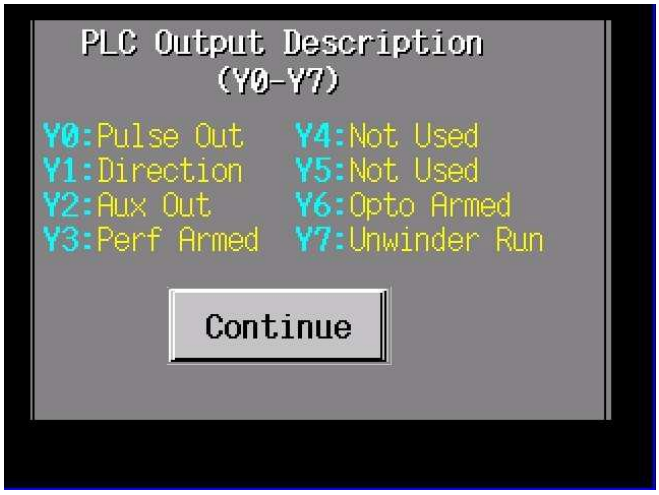


Fig 3-19

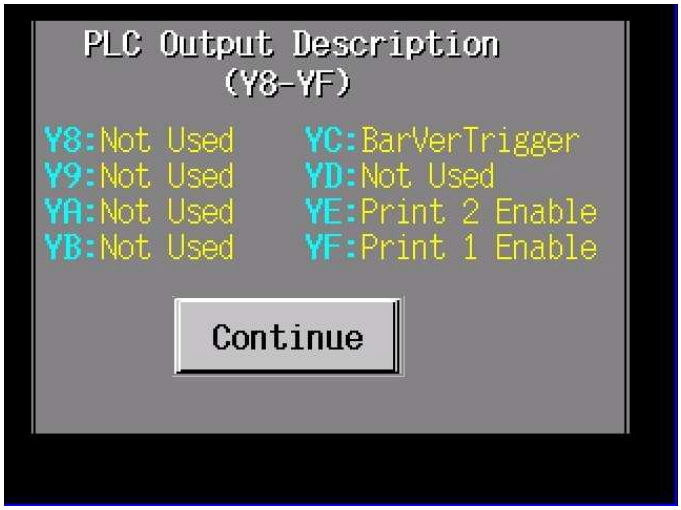


Fig 3-20

Fig 3-21

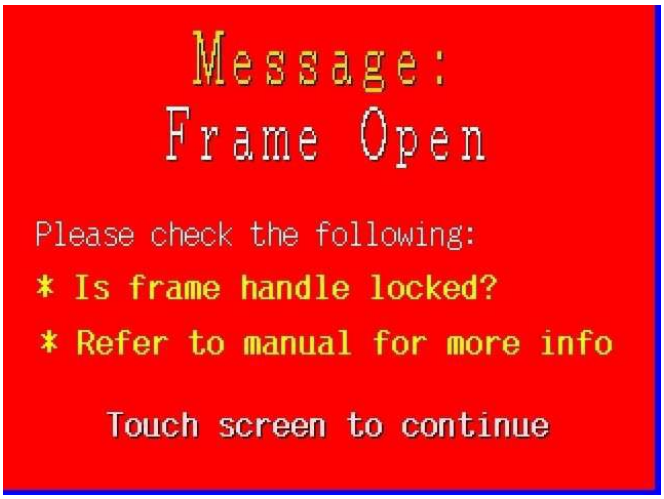


Fig 3-22

Fig 3-23

Fig 3-24

There are several menu buttons located on this screen to display other screens.

3.19 Tech. Assistance Jog Screen

The jog screen is used to ensure that the stepper motor is functioning properly. See Fig. 3-15.
With Mode set to RUN, Oper set to MANL and AUX OFF, press the JOG button to feed the rollers. If the drive rollers do not turn, contact APPI for support.

3.20 PLC Information

The PLC Information Screen illustrates the IO (Inputs / Outputs) status of the machine. See Fig. 3-16.
To identify the assignment of each IO, press the LED associated with the IO. An information screen will be displayed indicating the description of each input/output. See Figures 3-17 through 3-20.

3.21 Message Screens

Message screens appear to inform the operator of errors in the operation of unit or when conditions exist that require operator attention. See Figures 3-21 through 3-25 for examples of some of the message screens that appear.

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Chapter 4

Mechanical Adjustments

Pinch Roller Alignment
Film Tracking
Print Position Adjustments
Dancer Bar
Unwind Stand Adjustments

4.1 Pinch Roller Alignment / Film Tracking

If bags or film are not feeding properly (straight) through the RAP, then the pinch rollers may not be aligned. Film weaving may be caused by several factors, including poor tension, roller misalignment or improper threading. See Fig. 5-1.

To check the pinch rollers, position a light source inside the machine (near the print head), and from the front of the machine, slowly lower the frame by lowering the handle located on the right front of the RAP. As soon as the rollers are not touching one another, you can see a gap. With the gap at 1/32” or less, see if light is emitted consistently from the gap. Then raise the frame to determine if the rubber roller touches the steel roller at the same time, entirely across the rollers.

If the right side or left side of the rubber roller touches first, then the roller requires alignment.

To adjust the rollers, first turn the power off and unplug the machine from the power source. Then remove both the right and left covers by removing two screws on the left cover and one screw on the right cover. The adjustment block assemblies can now be seen which are located on the front lower corners of the side plates, on each side.

On both the left panel and right panel, loosen the two locking bolts on the upper block of the compression tension assembly. Loosen the nut on the adjustment screw. With the inner frame locked in the UP position, lower the lower roller by turning the adjustment screws counter-clock wise until the lower roller is parallel to the upper roller and leaving 1/16" gap between the rollers. Turn the adjustment screw clockwise alternatively, keeping the lower roller parallel with the upper roller until the rollers come in contact across the width of the rollers. Slightly lower the inner frame and raise again to ensure that when raised again, the rollers touch simultaneously. Then "snug" the upper block bolts and recheck the alignment.

With the rollers slightly touching and parallel, turn each adjustment screw approximately 1/2 turn clockwise. Then test the compression by putting film between the rollers. Pull the film through the rollers while holding the rubber roller still. If the film pulls out easily, turn the compression adjustment screws 1/2 turn clockwise. Continue this adjustment until the film is slightly difficult to pull out of the rollers.

Caution: Over-tightening of the compression adjustment screws may cause damage to the upper (rubber) roller or the motor.

When you are satisfied with the compression, slightly lower the inner frame, and slowly raise it until it almost touches the upper roller. If the gap is consistent across the width of the rollers and it appears parallel, lock the inner frame upward and re-tighten the two locking bolts on the upper block of the compression tension assembly. Then re-tighten the nut on the adjustment screws. Replace the covers, plug the cord into the power outlet and turn the main power on.

4.2 Dancer Assembly Adjustments (Roller Shaft - RAP 1400)

The RAP 1400 is equipped with a dancer bar / brake assembly to control tension. The RAP 2800 is equipped with regen. drive that both pays off the film and reverses to take-up the film for tension control.
RAP 1400 Dancer Bar / Brake Assembly Adjustments: A roller shaft, holding in position a roll of film or bags, will rest on the side-plates of the dancer assembly. The roller shaft must be parallel to the upper and lower guide rollers to allow proper tracking through the center of the RAP. If the roller shaft is not parallel, the web of bags may track to the left or right.

Note: From APPI, the roller shaft should not be out of alignment unless damaged or jolted in shipment.

The dancer assembly maintains proper bag web tension throughout the stop / start feed motion of the T-1000. Web tension is required for proper tracking. If the tension is insufficient, the web may track left or right. Thinner bags require less tension than thick bags. Web tension is created by friction of the brake strap along with the weight of the dancer bar pulling downward on the web of bags. Friction of the brake is created by the weight of the bag roll and the spring tension on the brake strap. As the dancer bar raises, spring tension is decreased and friction is decreased. If the web of bags is slack between the dancer roller and nip rollers, there is not enough tension on the bags. If the web of bags breaks prematurely, the tension is too high.

To correct the web tension, the dancer bar or brake strap spring must be adjusted. To increase brake strap tension, loosen the thumb knob located on the dancer bar, and reposition along the slot, moving the thumb knob assembly closer to the dancer roller. To decrease tension with the brake strap, move the thumb knob away from the dancer roller.

The dancer bar pivots on two shoulder bolts which extend from the side-plates. The downward force can be adjusted by repositioning the pivot point. To increase tension with the pivot position, move the pivot position away from the dancer roller. To decrease tension, move the pivot position closer to the dancer roller.
Note: Inspect the dancer bar to ensure that it is parallel to the roller shaft.

4.3 Roller Web Guides

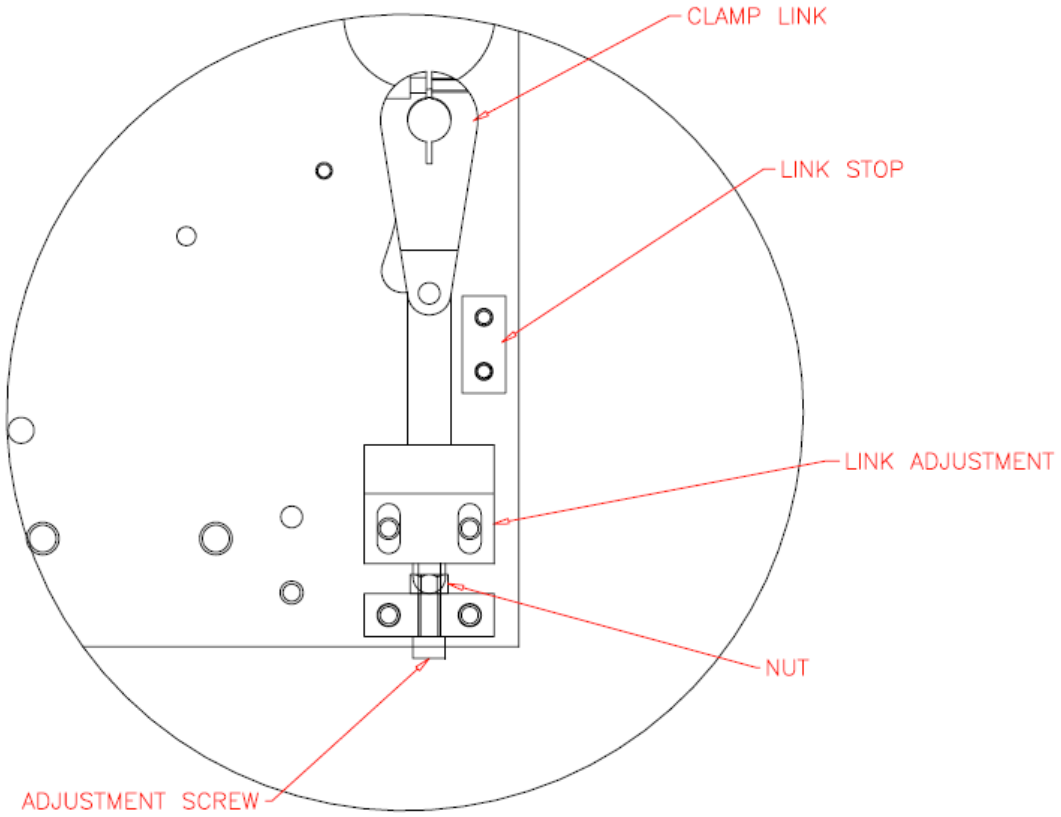
Two plastic spring web guides, located immediately prior to and behind the print head assembly, are used for *fine* adjustment of tracking. Once the web is tracking within +/- 1/8" left to right, the web guides can be used to further assist tracking. Hold the upper roller in place while turning and sliding the aluminum guides close to the bags without touching the bags.
NOTE: If the bags are not tracking properly prior to moving the web guides to the film, the guides could actually 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.

4.4 Print Position Adjustments (Up/Down adjustment)

Two type of adjustment rollers may be incorporated in the RAP 1400 and 2800. RAP 1400 is typically equipped with a bar that pivots up and down to change the distance between the perf or optical sensor and the print head. The RAP 2800 has a rack positioned roller that allows for movement up and down along a rack and then locked into position.
Manually cycle the RAP with the printers turned off, until the film or bag stops in the same position. Adjust the Feed Distance (See Fig. 3-13) so that only the perf is detected on POR bags or the print is detected on printed roll stock or bags. When the bags are stopping consistently, then move the positioning bar before printer 1 first, then before printer 2.
Use the print head location for course adjustment, then turn on printer 1 and manually cycle. Once printer 1 is registering properly, adjust and test for printer 2.

4.5 Print Position (Left / Right Adjustment)

On the RAP 1400 and 2800 units, the print head can be moved left to right to adjust for print location. A locking mechanism can be attached to secure the print head into position.



		REV	DATE	BY	DESCRIPTION
QUANTITY	–				
MATERIAL	–				
FINISH	–				

TOLERANCES UNLESS OTHERWISE NOTED:
+/- .015 ON FRACTIONAL DIMENSIONS
+/- .010 ON TWO PLACE DECIMAL DIMENSIONS
+/- .003 ON THREE PLACE DECIMAL DIMENSIONS
125 ON MACHINED SURFACES
ALL DIMENSIONS ARE IN INCHES

PART MUST BE FREE OF BURRS AND SHARP EDGES

Advanced
Poly Packaging Inc.
1300 Emmitt Road * Akron * Ohio 44306
Phone 330-785-4000 * Fax 330-785-4010

TYPE EQUIPMENT	B/M REF. NO.	PART NO.
RAP–1400		–

SCALE	DRAWN BY	APPROVED
1:1	NAME MELODY	NAME
	DATE 9/17/02	DATE

TITLE	DRAWING NO.	REV.
NIP ROLLER ADJUSTMENT	FIG. 5–1	–

Chapter 5

Preventative Maintenance

Preventative Maintenance

5.1 Preventative Maintenance

The following maintenance items should be performed by the operator or maintenance personnel to prolong the life of the equipment. Failure to perform these tasks may result in premature wear, personal injury or equipment damage.

Item	Description	Frequency
Print head	Clean with a soft white cotton cloth each ribbon roll change	Each Roll
Air pressure	Check air pressure to ensure 60-70 PSI	Daily
Print rollers	Clean with a soft white cotton cloth until no residue is seen on cloth	Daily
Pinch rollers	Clean with alcohol	Daily
Alum. rollers	Clean with alcohol	Weekly
Perf sensor	Clean with alcohol, inspect for wear	Weekly
Cylinders	Remove air and push in manually to ensure free movement with no binding	Weekly
Springs	Inspect for cracks in springs, ensure free movement	Monthly
Wiring	Ensure no loose contacts or worn shielding	Monthly
Fasteners	Tighten mounting bolts and fasteners	Monthly

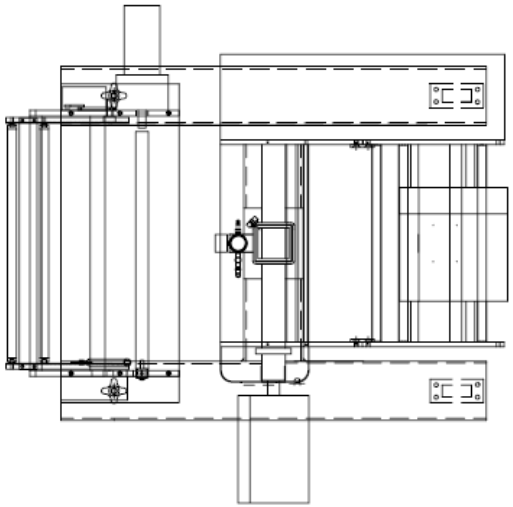
Chapter 6

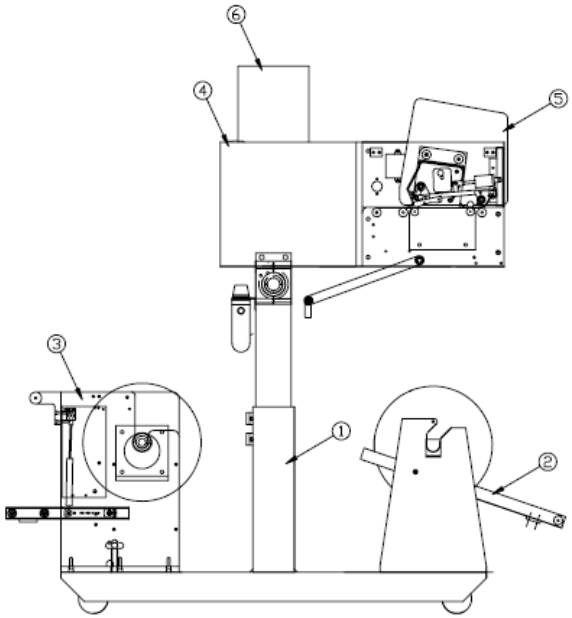
RAP 1400 Spare Parts / Drawings

Parts / Component Identification
Wiring Diagram / Electronics

Date 10/28/03 ADVANCED POLY PACKING, INC.
Bill of Materials Top Level Report for 10/28/03

Seq No	Item	Description	Quantity
Assembly => T-ROLL1400		Roll-a-Print 1400 Print Station	
1	TA-T60050	Stand Assembly RAP-1400	1
2	TA-T60051	Caster Assy	1
3	TA-T6RWINDUP	Roll-A-Print Windup	1
4	TA-T60000	Main Body Assy, RAP-1400	1
5	TP-T6-305RAP	305 Thermal Printer	1
6	TA-T60052	IOP Assembly	1

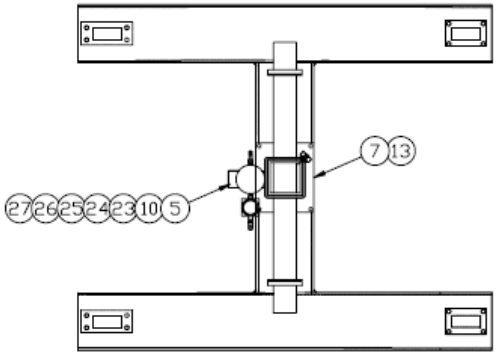


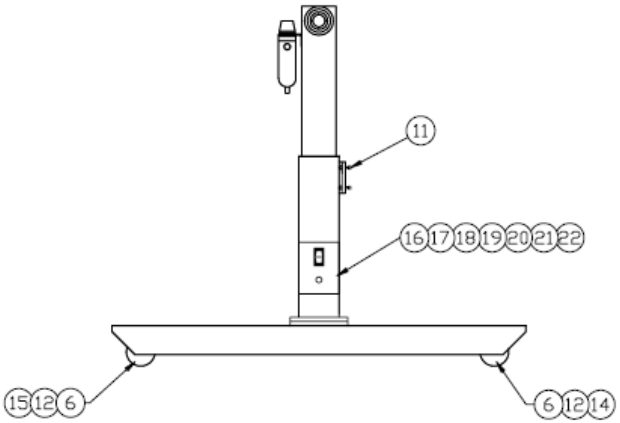


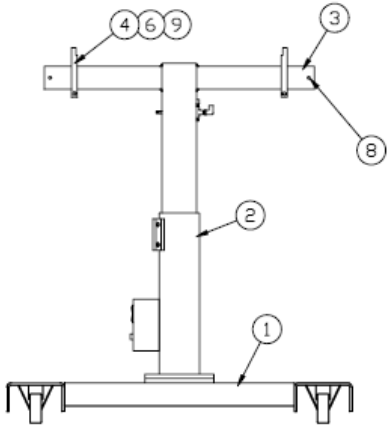
QUANTITY	–	REV	DATE	BY	DESCRIPTION
MATERIAL	–				
FINISH	–	Advanced Poly Packaging Inc.			
TOLERANCES UNLESS OTHERWISE NOTED: +/- .015 ON FRACTIONAL DIMENSIONS; +/- .010 ON TWO PLACE DECIMAL DIMENSIONS; +/- .005 ON THREE PLACE DECIMAL DIMENSIONS; 125 ✓ ON MACHINED SURFACES; ALL DIMENSIONS ARE IN INCHES; PART MUST BE FREE OF BURRS AND SHARP EDGES		TYPE EQUIPMENT: RAP-1400		SIM REF. NO.	PART NO.
		SCALE: N.T.S		DRAWN BY: NAME MELODY, DATE 8/27/03	APPROVED: NAME, DATE
NOTICE! THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION AND IT SHALL NOT BE USED OR REPRODUCED OR IT'S CONTENT DISCLOSED IN WHOLE OR PART, WITHOUT THE PRIOR WRITTEN CONSENT OF ADVANCED POLY-PACKAGING INC.		TITLE: RAP 1400 PRINTER ASSEMBLY		DRAWING NO.: T-ROLL1400	REV.: –

Date 10/29/03 ADVANCED POLY PACKING, INC.
Bill of Materials Top Level Report for 10/29/03

Seq No	Item	Description	Quantity
Assembly => TA-T60050 Stand Assembly RAP-1400			
1	TP-T1MA00051	Lower Base Weldment	1
2	TP-T1MA00051-1	Lower Column	1
3	TP-T1MA00087	Cross Pipe Weldment	1
4	TP-T3MA007	Conveyor Mounting Bracket	2
5	TP-102154	Washer, #10 Med Split Lock	2
6	TP-102156	Washer,5/16 Med Split Lock	18
7	TP-102157	Washer,3/8 Med Split Lock	4
8	TP-103003	Screw, SHCS 1/4-20 x 1/2	4
9	TP-103012	Screw, SHCS 5/16-18 x 2-1/	2
10	TP-103129	Screw, SHCS 10-32 x 1/2	2
11	TP-103146	Screw, SHCS 5/16-18 x1-1/4	2
12	TP-103161	Screw, SHCS 5/16-18 x 5/8	16
13	TP-103165	Screw, SHCS 3/8-16 x 7/8	4
14	TP-110756	Swivel Caster	2
15	TP-110763	Rigid Caster	2
16	TP-207216	Fuse Holder(110v/220v)	1
17	TP-207344	Fuse, 12-amp MDA-12	1
18	TP-208401	Terminal Ring, Yellow 4X31	1
19	TP-212106	Strain Relief,3/8"Die Cast	4
20	TP-212603	Project Box 4.6"x 3.7"x 2"	1
21	TP-213266	Cable,PowerSupplyCord,12'	1
22	TP-215384	Switch, Rocker SPST 250V @	1
23	TP-401222	Nipple, 1/4 NPT Quick Conn	1
24	TP-401224	Nipple, 1/4" Hex Nipple	1
25	TP-401267	Double Universal Elbow 1/4	1
26	TP-406005	Air Dryer, AD-10	1
27	TP-403246	Cylinder, 20mm Bore x 25mm	1







		REV	DATE	BY	DESCRIPTION
QUANTITY	–				
MATERIAL	–	Advanced Poly Packaging Inc.			
FINISH	–				

TOLERANCES UNLESS OTHERWISE NOTED
+/- .015 ON FRACTIONAL DIMENSIONS
+/- .010 ON TWO PLACE DECIMAL DIMENSIONS
+/- .005 ON THREE PLACE DECIMAL DIMENSIONS
125 ✓ ON MACHINED SURFACES
ALL DIMENSIONS ARE IN INCHES
PART MUST BE FREE OF BURRS AND SHARP EDGES

TYPE EQUIPMENT: RAP-1400	S/N REF. NO.	PART NO	
SCALE: N.T.S.	DRAWN BY: NAME MELODY, DATE 8/26/03	APPROVED: NAME, DATE	
TITLE: STAND ASSEMBLY	DRAWING NO: TA-T60050	REV: –	

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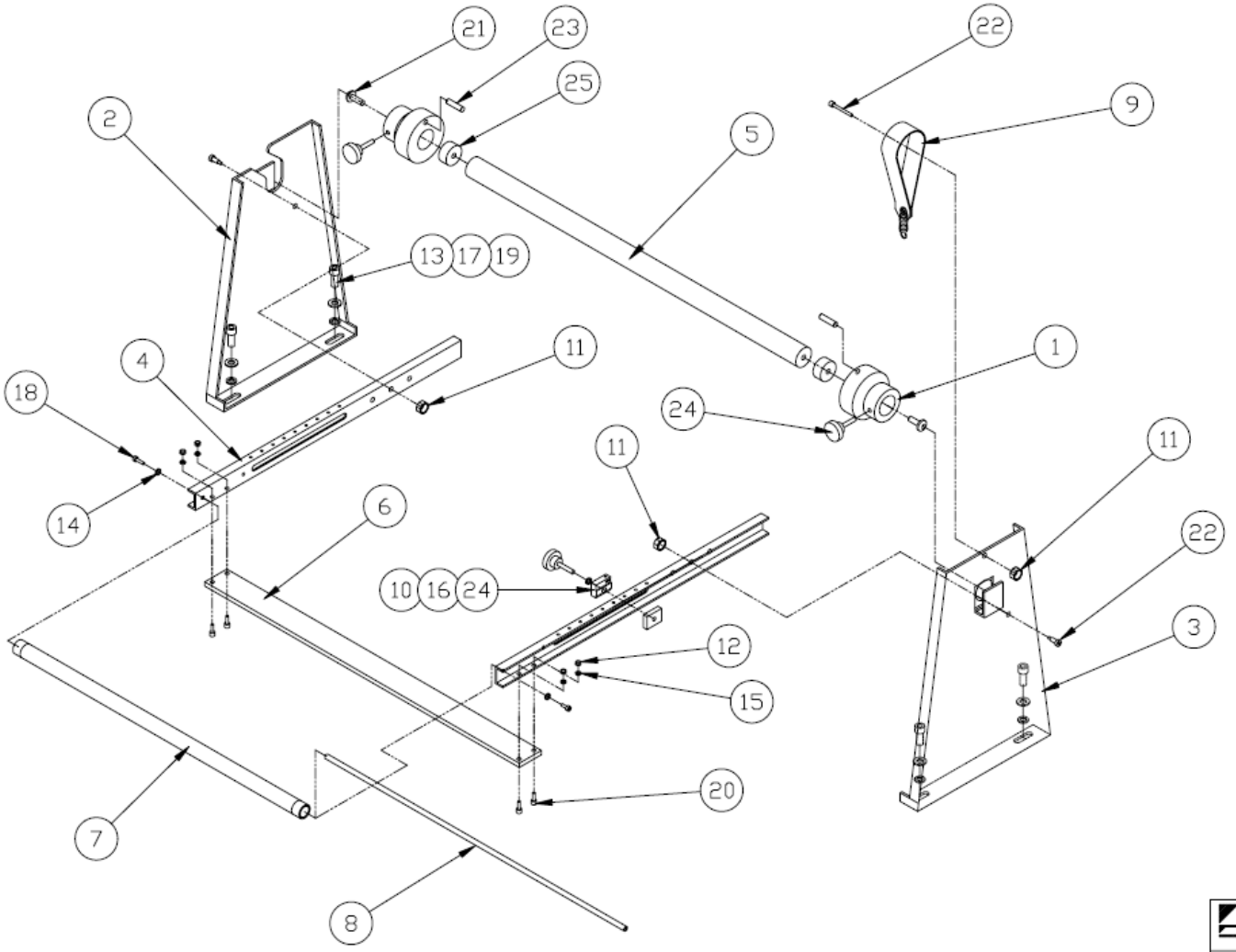
Date 10/29/03 ADVANCED POLY PACKING, INC.
Bill of Materials Top Level Report for 10/29/03

Seq No	Item	Description	Quantity
Assembly => TA-T60051 Caster Assy			
1	TP-T1MA00049	Film Tension Hub (2/M)	2
2	TP-T1MA00069-1	Dancer Side Frame Plate (L	1
3	TP-T1MA00069-2	Dancer Side Frame Plate (R	1
4	TP-T1MA00072	Dancer Tension Bar	2
5	TP-T1MA00073	Shaft, Bag Roll (T-1000)	1
6	TP-T1MA00081	Dancer Tension Bar Cross B	1
7	TP-T1MA00089	Dancer Roller 1.101.A21.00	1
8	TP-T1MA00090	Dancer Guide Roller Shaft	1
9	TP-T1MA00115	Brake Tension Strap (Dance	1
10	TP-T1MA00186	Tension Adjuster & Spacer	1
11	TP-101141	Locknut, Hex Nylon Insert	3
12	TP-101144	Nut, Hex Mach Screw SS 10-	4
13	TP-102143	Washer, SAE Flat 5/16"	4
14	TP-102153	Washer, #8 Med Split Lock Z	2
15	TP-102154	Washer, #10 Med Split Lock	4
16	TP-102155	Washer,1/4 Med Split Lock	1
17	TP-102156	Washer,5/16 Med Split Lock	4
18	TP-103116	Screw, SHCS 8-32 x 1/2	2
19	TP-103144	Screw, SHCS 5/16-18 x 3/4	4
20	TP-103170	Screw, SHCS 10-32 x 5/8	4
21	TP-103237	Screw, BHCS 5/16-18 x 1	2
22	TP-103307	Screw, Sock Shldr 1/4x1-1/	3
23	TP-106106	Spring Pins, SS 1/4 x 1-1/	2
24	TP-109212	Knob, Torque 1/4-20 x 1	3



Advanced Poly Packaging Inc.

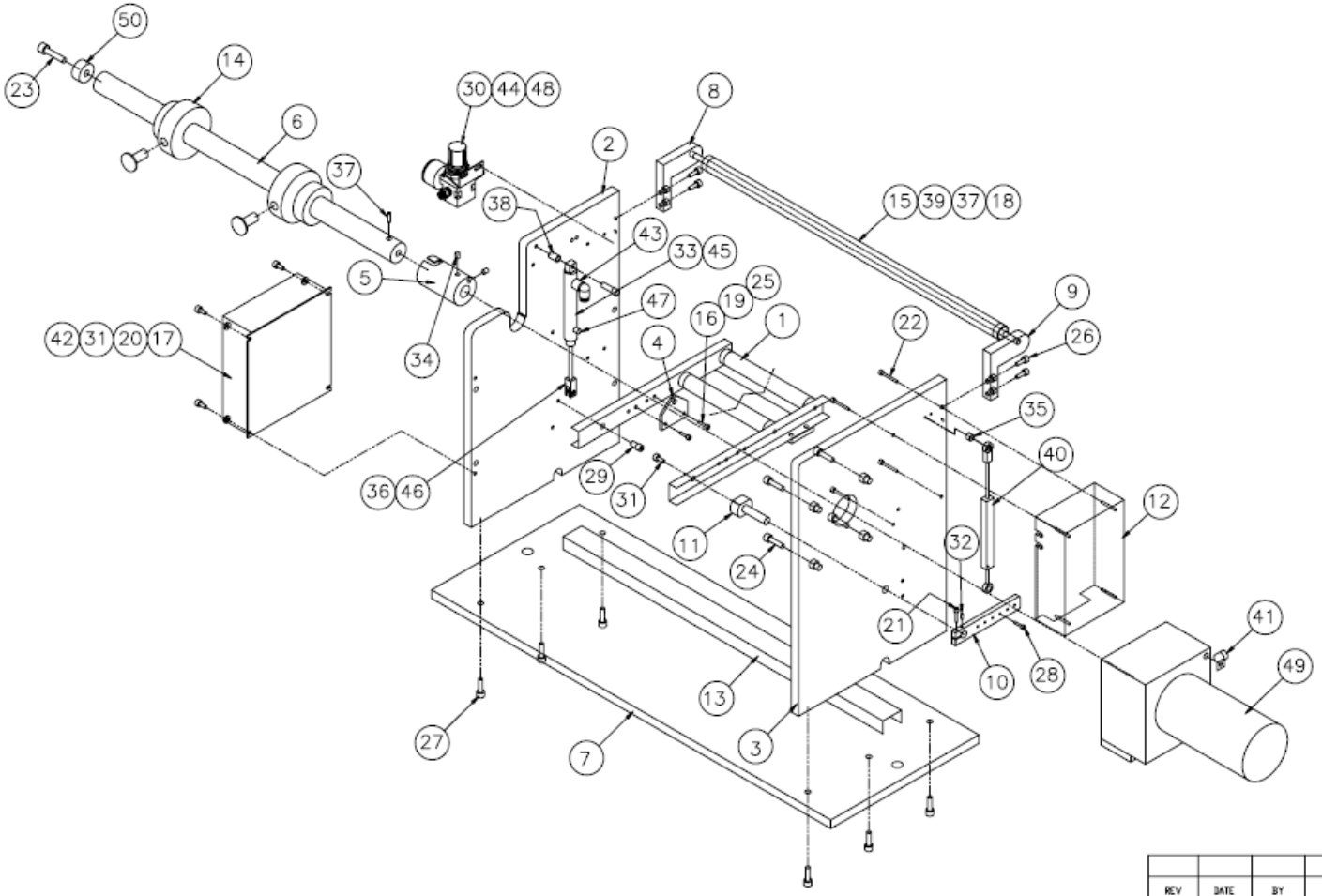
TYPE EQUIPMENT: TPS-5000	DWG REV. NO.	PART NO. –
SCALE: N.T.S	DRAWN BY: HOLLEY	APPROVED
	DATE: 3/11/98	DATE
TITLE: CASTER ASSEM	DRAWING NO. TA-T60051	REV.

TA-T6RWINDUP

Date 10/28/03 ADVANCED POLY PACKING, INC.
Bill of Materials Top Level Report for 10/28/03

Assembly => TA-T6RWINDUP Roll-A-Print Windup

Seq No	Item	Description	Quantity
1	TA-T6RW300	Dancer Assy-Roll-A-Print	1
2	TP-T6RW0012-1	Side Patel	1
3	TP-T6RW0012-2	Side Plater	1
4	TP-T6RW0013	Bracket	1
5	TP-T6RW0014	Coupling	1
6	TP-T6RW0015	Shaft	1
7	TP-T6RW0016	Base	1
8	TP-T6RW0017-1	Roller Extension, LH	1
9	TP-T6RW0017-2	Roller Extension, RH	1
10	TP-T6RW0019	Pivot Block, Lower Cylinder	1
11	TP-T6RW0020	Cylinder Shaft, Mounting Bl	1
12	TP-T6RW0023	Project Enclosure	1
13	TP-T6RW0024	Raceway	1
14	TA-T10010	Film Tension Hub Sub-Assem	2
15	TP-T1MA00089	Dancer Roller 1.101.A21.00	1
16	TP-101102	Nut,6-32 Hex Mach Screw Pl	2
17	TP-102134	Washer,#10 SAE Flat Zinc	4
18	TP-102142	Washer,1/4 SAE Flat Zinc	2
19	TP-102152	Washer,#6 Med Split Lock	2
20	TP-102154	Washer,#10 Med Split Lock	4
21	TP-103009	Screw, SHCS 6-32 x 5/8 S	1
22	TP-103019	Screw, SHCS 6-32 X 1-1/4	1
23	TP-103026	Screw, BHCS 5/16-18 X 1	1
24	TP-103027	Screw, SHCS 1/4-28 X 7/8	4
25	TP-103111	Screw, SHCS 6-32 x 1/2	2
26	TP-103129	Screw, SHCS 10-32 x 1/2	4
27	TP-103139	Screw, SHCS 1/4-20 x 3/4	6
28	TP-103139-1	Screw, SHCS 5-40 X 1/2	1
29	TP-103186	Screw, Sock Shldr 1/4x3/4	1
30	TP-103212	Screw, BHCS 8-32 x 1/2	2
31	TP-103219	Screw, BHCS 10-32 x 3/8	5
32	TP-103259	Set-screw, 6-32 x 1/4	1
33	TP-103305	Screw, Sock Shldr 1/4x3/4,	1
34	TP-103519	Screw, Socket Set 1/4-20 x	2
35	TP-104129	Spacer,3/8" OD x 1/4" Long	1
36	TP-104131	Spacer,1/2"OD x 1/8"Long x	1
37	TP-106106	Spring Pins, SS 1/4 x 1-1/	3
38	TP-107177	Bushing,1/4ID x 3/8OD x 3/	1
39	TP-108099	Compression Spring, Guide R	2
40	TP-201439	Potentiometer, Linear 5k	1
41	TP-214373	Clamp, 1/4" #10 Screw	1
42	TP-217006	Drive Control	1
43	TP-401257	Elbow, 1/4" Tube x 1/8 NPT	1
44	TP-401277	Elbow, 1/4 tube x 10/32 Th	2
45	TP-403248	Bimba Cylinder,3"Stroke	1
46	TP-404252	Rod Clevis .75" Bore Size	1
47	TP-404262	Muffler, Sintered Bronze 1	1
48	TP-406259	MiniReg/Bracket/Gauge/10-3	1
49	TP-501115	Motor,1/8hp,181rpm,13.8:1	1
50	TP-504132	Cam Follower	1



REV	DATE	BY	DESCRIPTION

Advanced Poly Packaging Inc.

1331 Evitt Road • Akron • Ohio 44306
Phone 330-785-4000 • Fax 330-785-4010

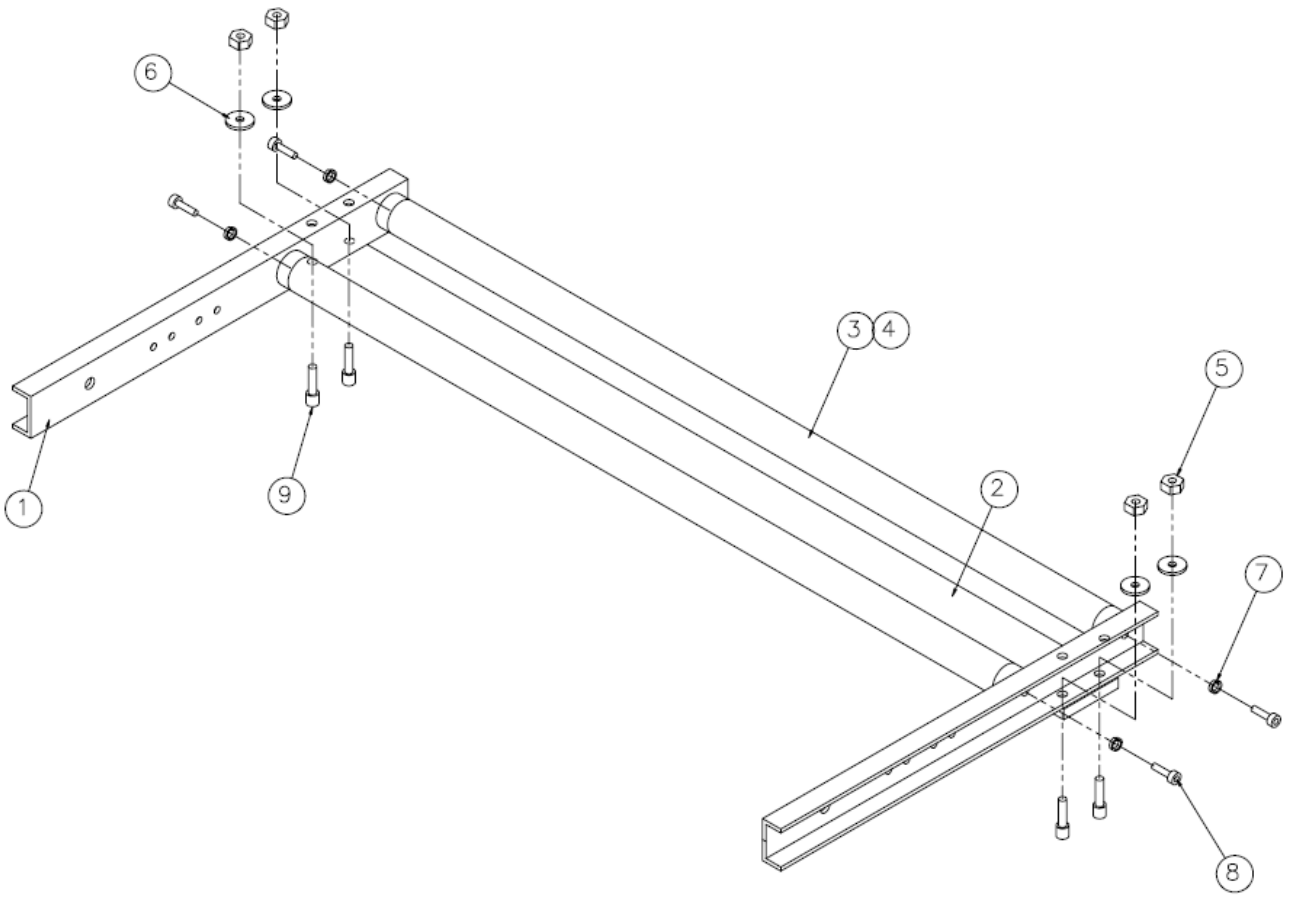
TYPE EQUIPMENT	B/M REF. NO.	PART NO.
REWINDER		
SCALE	DRAWN BY	APPROVED
1:5	NAME MELODY	NAME
	DATE 11/13/00	DATE

TITLE	DRAWING NO.	REV.
REWINDER EXPLODED VIEW	TA-T6RWINDUP	

Date 10/29/03 ADVANCED POLY PACKING, INC.

Bill of Materials Top Level Report for 10/29/03

Seq No	Item	Description	Quantity
Assembly =>	TA-T6RW300	Dancer Assy-Roll-A-Print	
1	TP-T6RW0021	Dancer Bar	2
2	TP-T1MA00081	Dancer Tension Bar Cross B	1
3	TP-T1MA00089	Dancer Roller 1.101.A21.00	2
4	TP-T1MA00090	Dancer Guide Roller Shaft	2
5	TP-101108	Nut,10-32 Hex Jam Pltd	4
6	TP-102108	Lockwasher, #10 Int Tooth P	4
7	TP-102153	Washer, #8 Med Split Lock Z	4
8	TP-103116	Screw, SHCS 8-32 x 1/2	4
9	TP-103170	Screw, SHCS 10-32 x 5/8	4



		REV	DATE	BY	DESCRIPTION
QUANTITY	–				
MATERIAL	–				
FINISH	–				

TOLERANCES UNLESS OTHERWISE NOTED
+/- .025 ON FRACTIONAL DIMENSIONS
+/- .010 ON TWO PLACE DECIMAL DIMENSIONS
+/- .003 ON THREE PLACE DECIMAL DIMENSIONS
125 ✓ ON MACHINED SURFACES
ALL DIMENSIONS ARE IN INCHES
PART MUST BE FREE OF BURRS AND SHARP EDGES

Advanced
Poly Packaging Inc.
1301 Everett Road ■ Akron ■ Ohio 44306
Phone 330-785-4000 ■ Fax 330-785-4010

TYPE EQUIPMENT	B/M REF. NO.	PART NO.
REWINDER/UNWIND		–

SCALE	DRAWN BY	APPROVED
1:2	NAME MELODY	NAME
	DATE 11/13/00	DATE

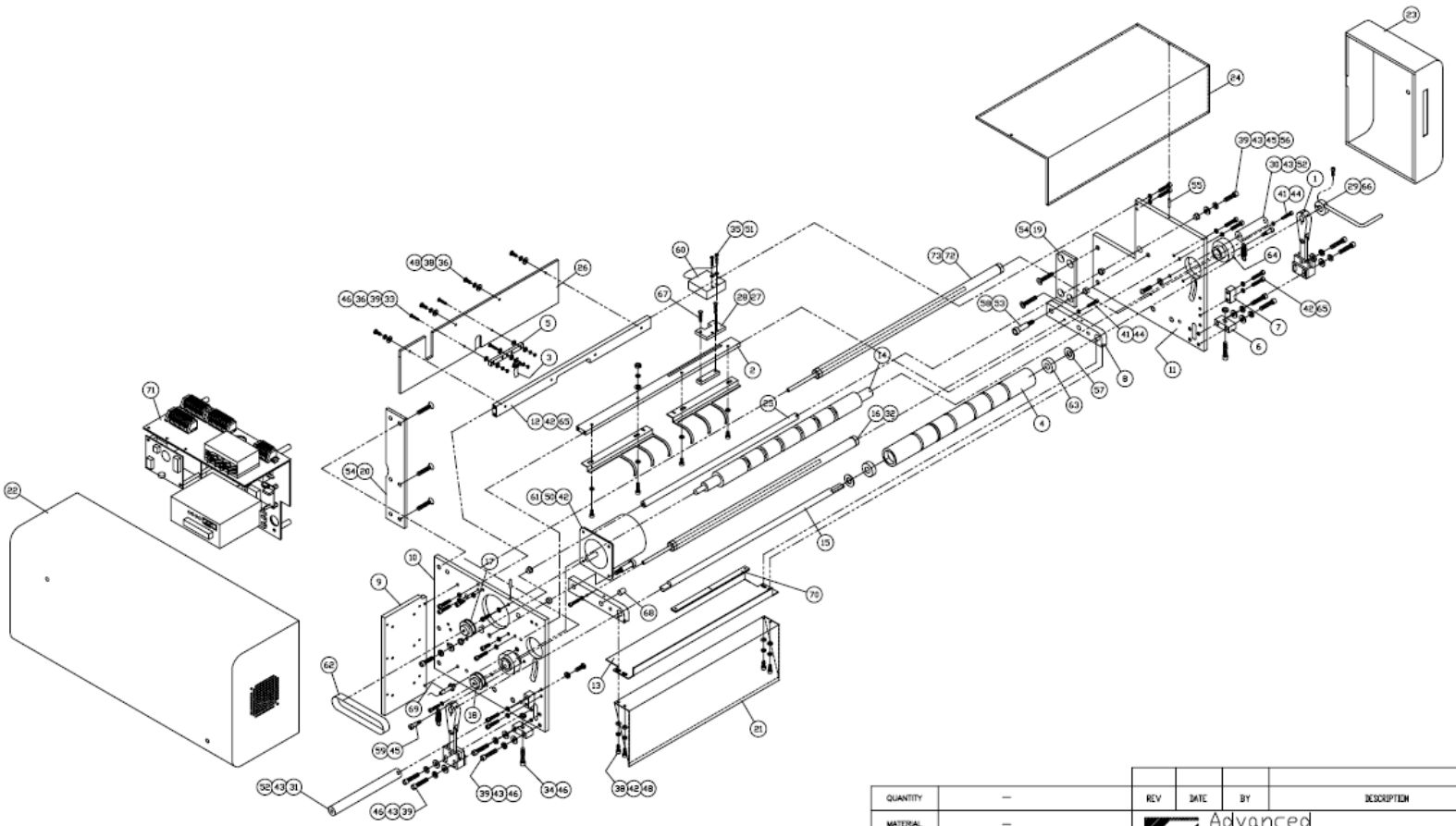
TITLE	DRAWING NO.	REV.
REWINDER/UNWIND DANCER ASSEMBLY	TA-T6RW300	–

Date 10/28/03 ADVANCED POLY PACKING, INC.

Bill of Materials Top Level Report for 10/28/03

Seq No	Item	Description	Quantity
Assembly => TA-T60000 Main Body Assy,RAP-1400			
1	TA-T60010	Link Assy	2
2	TA-T60015	Sensor Bracket Assy	1
3	TA-T100124-1	High Voltage Sensor	1
4	TP-T1MB00012	Grooved Lower Roller (Stee	1
5	TP-T1MC00083	Insulator, High Volt Sensor	1
6	TP-T6A1002	Adjuster Block	2
7	TP-T6A1004	Link Stop	2
8	TP-T6A1006	Nip Roll Mount	2
9	TP-T6A1007	Mounting Plate, Electronics	1
10	TP-T6A1012	Side Plate (LH)	1
11	TP-T6A1013	Side Plate (RH)	1
12	TP-T6A1014	Sensor Mounting Bar	1
13	TP-T6A1015	Grooved Metal Roller Finge	1
14	TP-T6A1017	Rubber Nip Roller	1
15	TP-T6A1018	Roll Shaft	1
16	TP-T6A1019	Roll Shaft	1
17	TP-T6A1020	Roller Pulley	1
18	TP-T6A1020-1	Motor Pulley	1
19	TP-T6A1021	Splice Plate (Small)	1
20	TP-T6A1022	Splice Plate (Large)	1
21	TP-T6A1025	Front Cover	1
22	TP-T6A1026	Main Side Cover	1
23	TP-T6A1027	Side Cover	1
24	TP-T6A1028	Lexan Guard	1
25	TP-T6A1030	Shaft	1
26	TP-T6A1031	Sensor Guard	1
27	TP-T6A1032-1	Mounting Block	1
28	TP-T6A1032-2	Mounting Block	1
29	TP-T6A1033	Handle	1
30	TP-T6A1034	Standout	1
31	TP-T6A1035	Standout	1
32	TP-T6A1036	Roller 1.101.A21.000 15.	1
33	TP-101102	Nut,6-32 Hex Mach Screw Pl	3
34	TP-101121	Nut1/4-20 Jam Hex Pltd	2
35	TP-102102	Lockwasher, #6 Int Tooth Pl	2
36	TP-102108	Lockwasher, #10 Int Tooth P	4
37	TP-102132	Washer, #6 SAE Flat .156	6
38	TP-102134	Washer, #10 SAE Flat Zinc	8
39	TP-102142	Washer,1/4 SAE Flat Zinc	8
40	TP-102152	Washer, #6 Med Split Lock	3
41	TP-102153	Washer, #8 Med Split Lock Z	4
42	TP-102154	Washer, #10 Med Split Lock	16
43	TP-102161	Washer,1/4"Med Split Lock	12
44	TP-103005	Screw, SHCS 8-32 x 7/8 SS	4
45	TP-103140	Screw, SHCS 1/4-20 x 1	4
46	TP-103141	Screw, SHCS 1/4-20 x 1-1/4	10
47	TP-103112	Screw, SHCS 6-32 x 3/4 SS	3
48	TP-103129	Screw, SHCS 10-32 x 1/2	8
49	TP-103130	Screw, SHCS 10-32 x 3/4	8
50	TP-103170	Screw, SHCS 10-32 x 5/8	4
51	TP-103209	Screw, BHCS 6-32 x 3/4	2
52	TP-103225	Screw, BHCS 1/4-20 x 3/4	2
53	TP-103268	Screw, Sock Shldr 3/8 x 1	2

54	TP-103433	Screw, FHCS 5/16-18 x 5/8	5
55	TP-106109	Spring Pins, SS 1/8 x 3/4	2
56	TP-107225	Bushing, Nylon Flange 3/8 x	4
57	TP-107227	Bushing, Thrust Nylon 1/2ID	2
58	TP-107228	Bushing, Nylon Flange 3/8ID	2
59	TP-108157	Ext Spring, Dancer Brake S	2
60	TP-216100	Optical Sensor	1
61	TP-501171	5-Phase Stepping Motor Uni	1
62	TP-503102	Belt, Brake	1
63	TP-504107	Bearing, Nice 1616	2
64	TP-504113	Bearing,7612 DLG (2/M)	2
65	TP-103025	Screw, SHCS 10-32 x 1	8
66	TP-103118	Screw, SHCS 8-32 x 1	1
67	TP-103176	Screw, BHCS 8-32 X 7/8	2
68	TP-211374	Magnets	1
69	TP-215200	Switch, Magnetic (Threaded	1
70	TP-216092	Reflector, 100x18A Rectang	1
71	TA-T60150	Electrical Components, Main	1
72	TP-T2MA0106-1	Guide Rollers 1. 101.A21.00	1
73	TP-T2MA0107-1	Main Guide Roller Shaft	1
74	TP-107226	Bushing, Sleeve 1/4ID x 3/8	2



QUANTITY	—
MATERIAL	—
FINISH	—

TOLERANCES UNLESS OTHERWISE NOTED:
+/- .015 ON FRACTIONAL DIMENSIONS
+/- .010 ON TWO PLACE DECIMAL DIMENSIONS
+/- .003 ON THREE PLACE DECIMAL DIMENSIONS
125 ✓ ON MACHINED SURFACES
ALL DIMENSIONS ARE IN INCHES
PART MUST BE FREE OF BURRS AND SHARP EDGES

REV	DATE	BY	DESCRIPTION

Advanced Poly Packaging Inc.
1331 Everitt Road * Akron * Ohio 44306
Phone: 330-785-4000 * Fax: 330-785-4010

TYPE EQUIPMENT	B/M REF. NO.	PART NO.
RAP 2800/1400		—

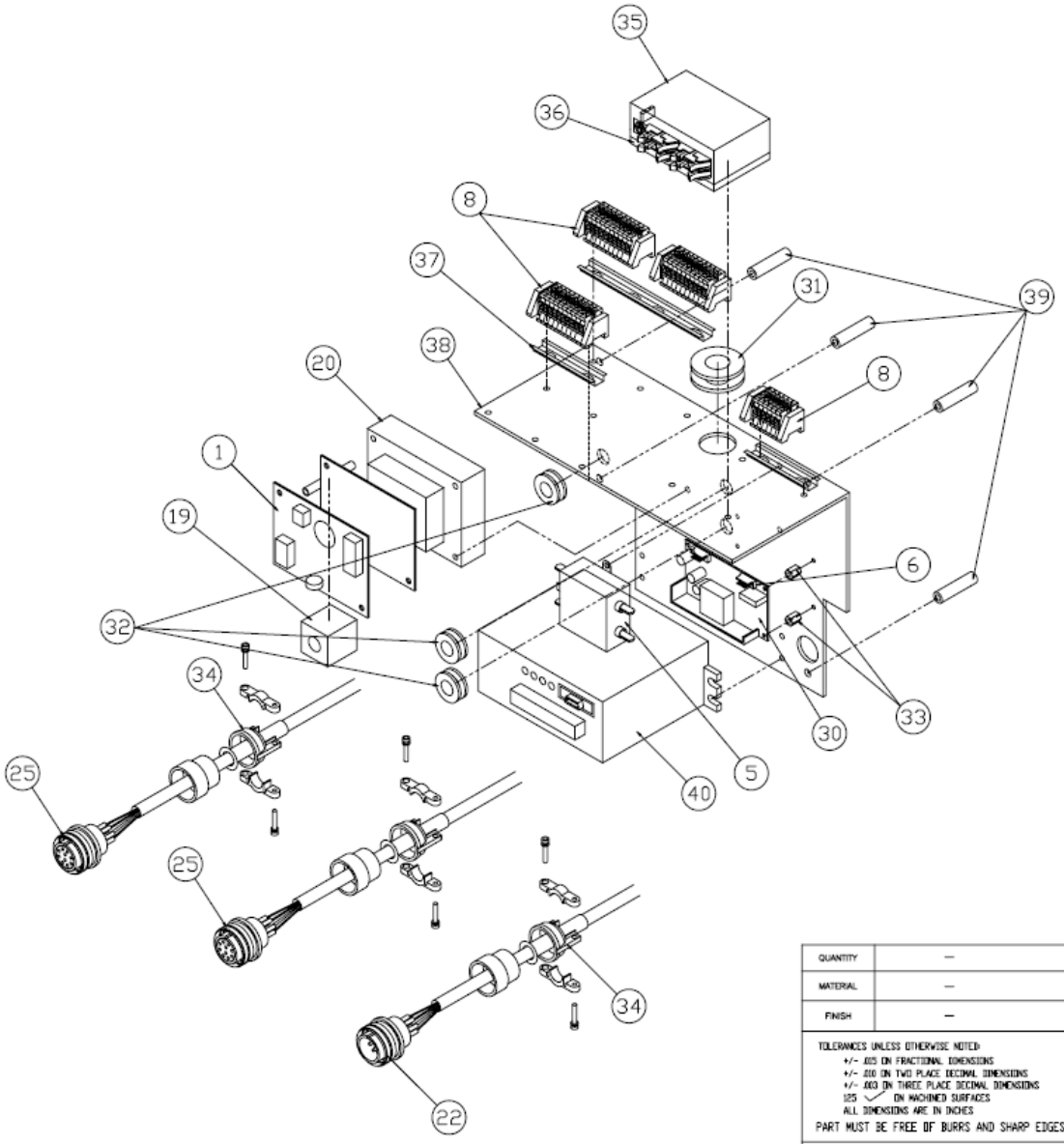
SCALE	DRAWN BY	APPROVED
1:7	NAME MELODY	NAME
	DATE 5/22/02	DATE

TITLE	DRAWING NO.	REV.
DRIVE ASSEMBLY	TA-T60000	—

Date 10/29/03 ADVANCED POLY PACKING, INC.

Bill of Materials Top Level Report for 10/29/03

Seq No	Item	Description	Quantity
Assembly => TA-T60150 Electrical Componets,Main Body			
1	TP-T1ME00301	PCB, High Voltage Board Fi	1
2	TP-201141	Resistor 1.2k ohm 1/4w 5%	3
3	TP-201208	Resistor, 1.5K ohm 1/2 Wat	2
4	TP-204136	Adhessive Cable Tie Mount	21
5	TP-205108	Filter,120/250VAC 50/60 HZ	1
6	TP-208008	Jumper (W Shape)For Barr	3
7	TP-208018	4 Pin 0.100" HP Terminal H	2
8	TP-208141	Term.Block,Screw Clamp,15m	36
9	TP-208221	4 Pin .062" Power Connecto	1
10	TP-208223	4 pin .062" power connecto	1
11	TP-208224	Crimp Terminal, M, .062" 1	3
12	TP-208225	Crimp Terminal, F, .062" 1	3
13	TP-208237	Crimp Terminal, M, .093" 1	2
14	TP-208238	Crimp Terminal, F, .093" 1	2
15	TP-208246	Crimp Terminal, H.P. 08-5	6
16	TP-208399	Terminal,Multi-Stack 16-14	4
17	TP-208402	Terminal,Ring (Red) 22-18	6
18	TP-208404	Terminal, Ring, Yellow 1/4	1
19	TP-210232	Clamp On Ferrites	1
20	TP-211386	Transformer,Dual Voltage	1
21	TP-212100	10 pin circular male con (	1
22	TP-212151	2 pin 5.08mm term block (p	1
23	TP-212152	6 Pin 5.08mm Term Block (p	1
24	TP-212164	4 pin 5.08mm term block (p	1
25	TP-212182	10 pin circular fem conn (	2
26	TP-212251	Plug, High Density Female	1
27	TP-212340	Terminal, Fem INS 16-14 (5	5
28	TP-212348	2 pin .093" power connecto	1
29	TP-212349	2 pin .093" power connecto	1
30	TP-213407	PCB, Power Supply, Comm. S	1
31	TP-214103	Grommet, 3/4"ID, 1 5/8"OD(	1
32	TP-214108	Grommet,1/2"HD x 1"D x 3/4	3
33	TP-214268	Standoffs,1/4 4-40 x 3/8",	4
34	TP-214274	Cable clamp w/strain relie	3
35	TP-220504	PLC, T-1000 (Touch Screen	1
36	TP-220507	PLC Base, AFP0804	1
37	TP-218020	Din-3 Rail,Symmetrical 35m	1
38	TP-DP1022	Sub-Plate	1
39	TP-DP1023	Standoff	4
40	TP-501171-1	Driver,Stepper Motor	1



QUANTITY	–
MATERIAL	–
FINISH	–

TOLERANCES UNLESS OTHERWISE NOTED:
+/- .005 ON FRACTIONAL DIMENSIONS
+/- .010 ON TWO PLACE DECIMAL DIMENSIONS
+/- .003 ON THREE PLACE DECIMAL DIMENSIONS
125 ✓ ON MACHINED SURFACES
ALL DIMENSIONS ARE IN INCHES
PART MUST BE FREE OF BURRS AND SHARP EDGES

REV	DATE	BY	DESCRIPTION

Advanced
Poly Packaging Inc.
1331 Everett Road • Akron • Ohio 44306
Phone 330-785-4300 • Fax 330-785-4310

TYPE EQUIPMENT	B/M REF. NO.	PART NO.
RAP–2800		–

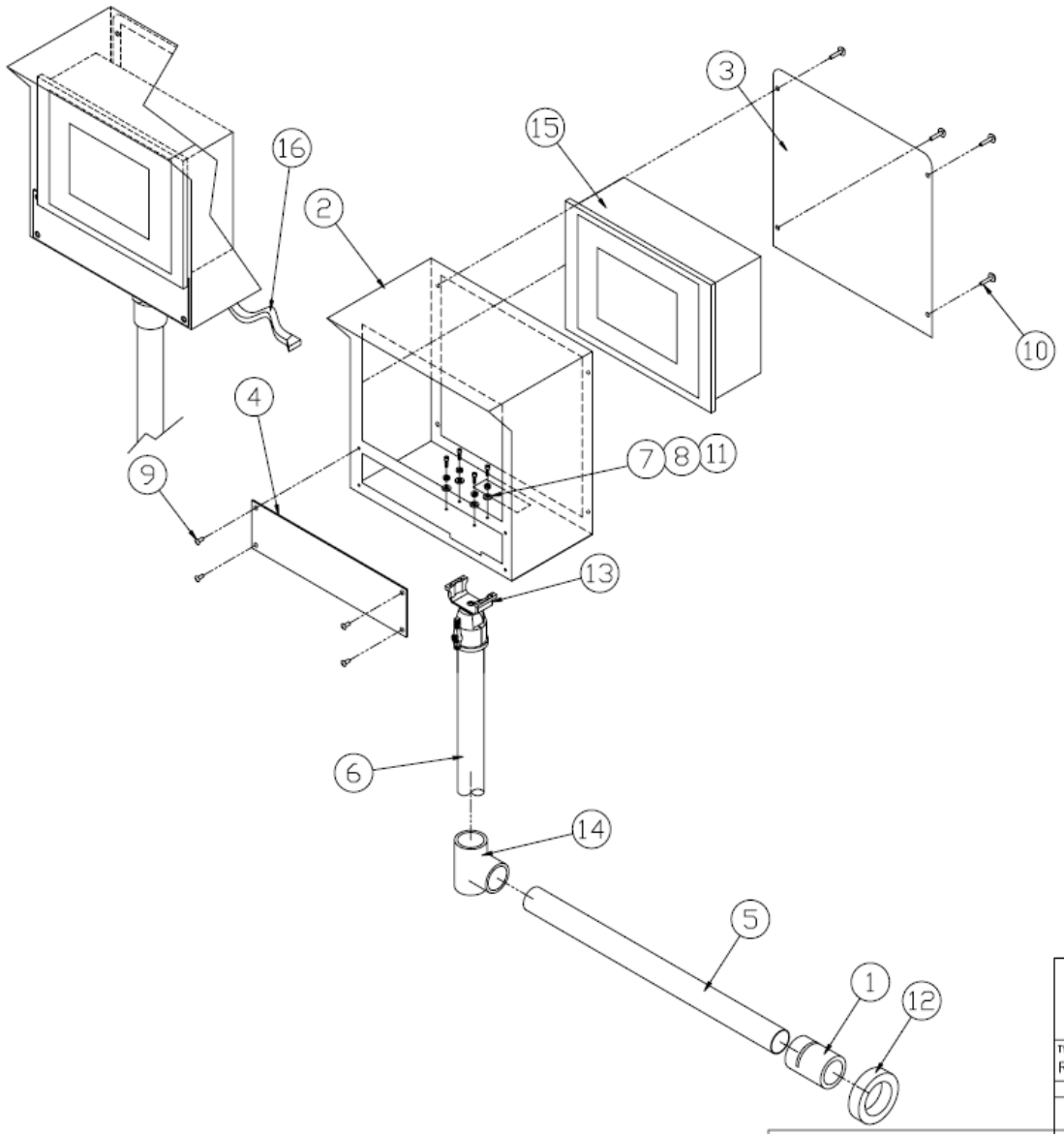
SCALE	DRAWN BY	APPROVED
1:3	NAME MELODY	NAME
	DATE 8/20/02	DATE

TITLE	DRAWING NO.	REV.
ELECTRICAL COMPONETS	TA–T60150	–

Date 10/28/03 ADVANCED POLY PACKING, INC.

Bill of Materials Top Level Report for 10/28/03

Seq No	Item	Description	Quantity
Assembly => TA-T60052 IOP Assembly			
1	TP-T1MA00088	Base Clamp Pipe Insert	1
2	TP-T1MD00039	Control Case I.O.P.W/-3 Fr	1
3	TP-T1MD00039-1	Control Case IOP Back Plat	1
4	TP-T1MD00039-3	IOP Front Plate,Plain	1
5	TP-T1MD00094	I.O.P Tube Short	1
6	TP-T1MD00109	Mounting Bar,Touchscreen	1
7	TP-102134	Washer,#10 SAE Flat Zinc	4
8	TP-102154	Washer,#10 Med Split Lock	4
9	TP-103207	Screw, BHCS 6-32 x 3/8	4
10	TP-103211	Screw, BHCS 8-32 x 3/8	4
11	TP-103256	Screw, SHCS M3-12	4
12	TP-111104	Clamp, Collar 2 pc Split 1	1
13	TP-111118	Bracket, Swivel Ball Socke	1
14	TP-111215	Joining Tee 3/4" Pipe 1" T	1
15	TP-220350	Touch Screen, 5.7" Display	1
16	TP-220350-1	Cable,Touchscreen	1



Advanced
Poly Packaging Inc.

1331 Emmitt Road ■ Akron ■ Ohio 44306
Phone: 330-785-4000 ■ Fax: 330-785-4010

TYPE EQUIPMENT	B/M REF. NO.	PART NO.
RAP 2800/1400		
SCALE	DRAWN BY	APPROVED
N.T.S	NAME MELODY	NAME
	DATE 9/2/03	DATE

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TITLE	DRAWING NO.	REV.
IOP ASSEMBLY	TA-T60052	

Chapter 6b

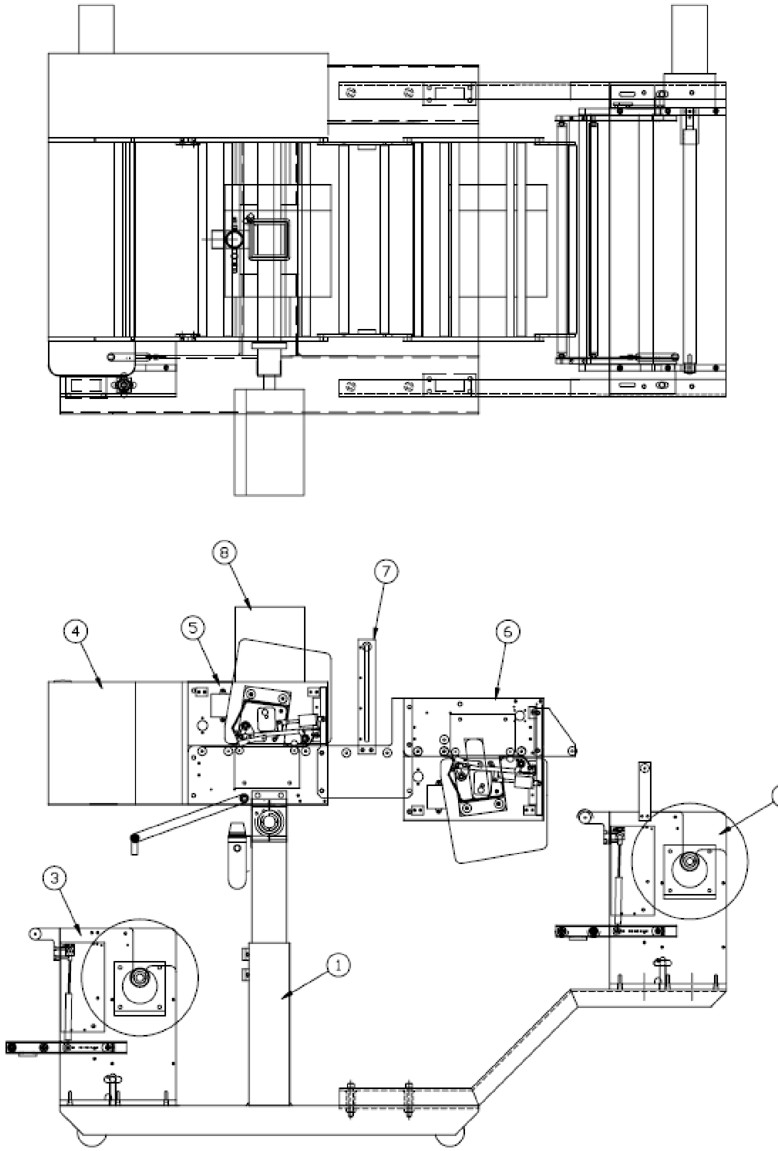
RAP 2800 Spare Parts / Drawings

Parts / Component Identification
Wiring Diagram / Electronics

Date 10/28/03 ADVANCED POLY PACKING, INC.

Bill of Materials Top Level Report for 10/28/03

Seq No	Item	Description	Quantity
Assembly => T-ROLL2800		Roll-a-Print 2800 Dual Printer	
1	TA-T60050-1	Stand Assembly, RAP-2800	1
2	TO-T1-UW10	UW10 Driven Unwind Tension	1
3	TA-T6RWINDUP	Roll-A-Print Windup	1
4	TA-T60000	Main Body Assy, RAP-1400	1
5	TP-T6-305RAP	305 Thermal Printer	1
6	T-TI1000-300DPI	Ti-1000 Thermal Printer (3	1
7	TA-T60700	Positioning Roller, T-ROLL2	1
8	TA-T60052	IOP Assembly	1



A	3/26/03	MELODY	ADDED A NEW MOUNTING BRACKET FOR THE UNWIND
REV	DATE	BY	DESCRIPTION

QUANTITY	–
MATERIAL	–
FINISH	–

TOLERANCES UNLESS OTHERWISE NOTED:
+/- .015 ON FRACTIONAL DIMENSIONS
+/- .010 ON TWO PLACE DECIMAL DIMENSIONS
+/- .003 ON THREE PLACE DECIMAL DIMENSIONS
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Advanced Poly Packaging Inc.

TYPE EQUIPMENT	S/N REF. NO.	PART NO.
RAP-2800		
SCALE	DRAWN BY	APPROVED
N.T.S	NAME MELODY DATE 8/16/02	NAME DATE

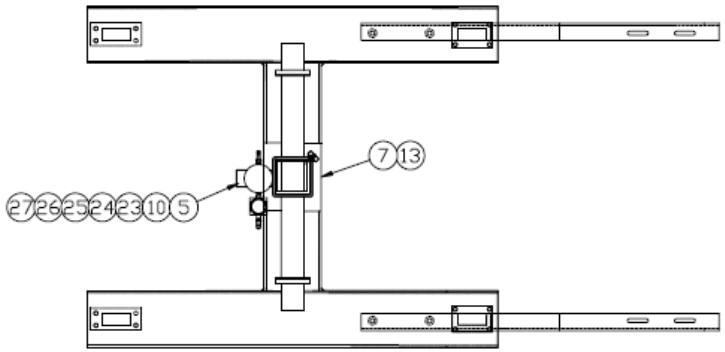
TITLE	DRAWING NO.	REV.
RAP 2800 DUAL PRINTER ASSEMBLY	T-ROLL2800	A

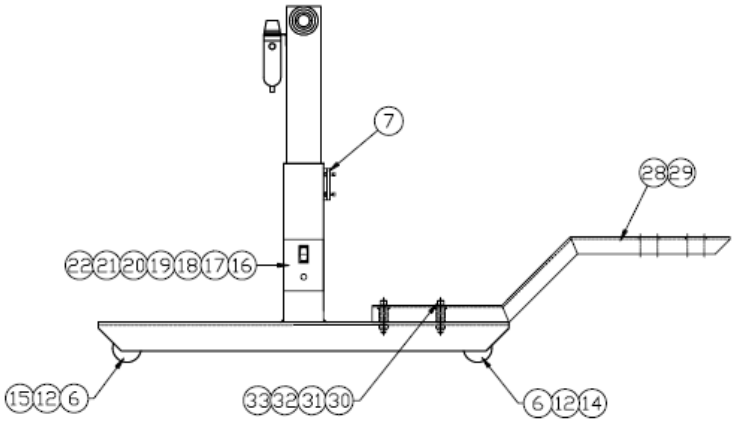
TA-T60050-1

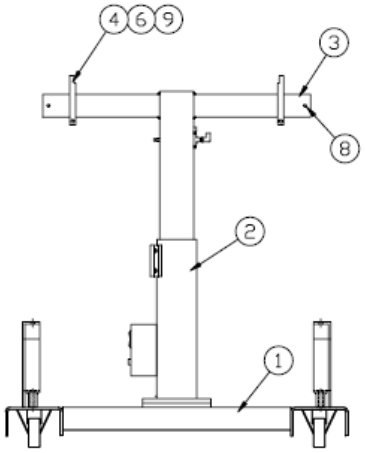
Date 10/28/03 ADVANCED POLY PACKING, INC.

Bill of Materials Top Level Report for 10/28/03

Seq No	Item	Description	Quantity
Assembly =>	TA-T60050-1	Stand Assembly,RAP-2800	
1	TP-T1MA00051	Lower Base Weldment	1
2	TP-T1MA00051-1	Lower Column	1
3	TP-T1MA00087	Cross Pipe Weldment	1
4	TP-T3MA007	Conveyor Mounting Bracket	2
5	TP-102154	Washer,#10 Med Split Lock	2
6	TP-102156	Washer,5/16 Med Split Lock	18
7	TP-102157	Washer,3/8 Med Split Lock	4
8	TP-103003	Screw, SHCS 1/4-20 x 1/2	4
9	TP-103012	Screw, SHCS 5/16-18 x 2-1/	2
10	TP-103129	Screw, SHCS 10-32 x 1/2	2
11	TP-103146	Screw, SHCS 5/16-18 x1-1/4	2
12	TP-103161	Screw, SHCS 5/16-18 x 5/8	16
13	TP-103165	Screw, SHCS 3/8-16 x 7/8	4
14	TP-110756	Swivel Caster	2
15	TP-110763	Rigid Caster	2
16	TP-207216	Fuse Holder(110v/220v)	1
17	TP-207344	Fuse, 12 amp MDA-12	1
18	TP-208401	Terminal Ring, Yellow 4X31	1
19	TP-212106	Strain Relief,3/8"Die Cast	4
20	TP-212603	Project Box 4.6"x 3.7"x 2"	1
21	TP-213266	Cable,PowerSupplyCord,12'	1
22	TP-215384	Switch, Rocker SPST 250V @	1
23	TP-401222	Nipple, 1/4 NPT Quick Conn	1
24	TP-401224	Nipple, 1/4" Hex Nipple	1
25	TP-401267	Double Universal Elbow 1/4	1
26	TP-406005	Air Dryer,AD-10	1
27	TP-403246	Cylinder, 20mm Bore x 25mm	1
28	TP-DP1024-1	Mounting Bracket,LH	1
29	TP-DP1024-2	Mounting Bracket,RH	1
30	TP-101106	Nut,3/8-16 SS Finish Hex	4
31	TP-102144	Washer, SAE Flat 3/8"	4
32	TP-102163	Washer, Med Split Lock SS	4
33	TP-103070	Screw, SHCS 3/8-16 x 2-1/4	4







		REV	DATE	BY	DESCRIPTION
QUANTITY	–				
MATERIAL	–				
FINISH	–				

TOLERANCES UNLESS OTHERWISE NOTED
+/- .03 ON FRACTIONAL DIMENSIONS
+/- .03 ON TWO PLACE DECIMAL DIMENSIONS
+/- .010 ON THREE PLACE DECIMAL DIMENSIONS
125 ✓ ON MACHINED SURFACES
ALL DIMENSIONS ARE IN INCHES
PART MUST BE FREE OF BURRS AND SHARP EDGES

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Advanced
Poly Packaging Inc.

1331 Everett Road • Akron • Ohio 44305
Phone 330-785-4300 • Fax 330-785-4310

TYPE EQUIPMENT	S/N REF. NO.	PART NO.
RAP-2800		
SCALE	DRAWN BY	APPROVED
N.T.S.	NAME MELODY	NAME
	DATE 8/26/03	DATE

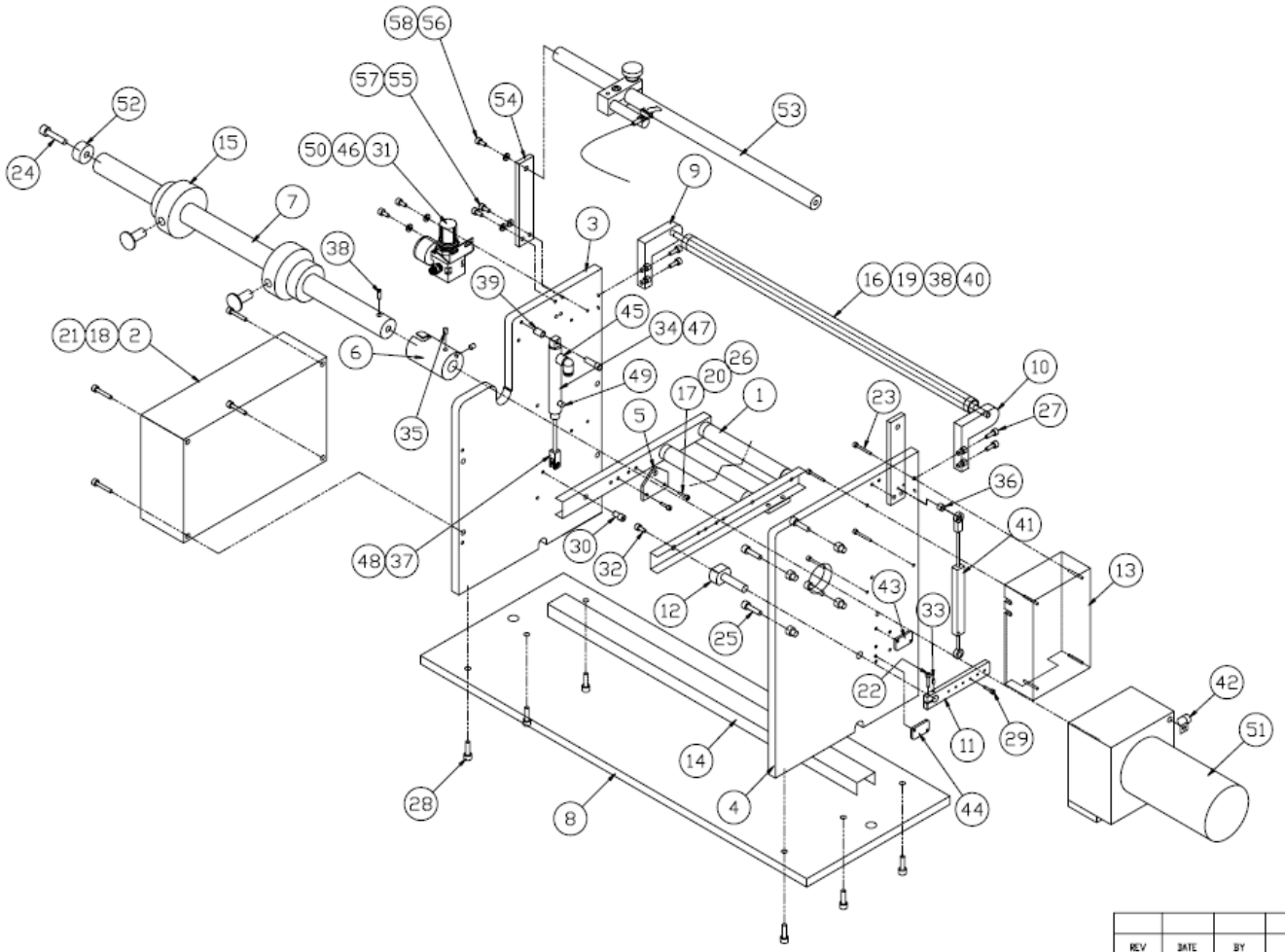
TITLE	DRAWING NO.	REV.
STAND ASSEMBLY	TA-T60050-1	–

Date 10/28/03 ADVANCED POLY PACKING, INC.

Bill of Materials Top Level Report for 10/28/03

Seq No	Item	Description	Quantity
Assembly => TO-T1-UW10		UW10 Driven Unwind Tension Assy	
1	TA-T6RW300	Dancer Assy-Roll-A-Print	1
2	TA-T60300	Electrical Enclosure Assy	1
3	TP-T6RW0012-1	Side Plate,LH	1
4	TP-T6RW0012-2	Side Plate,RH	1
5	TP-T6RW0013	Bracket	1
6	TP-T6RW0014	Coupling	1
7	TP-T6RW0015	Shaft	1
8	TP-T6RW0016	Base	1
9	TP-T6RW0017-1	Roller Extension,LH	1
10	TP-T6RW0017-2	Roller Extension,RH	1
11	TP-T6RW0019	Pivot Block,Lower Cylinder	1
12	TP-T6RW0020	Cylinder Shaft,Mounting Bl	1
13	TP-T6RW0023	Project Enclosure	1
14	TP-T6RW0024	Raceway	1
15	TA-T10010	Film Tension Hub Sub-Assem	2
16	TP-T1MA00089	Dancer Roller 1.101.A21.00	1
17	TP-101102	Nut,6-32 Hex Mach Screw Pl	2
18	TP-102134	Washer,#10 SAE Flat Zinc	4
19	TP-102142	Washer,1/4 SAE Flat Zinc	2
20	TP-102152	Washer,#6 Med Split Lock	2
21	TP-102154	Washer,#10 Med Split Lock	4
22	TP-103009	Screw, SHCS 6-32 x 5/8 S	1
23	TP-103019	Screw, SHCS 6-32 X 1-1/4	1
24	TP-103026	Screw, BHCS 5/16-18 X 1	1
25	TP-103027	Screw, SHCS 1/4-28 X 7/8	4
26	TP-103111	Screw, SHCS 6-32 x 1/2	2
27	TP-103129	Screw, SHCS 10-32 x 1/2	4
28	TP-103139	Screw, SHCS 1/4-20 x 3/4	6
29	TP-103139-1	Screw, SHCS 5-40 X 1/2	1
30	TP-103186	Screw,Sock Shldr 1/4x3/4	1
31	TP-103212	Screw, BHCS 8-32 x 1/2	2
32	TP-103219	Screw, BHCS 10-32 x 3/8	5
33	TP-103259	Set-screw, 6-32 x 1/4	1
34	TP-103305	Screw, Sock Shldr 1/4x3/4,	1
35	TP-103519	Screw, Socket Set 1/4-20 x	2
36	TP-104129	Spacer,3/8" OD x 1/4" Long	1
37	TP-104131	Spacer,1/2"OD x 1/8"Long x	1
38	TP-106106	Spring Pins, SS 1/4 x 1-1/	3
39	TP-107177	Bushing,1/4ID x 3/8OD x 3/	1
40	TP-108099	Compression Spring,Guide R	2
41	TP-201439	Potentiometer,Linear 5k	1
42	TP-214373	Clamp, 1/4" #10 Screw	1
43	TP-215015	Switch, Rocker SPST 10A @	1
44	TP-215022	Limit Switch	1
45	TP-401257	Elbow, 1/4" Tube x 1/8 NPT	1
46	TP-401277	Elbow, 1/4 tube x 10/32 Th	2
47	TP-403248	Bimba Cylinder,3"Stroke	1
48	TP-404252	Rod Clevis .75" Bore Size	1
49	TP-404262	Muffler, Sintered Bronze 1	1
50	TP-406259	MiniReg/Bracket/Gauge/10-3	1
51	TP-501115	Motor,1/8hp,181rpm,13.8:1	1
52	TP-504132	Cam Follower	1
53	TA-T60900	Bag Out Detector Assy,RAP	1

54	TP-DP1011	Sensor Roller Bracket	2
55	TP-102154	Washer,#10 Med Split Lock	4
56	TP-102155	Washer,1/4 Med Split Lock	2
57	TP-103130	Screw, SHCS 10-32 x 3/4	4
58	TP-103139	Screw, SHCS 1/4-20 x 3/4	2



REV	DATE	BY	DESCRIPTION

Advanced
Poly Packaging Inc.

1331 Ewitt Road ■ Akron ■ Ohio 44306
Phone: 330-785-4000 ■ Fax: 330-785-4010

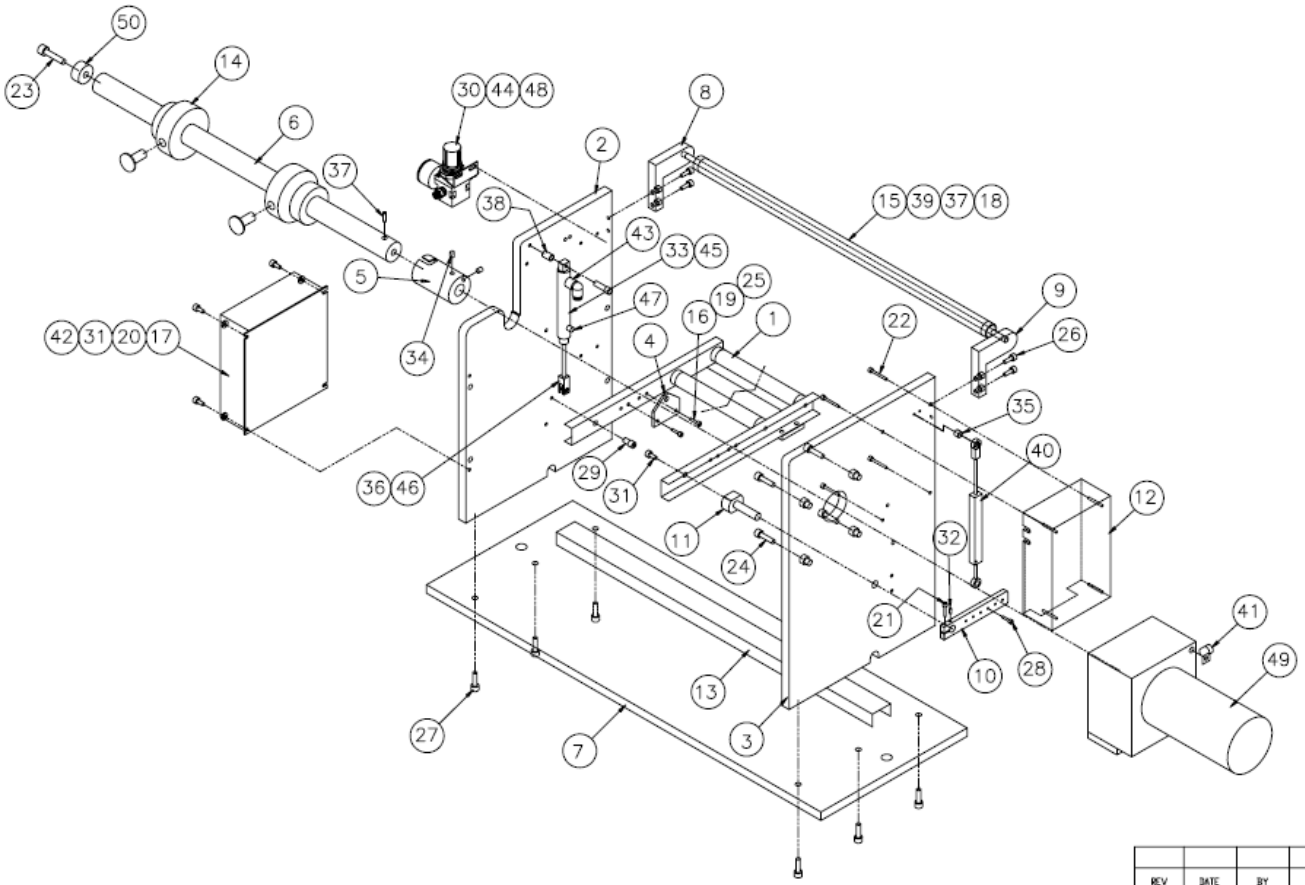
TYPE EQUIPMENT	B/M REF. NO.	PART NO.
UNWIND		
SCALE	DRAWN BY	APPROVED
1:5	NAME MELODY	NAME
	DATE 11/13/00	DATE

TITLE	DRAWING NO.	REV.
UNWIND EXPLODED VIEW	TO-T1-UW10	

Date 10/28/03 ADVANCED POLY PACKING, INC.

Bill of Materials Top Level Report for 10/28/03

Seq No	Item	Description	Quantity
Assembly => TA-T6RWINDUP Roll-A-Print Windup			
1	TA-T6RW300	Dancer Assy-Roll-A-Print	1
2	TP-T6RW0012-1	Side Plate,LH	1
3	TP-T6RW0012-2	Side Plate,RH	1
4	TP-T6RW0013	Bracket	1
5	TP-T6RW0014	Coupling	1
6	TP-T6RW0015	Shaft	1
7	TP-T6RW0016	Base	1
8	TP-T6RW0017-1	Roller Extension,LH	1
9	TP-T6RW0017-2	Roller Extension,RH	1
10	TP-T6RW0019	Pivot Block,Lower Cylinder	1
11	TP-T6RW0020	Cylinder Shaft,Mounting Bl	1
12	TP-T6RW0023	Project Enclosure	1
13	TP-T6RW0024	Raceway	1
14	TA-T10010	Film Tension Hub Sub-Assem	2
15	TP-T1MA00089	Dancer Roller 1.101.A21.00	1
16	TP-101102	Nut,6-32 Hex Mach Screw Pl	2
17	TP-102134	Washer,#10 SAE Flat Zinc	4
18	TP-102142	Washer,1/4 SAE Flat Zinc	2
19	TP-102152	Washer,#6 Med Split Lock	2
20	TP-102154	Washer,#10 Med Split Lock	4
21	TP-103009	Screw, SHCS 6-32 x 5/8 S	1
22	TP-103019	Screw, SHCS 6-32 X 1-1/4	1
23	TP-103026	Screw, BHCS 5/16-18 X 1	1
24	TP-103027	Screw, SHCS 1/4-28 X 7/8	4
25	TP-103111	Screw, SHCS 6-32 x 1/2	2
26	TP-103129	Screw, SHCS 10-32 x 1/2	4
27	TP-103139	Screw, SHCS 1/4-20 x 3/4	6
28	TP-103139-1	Screw, SHCS 5-40 X 1/2	1
29	TP-103186	Screw, Sock Shldr 1/4x3/4	1
30	TP-103212	Screw, BHCS 8-32 x 1/2	2
31	TP-103219	Screw, BHCS 10-32 x 3/8	5
32	TP-103259	Set-screw, 6-32 x 1/4	1
33	TP-103305	Screw, Sock Shldr 1/4x3/4,	1
34	TP-103519	Screw, Socket Set 1/4-20 x	2
35	TP-104129	Spacer,3/8" OD x 1/4" Long	1
36	TP-104131	Spacer,1/2"OD x 1/8"Long x	1
37	TP-106106	Spring Pins, SS 1/4 x 1-1/	3
38	TP-107177	Bushing,1/4ID x 3/8OD x 3/	1
39	TP-108099	Compression Spring, Guide R	2
40	TP-201439	Potentiometer, Linear 5k	1
41	TP-214373	Clamp, 1/4" #10 Screw	1
42	TP-217006	Drive Control	1
43	TP-401257	Elbow, 1/4" Tube x 1/8 NPT	1
44	TP-401277	Elbow, 1/4 tube x 10/32 Th	2
45	TP-403248	Bimba Cylinder,3"Stroke	1
46	TP-404252	Rod Clevis .75" Bore Size	1
47	TP-404262	Muffler, Sintered Bronze 1	1
48	TP-406259	MiniReg/Bracket/Gauge/10-3	1
49	TP-501115	Motor,1/8hp,181rpm,13.8:1	1
50	TP-504132	Cam Follower	1



REV	DATE	BY	DESCRIPTION

Advanced Poly Packaging Inc.

1331 Kenitt Road * Akron * Ohio 44306
Phone: 330-785-4000 * Fax: 330-785-4010

TYPE EQUIPMENT	B/M REF. NO.	PART NO.
REWINDER		

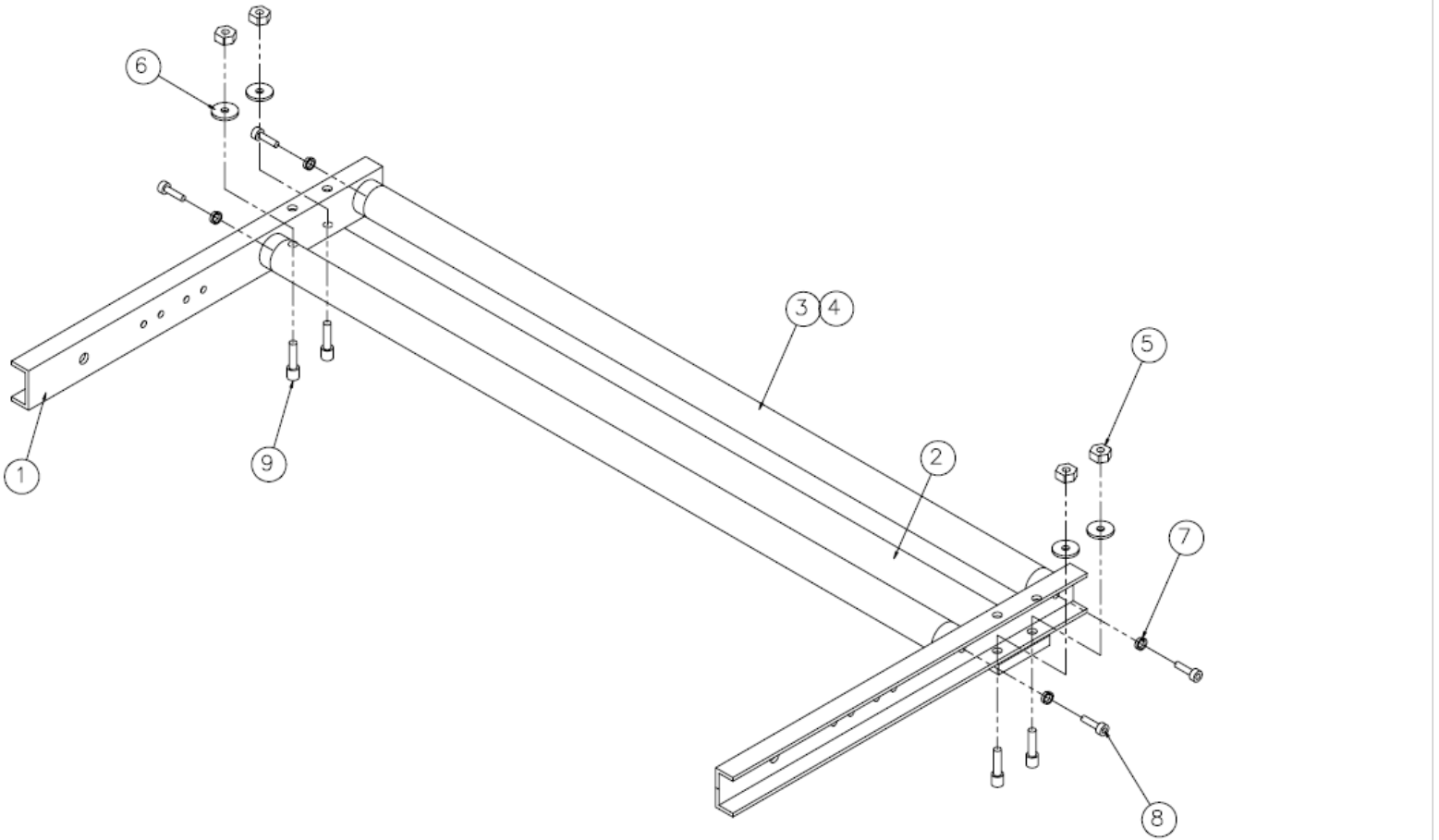
SCALE	DRAWN BY	APPROVED
1:5	NAME MELODY	NAME
	DATE 11/13/00	DATE

TITLE	DRAWING NO.	REV.
REWINDER EXPLODED VIEW	TA-T6RWINDUP	

Date 10/29/03 ADVANCED POLY PACKING, INC.

Bill of Materials Top Level Report for 10/29/03

Seq No	Item	Description	Quantity
Assembly => TA-T6RW300		Dancer Assy-Roll-A-Print	
1	TP-T6RW0021	Dancer Bar	2
2	TP-T1MA00081	Dancer Tension Bar Cross B	1
3	TP-T1MA00089	Dancer Roller 1.101.A21.00	2
4	TP-T1MA00090	Dancer Guide Roller Shaft	2
5	TP-101108	Nut,10-32 Hex Jam Pltd	4
6	TP-102108	Lockwasher,#10 Int Tooth P	4
7	TP-102153	Washer,#8 Med Split Lock Z	4
8	TP-103116	Screw, SHCS 8-32 x 1/2	4
9	TP-103170	Screw, SHCS 10-32 x 5/8	4



		REV	DATE	BY	DESCRIPTION
QUANTITY	–				
MATERIAL	–				
FINISH	–				

Advanced Poly Packaging Inc.

1301 Ewell Road * Akron * Ohio 44306
Phone: 330-785-4000 * Fax: 330-785-4010

TOLERANCES UNLESS OTHERWISE NOTED:
+/- .015 ON FRACTIONAL DIMENSIONS
+/- .010 ON TWO PLACE DECIMAL DIMENSIONS
+/- .003 ON THREE PLACE DECIMAL DIMENSIONS
125 ✓ ON MACHINED SURFACES
ALL DIMENSIONS ARE IN INCHES
PART MUST BE FREE OF BURRS AND SHARP EDGES

TYPE EQUIPMENT	B/M REF. NO.	PART NO.
REWINDER/UNWIND		–

SCALE	DRAWN BY	APPROVED
1:2	NAME MELODY	NAME
	DATE 11/13/00	DATE

TITLE: REWINDER/UNWIND DANCER ASSEMBLY

DRAWING NO.: TA-T6RW300 REV.: –

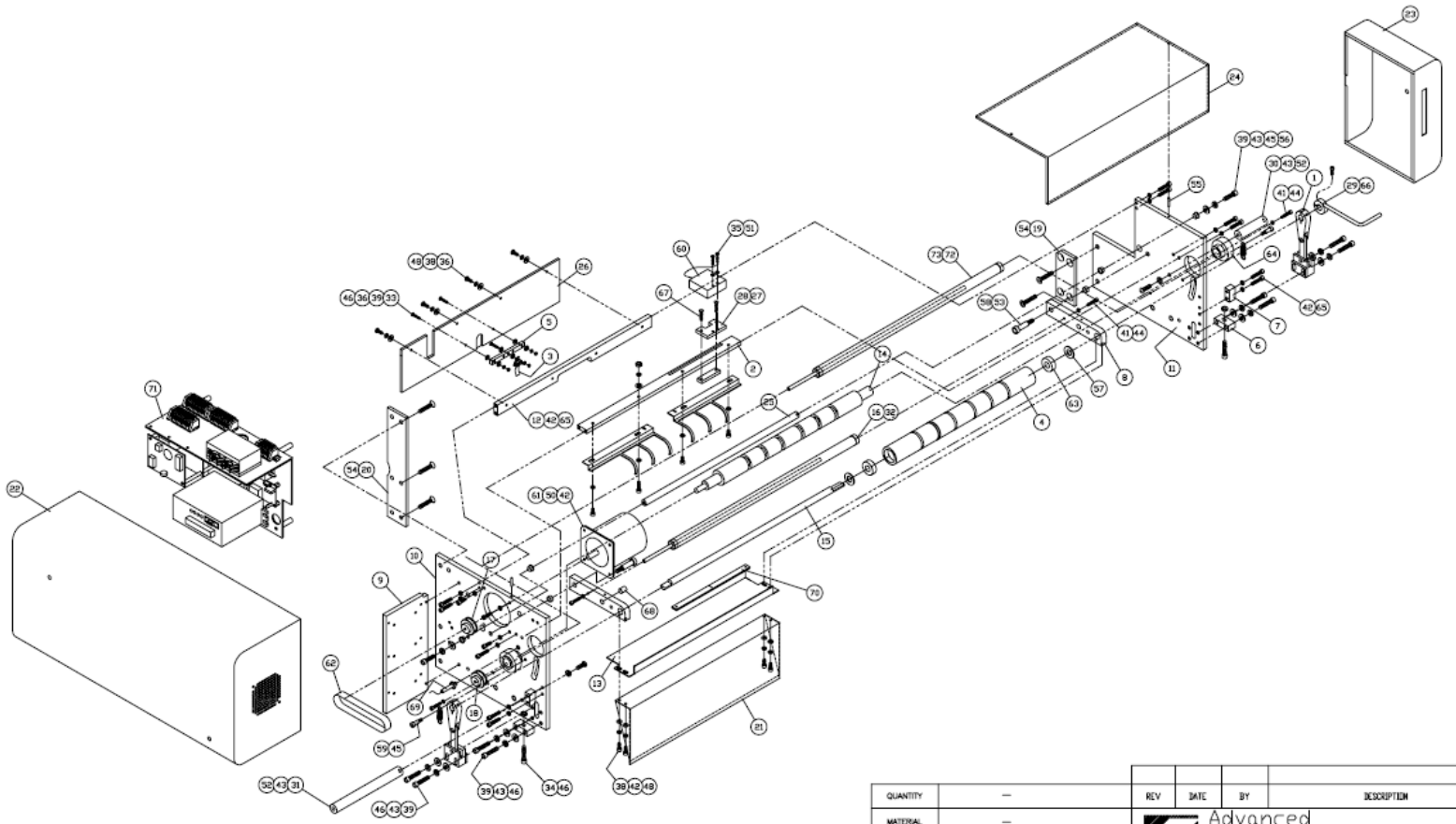
Date 10/28/03 ADVANCED POLY PACKING, INC.

Bill of Materials Top Level Report for 10/28/03

Assembly => TA-T60000 Main Body Assy,RAP-1400

Seq No	Item	Description	Quantity
1	TA-T60010	Link Assy	2
2	TA-T60015	Sensor Bracket Assy	1
3	TA-T100124-1	High Voltage Sensor	1
4	TP-T1MB00012	Grooved Lower Roller (Stee	1
5	TP-T1MC00083	Insulator,High Volt Sensor	1
6	TP-T6A1002	Adjuster Block	2
7	TP-T6A1004	Link Stop	2
8	TP-T6A1006	Nip Roll Mount	2
9	TP-T6A1007	Mounting Plate,Electronics	1
10	TP-T6A1012	Side Plate (LH)	1
11	TP-T6A1013	Side Plate (RH)	1
12	TP-T6A1014	Sensor Mounting Bar	1
13	TP-T6A1015	Grooved Metal Roller Finge	1
14	TP-T6A1017	Rubber Nip Roller	1
15	TP-T6A1018	Roll Shaft	1
16	TP-T6A1019	Roll Shaft	1
17	TP-T6A1020	Roller Pulley	1
18	TP-T6A1020-1	Motor Pulley	1
19	TP-T6A1021	Splice Plate (Small)	1
20	TP-T6A1022	Splice Plate (Large)	1
21	TP-T6A1025	Front Cover	1
22	TP-T6A1026	Main Side Cover	1
23	TP-T6A1027	Side Cover	1
24	TP-T6A1028	Lexan Guard	1
25	TP-T6A1030	Shaft	1
26	TP-T6A1031	Sensor Guard	1
27	TP-T6A1032-1	Mounting Block	1
28	TP-T6A1032-2	Mounting Block	1
29	TP-T6A1033	Handle	1
30	TP-T6A1034	Standout	1
31	TP-T6A1035	Standout	1
32	TP-T6A1036	Roller 1.101.A21.000 15.	1
33	TP-101102	Nut,6-32 Hex Mach Screw Pl	3
34	TP-101121	Nut1/4-20 Jam Hex Pltd	2
35	TP-102102	Lockwasher,#6 Int Tooth Pl	2
36	TP-102108	Lockwasher,#10 Int Tooth P	4
37	TP-102132	Washer,#6 SAE Flat .156	6
38	TP-102134	Washer,#10 SAE Flat Zinc	8
39	TP-102142	Washer,1/4 SAE Flat Zinc	8
40	TP-102152	Washer,#6 Med Split Lock	3
41	TP-102153	Washer,#8 Med Split Lock Z	4
42	TP-102154	Washer,#10 Med Split Lock	16
43	TP-102161	Washer,1/4"Med Split Lock	12
44	TP-103005	Screw, SHCS 8-32 x 7/8 SS	4
45	TP-103140	Screw, SHCS 1/4-20 x 1	4
46	TP-103141	Screw, SHCS 1/4-20 x 1-1/4	10
47	TP-103112	Screw, SHCS 6-32 x 3/4 SS	3
48	TP-103129	Screw, SHCS 10-32 x 1/2	8
49	TP-103130	Screw, SHCS 10-32 x 3/4	8
50	TP-103170	Screw, SHCS 10-32 x 5/8	4
51	TP-103209	Screw, BHCS 6-32 x 3/4	2
52	TP-103225	Screw, BHCS 1/4-20 x 3/4	2
53	TP-103268	Screw, Sock Shldr 3/8 x 1	2

54	TP-103433	Screw, FHCS 5/16-18 x 5/8	5
55	TP-106109	Spring Pins, SS 1/8 x 3/4	2
56	TP-107225	Bushing,Nylon Flange 3/8 x	4
57	TP-107227	Bushing,Thrust Nylon 1/2ID	2
58	TP-107228	Bushing,Nylon Flange 3/8ID	2
59	TP-108157	Ext Spring, Dancer Brake S	2
60	TP-216100	Optical Sensor	1
61	TP-501171	5-Phase Stepping Motor Uni	1
62	TP-503102	Belt,Brake	1
63	TP-504107	Bearing, Nice 1616	2
64	TP-504113	Bearing,7612 DLG (2/M)	2
65	TP-103025	Screw, SHCS 10-32 x 1	8
66	TP-103118	Screw, SHCS 8-32 x 1	1
67	TP-103176	Screw, BHCS 8-32 X 7/8	2
68	TP-211374	Magnets	1
69	TP-215200	Switch, Magnetic (Threaded	1
70	TP-216092	Reflector, 100x18A Rectang	1
71	TA-T60150	Electrical Componets,Main	1
72	TP-T2MA0106-1	Guide Rollers 1.101.A21.00	1
73	TP-T2MA0107-1	Main Guide Roller Shaft	1
74	TP-107226	Bushing,Sleeve 1/4ID x 3/8	2



QUANTITY	–	REV	DATE	BY	DESCRIPTION
MATERIAL	–				
FINISH	–				

Advanced Poly Packaging Inc.
1231 Evelyn Road * Akron * Ohio 44306
Phone 330-785-4300 * Fax 330-785-4310

TOLERANCES UNLESS OTHERWISE NOTED:
+/- .015 ON FRACTIONAL DIMENSIONS
+/- .010 ON TWO PLACE DECIMAL DIMENSIONS
+/- .003 ON THREE PLACE DECIMAL DIMENSIONS
125 ✓ ON MACHINED SURFACES
ALL DIMENSIONS ARE IN INCHES
PART MUST BE FREE OF BURRS AND SHARP EDGES

TYPE EQUIPMENT	B/M REF. NO.	PART NO.
RAP 2800/1400		–

SCALE	DRAWN BY	APPROVED
1:7	NAME MELODY	NAME
	DATE 5/22/02	DATE

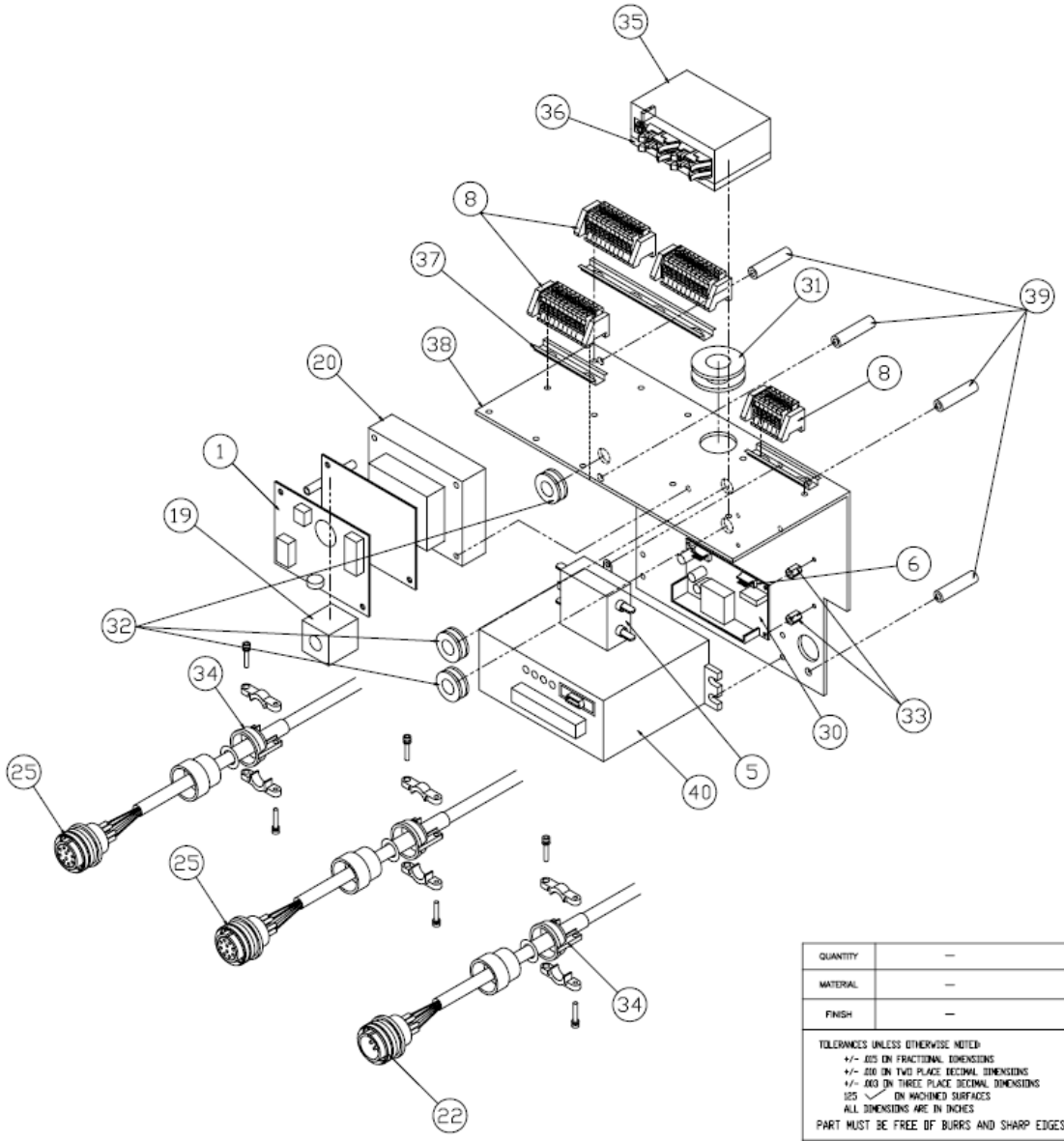
TITLE	DRAWING NO.	REV.
DRIVE ASSEMBLY	TA–T60000	–

TA-T60150

Date 10/29/03 ADVANCED POLY PACKING, INC.

Bill of Materials Top Level Report for 10/29/03

Seq No	Item	Description	Quantity
Assembly => TA-T60150 Electrical Componets,Main Body			
1	TP-T1ME00301	PCB, High Voltage Board Fi	1
2	TP-201141	Resistor 1.2k ohm 1/4w 5%	3
3	TP-201208	Resistor, 1.5K ohm 1/2 Wat	2
4	TP-204136	Adhessive Cable Tie Mount	21
5	TP-205108	Filter,120/250VAC 50/60 HZ	1
6	TP-208008	Jumper (W Shape)For Barr	3
7	TP-208018	4 Pin 0.100" HP Terminal H	2
8	TP-208141	Term.Block,Screw Clamp,15m	36
9	TP-208221	4 Pin .062" Power Connecto	1
10	TP-208223	4 pin .062" power connecto	1
11	TP-208224	Crimp Terminal, M, .062" 1	3
12	TP-208225	Crimp Terminal, F, .062" 1	3
13	TP-208237	Crimp Terminal, M, .093" 1	2
14	TP-208238	Crimp Terminal, F, .093" 1	2
15	TP-208246	Crimp Terminal, H.P. 08-5	6
16	TP-208399	Terminal,Multi-Stack 16-14	4
17	TP-208402	Terminal,Ring (Red) 22-18	6
18	TP-208404	Terminal, Ring, Yellow 1/4	1
19	TP-210232	Clamp On Ferrites	1
20	TP-211386	Transformer,Dual Voltage	1
21	TP-212100	10 pin circular male con (	1
22	TP-212151	2 pin 5.08mm term block (p	1
23	TP-212152	6 Pin 5.08mm Term Block (p	1
24	TP-212164	4 pin 5.08mm term block (p	1
25	TP-212182	10 pin circular fem conn (	2
26	TP-212251	Plug, High Density Female	1
27	TP-212340	Terminal, Fem INS 16-14 (5	5
28	TP-212348	2 pin .093" power connecto	1
29	TP-212349	2 pin .093" power connecto	1
30	TP-213407	PCB, Power Supply, Comm. S	1
31	TP-214103	Grommet, 3/4"ID, 1 5/8"OD(	1
32	TP-214108	Grommet,1/2"HD x 1"D x 3/4	3
33	TP-214268	Standoffs,1/4 4-40 x 3/8",	4
34	TP-214274	Cable clamp w/strain relie	3
35	TP-220504	PLC, T-1000 (Touch Screen	1
36	TP-220507	PLC Base, AFP0804	1
37	TP-218020	Din-3 Rail,Symmetrical 35m	1
38	TP-DP1022	Sub-Plate	1
39	TP-DP1023	Standoff	4
40	TP-501171-1	Driver,Stepper Motor	1



		REV	DATE	BY	DESCRIPTION
QUANTITY	–				
MATERIAL	–				
FINISH	–				

Advanced Poly Packaging Inc.

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TOLERANCES UNLESS OTHERWISE NOTED:
+/- .015 ON FRACTIONAL DIMENSIONS
+/- .010 ON TWO PLACE DECIMAL DIMENSIONS
+/- .003 ON THREE PLACE DECIMAL DIMENSIONS
125 ✓ ON MACHINED SURFACES
ALL DIMENSIONS ARE IN INCHES
PART MUST BE FREE OF BURRS AND SHARP EDGES

TYPE EQUIPMENT	B/M REF. NO.	PART NO.
RAP–2800		–

SCALE	DRAWN BY	APPROVED
1:3	NAME MELODY	NAME
	DATE 8/20/02	DATE

TITLE: ELECTRICAL COMPONETS

DRAWING NO.: TA–T60150

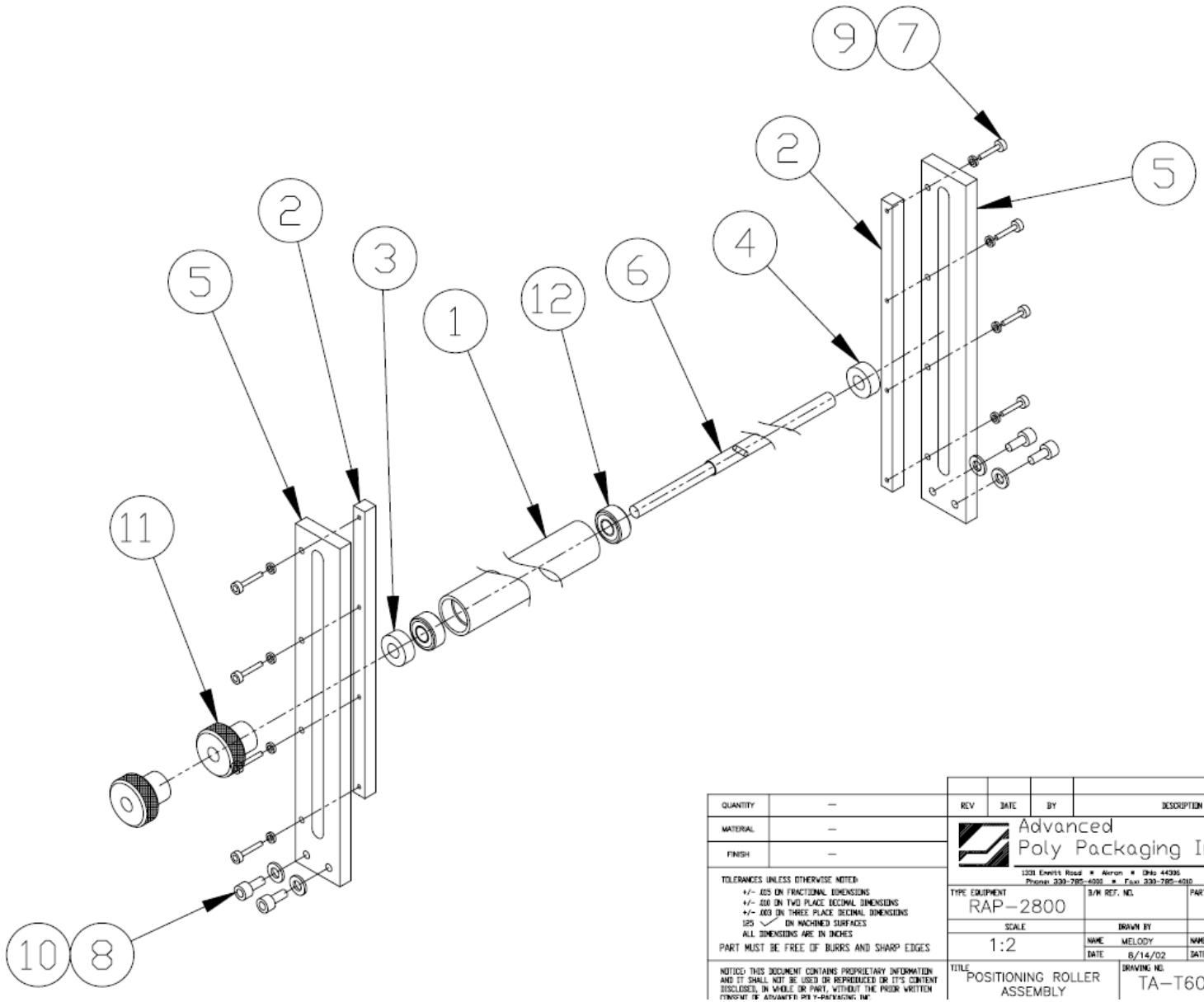
REV.: –

Date 10/28/03 ADVANCED POLY PACKING, INC.

Bill of Materials Top Level Report for 10/28/03

Assembly => TA-T60700 Positioning Roller,T-ROLL2800

Seq No	Item	Description	Quantity
1	TP-LB00101	Roller Tube	1
2	TP-LB00102	Gear Rack (Mach In Pairs)	2
3	TP-LB00103-1	Gear (Remachine)	1
4	TP-LB00103-2	Gear (Remachine)	1
5	TP-LB00105	Gear Rack Upright	2
6	TP-LB00106	Roller Shaft	1
7	TP-102152	Washer,#6 Med Split Lock	8
8	TP-102155	Washer,1/4 Med Split Lock	4
9	TP-103009	Screw, SHCS 6-32 x 5/8 S	8
10	TP-103139	Screw, SHCS 1/4-20 x 3/4	4
11	TP-109149	Knurled Steel Handle	2
12	TP-504106	Bearing,Nice 1604	2



QUANTITY	–	REV	DATE	BY	DESCRIPTION
MATERIAL	–				
FINISH	–				

TOLERANCES UNLESS OTHERWISE NOTED:
+/- .125 ON FRACTIONAL DIMENSIONS
+/- .010 ON TWO PLACE DECIMAL DIMENSIONS
+/- .003 ON THREE PLACE DECIMAL DIMENSIONS
125 ✓ ON MACHINED SURFACES
ALL DIMENSIONS ARE IN INCHES
PART MUST BE FREE OF BURRS AND SHARP EDGES

Advanced
Poly Packaging Inc.
1331 Kenmore Road * Akron * Ohio 44306
Phone: 330-785-4000 * Fax: 330-785-4010

TYPE EQUIPMENT	B/M REF. NO.	PART NO.
RAP–2800		–
SCALE	DRAWN BY	APPROVED
1:2	NAME MELODY	NAME
	DATE 8/14/02	DATE

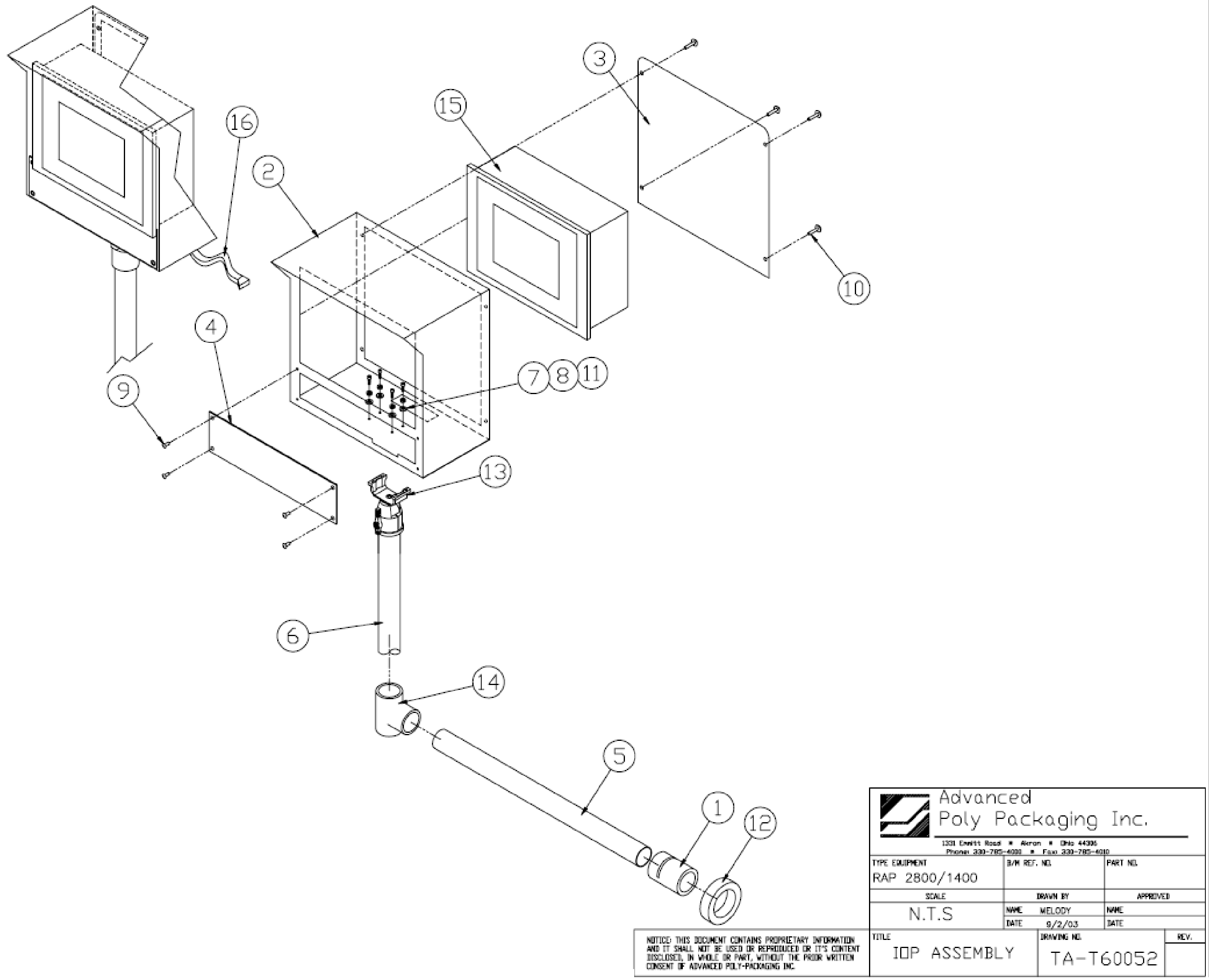
TITLE	DRAWING NO.	REV.
POSITIONING ROLLER ASSEMBLY	TA–T60700	–

TA-T60052

Date 10/28/03 ADVANCED POLY PACKING, INC.

Bill of Materials Top Level Report for 10/28/03

Seq No	Item	Description	Quantity
Assembly => TA-T60052 IOP Assembly			
1	TP-T1MA00088	Base Clamp Pipe Insert	1
2	TP-T1MD00039	Control Case I.O.P.W/-3 Fr	1
3	TP-T1MD00039-1	Control Case IOP Back Plat	1
4	TP-T1MD00039-3	IOP Front Plate,Plain	1
5	TP-T1MD00094	I.O.P Tube Short	1
6	TP-T1MD00109	Mounting Bar,Touchscreen	1
7	TP-102134	Washer,#10 SAE Flat Zinc	4
8	TP-102154	Washer,#10 Med Split Lock	4
9	TP-103207	Screw, BHCS 6-32 x 3/8	4
10	TP-103211	Screw, BHCS 8-32 x 3/8	4
11	TP-103256	Screw, SHCS M3-12	4
12	TP-111104	Clamp, Collar 2 pc Split 1	1
13	TP-111118	Bracket, Swivel Ball Socke	1
14	TP-111215	Joining Tee 3/4" Pipe 1" T	1
15	TP-220350	Touch Screen, 5.7" Display	1
16	TP-220350-1	Cable,Touchscreen	1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Advanced
Poly Packaging Inc.
1331 Emmitt Road * Akron * Ohio 44306
Phone: 330-785-4000 * Fax: 330-785-4010
TYPE EQUIPMENT
RAP 2800/1400
B/M REF. NO.
PART NO.
SCALE
N.T.S
DRAWN BY
NAME MELODY
DATE 9/2/03
APPROVED
NAME
DATE
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TITLE
IOP ASSEMBLY
DRAWING NO.
TA-T60052
REV.