# UF-5000 Infeed Conveyor

Operation Guide, Version 1A Setup, Operation and Parts Manual







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### Acknowledgments

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## Chapter 1: Introduction

Welcome

Overview

Capabilities and Performance

Options and Accessories

Specifications

**System Integration** 

Using This Manual

### 1.1 Welcome

Now that you have decided to upgrade your packaging facilities with the Ultra-Feed 5000 Infeed Conveyor from Advanced Poly-Packaging, Inc., we thank you for selecting our equipment, materials and service. We know you will be satisfied with the durability, functionality and performance of the UF-5000.

### 1.2 Overview

By eliminating the need to physically handle product, infeed conveyors maintain a rapid flow from one piece of equipment to another, reduce labor costs and increase overall productivity. In some circumstances (i.e. assorted product kits, multiple counts), an infeed conveyor is the only way to maintain accuracy and reliability.

### 1.3 Capabilities and Performance

The UF-5000 is a highly versatile infeed conveyor with capabilities well beyond those of most other conveyors. This is due to a highly sophisticated, embedded microprocessor, real-time software and unlimited configuration possibilities. With a continuous running speed of 50 feet per minute (standard), the UF-5000 allows you to take advantage of the fastest automatic bagger, the T-1000 Advanced Poly-Bagger.

### 1.4 Options and Accessories

Several auxiliary options can be added to the UF-5000 for special purpose packaging. The following options and accessories can be purchased from Advanced Poly-Packaging, Inc:

**Part Sensors**: There are a variety of infrared and visible light sensors available to meet your specific packaging needs.

**Special Funnels**: Special funneling from the UF-5000 to the bagger or other auxiliary equipment can be fabricated by APPI, including accumulating funnels.

**Footswitch**: A standard footswitch may be used to operate the UF-5000 independently or in conjunction with other equipment.

**Secondary Auxiliary Cables**: The UF-5000 has the ability to control an unlimited number of counters or other similar equipment with the use of these cables. This completes the loop between the bagger, the UF-5000 and other auxiliary equipment.

**Auxiliary Infeed Equipment**: Special infeed equipment such as vibratory bowl feeders or scales can be added to provide for automatic packaging operations.

Other options may have been added since the date this list was printed. Please call for additional or custom options pricing.

### 1.5 System Integration

The UF-5000 is specifically designed to directly integrate with the T-1000 Advanced Poly-Bagger and other Advanced Poly-Packaging baggers. As an OEM for numerous equipment manufacturers of infeed systems, APPI offers the best available packaging system with the UF-5000 as an integral packaging component. However, APPI cannot be responsible for the successful integration of third party equipment, unless approved and integrated by APPI.

**FREE CONSULTATION AND PRODUCT EVALUATION:** We invite you to call to discuss your packaging requirements and our free product packaging analysis.

### 1.6 Using This Manual

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 UF-5000 Infeed Conveyor.

- 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.

### 1.7 Warranty Registration

This section must be completed and returned to Advanced Poly Packaging, Inc. to register the T-1000-S14 for Warranty Protection.

UF-5000 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 to: <a href="mailto:sales@advancedpoly.com">sales@advancedpoly.com</a>

## Chapter 2: Getting Started

**Chapter Summary** 

Safety, Risks

**Installation Procedures** 

Air and Power Requirements

**Assembly Instructions** 

**Auxiliary Port Connections** 

**Footswitch Connection** 

Main Power

Compartment Position Adjustment

### 2.1 Chapter Summary

This chapter describes procedures to receive and set up the UF-5000, including uncrating instructions, environmental, air and power requirements, assembly instructions and height adjustments. Additionally, this chapter describes safety precautions, and how to power on the UF-5000.

### 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 the heater bar or any other 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:

- **CAUTION:** 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.
- *CAUTION:* 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.
- *CAUTION:* 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.
- *CAUTION:* 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 temperature areas that can cause crush, cut or burn injuries to hands or fingers.
- *CAUTION:* 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.
- *CAUTION:* Do not remove or loosen fasteners on the frame. If loosened, the equipment may drop suddenly, causing injury or damage to the machine.
- *CAUTION:* Be careful when opening the seal frame as it may drop suddenly, causing injury or damage to the equipment.
- *CAUTION:* To avoid injury, avoid coming in contact with pinch points including rollers, automatic funnel doors or other moving components.
- *CAUTION:* To avoid injury, avoid contact with roller "fingers" as they may be sharp.
- *CAUTION:* 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.

- *CAUTION:* 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.
- *CAUTION:* 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.
- *CAUTION:* Maintenance must be performed by specialized personnel. Qualified service engineers must remove guards or covers to gain access to electrical or mechanical areas.
- *CAUTION:* 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 UF-5000 is transported on a palette and is completely assembled prior to shipment. Once it has been detached from the palette, it is easily moveable via the casters attached to the base (avoid rough surfaces that may damage the casters). Before maneuvering the UF-5000, make sure the locking bolts are fully retracted. Position it relative to the T-1000 in order to easily attach auxiliary cables and allow for easy access to the operator panel and emergency stop button (E-STOP). When the UF-5000 is in its final position, ensure the locking bolts are lowered and secured to prevent movement of the conveyor.

**Operating Environment**: The UF-5000 should be placed in an area free of excessive heat, moisture, dirt and dust. Operating room temperature should range from 40° to 120° Fahrenheit (4.45°C to 48.89°C) at 25% to 85% relative humidity with no condensation.

### 2.4 Air and Power Requirements

Provisions must be made for a 110-120V configuration. The power consumption for the UF-5000 is 0.75A / 180W maximum.

CAUTION: A qualified electrician should ensure the UF-5000 power outlet is properly grounded,, voltages are as required and amperage capacity is sufficient.

NOTE: Although the UF-5000 has been designed with sufficient noise filtering, it is not recommended to run it on the same circuit with presses, mills and other large industrial equipment.

### 2.5 Assembly Instructions

Choose an operating location considering traffic flow, availability of supplies, product to be packaged, take away location and control panel accessibility.

### 2.6 Auxiliary Port Connections

There are four auxiliary connections located on the back panel of the UF-5000. They have been provided to accommodate a variety of different configuration possibilities. Below is a chart of the most popular equipment hookups.

<b>Equipment Type</b>	Ports Used	Cable Type
T-1000 Advanced Poly-Bagger <sup>TM</sup>	Bagger 1	Single, closed loop
All other bagging equipment	Bagger 1, Bagger 2	Dual, closed loop
APPI UC-2400 Ultra Count <sup>TM</sup>	Counter 2	Single, terminating
All other counting equipment	Counter 1, Counter 2	Dual, closed loop

NOTE: For further details on connecting non-APPI equipment, please contact APPI technicians and sales staff for assistance in system integration.

### 2.7 Footswitch Connection

A footswitch input has been provided to allow for manual indexing of the UF-5000. It may be used to cycle the UF-5000 as a standalone unit or in conjunction with auxiliary equipment.

### 2.8 Main Power

The main power switch is located on the rear panel. Press the switch to the ON position so that the red Main Power light is illuminated.

When the main power switch is in the ON position, the LCD display will be backlit and will display a series of messages. These messages include the company name, conveyor type and program version. The conveyor should then default to the RUN / STOP menu.

*NOTE: If the LCD Display screen does not power up, see Chapter 5, Maintenance and Troubleshooting.* 

### 2.9 Compartment Position Adjustment

The conveyor indexes at a fixed belt speed but pauses after each cleat has passed through the flight sensor. The stopping point of a cleat is determined by the position of the flight sensor. To ensure that the product is evacuated from the conveyor properly, move the flight sensor along the length of the conveyor to a position that allows for proper product flow.

CAUTION: To avoid physical harm, do not attempt to adjust the flight sensor while the conveyor is moving. Refer to Section 5.1 for instructions on flight sensor positioning adjustments.

## Chapter 3: Touch Screen Operation

Identification

Specifications

Contrast Adjustment

Overview

Activating the UF-5000

UF-5000 Conveyor Screen

UF-5000 Operation Screen

### 3.1 Chapter Summary

This chapter describes the identification, operation and settings for the UF-5000 Infeed Conveyor. The T-1000-S14 touch screen program controls the operation of the UF-5000. Press the **UF-5000** button on the second page of the Bagger Options Menu screen to access UF-5000 operation screens. The UF-5000 Conveyor screen will be displayed.

### 3.2 Touch Screen Identification

Note: There are no system buttons on the 7" touch screen.

#### FRONT PANEL:

- 1. System button
- 2. **F1**: Displays the Help Screen
- 3. **F2**: Increases brightness when **System** button is pressed
- 4. F3: Resets screen to midpoint brightness when System button is pressed
- 5. **F4**: Decreases brightness when **System** button is pressed
- 6. **F5**: Displays Level 1 and Level 2 Passcodes.
- 7. **Green LED** (Power): Lights up when touch screen is turned on

#### **BACK PANEL:**

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

### 3.3 Touch Screen Specifications / Features

Power	24 VDC (+/- 10%)
Operating Environment	0-50°C, 85% RH or less
Display	Color LCD
Resolution (W x H)	800 x 480dots
Display Area	190 x 135mm (7")
Backlight	CCFL
Backlight Hours	Approx. 75,000
PLC Connection	RS232

### 3.4 Touch Screen Contrast Adjustment

The contrast of the LCD may be adjusted if the screen is difficult to read. To adjust the contrast press the **System** button located to the right side of the active touch screen area. Then press the **F2** button to increase brightness and the **F4** button to decrease brightness. Pressing **F3** will return the screen to midpoint brightness.

### 3.5 Touch Screen Program Overview

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

### 3.6 Activating the UF-5000

The operation of the UF-5000 is controlled within T-1000-S14 touch screen program. To access operation screens and settings for the UF-5000, press the **UF-5000** button on the second page of the Bagger Options Menu. If an information screen is displayed with an **Activate Option** button at the bottom of the screen, the UF-5000 option has not been activated yet. See Figure 3-1. Contact APPI Technical Support for information on how to activate the option. If the UF-5000 option has been activated, the UF-5000 Conveyor screen will be displayed after the

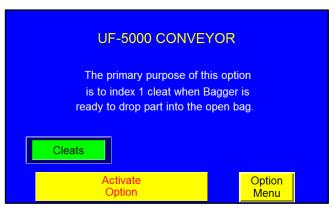


Figure 3-1

UF-5000 button is pressed on the Bagger Options Menu.

NOTE: If the UF-5000 option was purchased with the T-1000-S14 Advanced Poly-Bagger, the option will be activated at the factory. Otherwise, contact APPI Service Department for instructions on how to enable options.

NOTE: For information on the bagger's program, refer to the T-1000-S14 Operation Guide, Version 6A.

### 3.7 UF-5000 Conveyor Screen

The UF-5000 Conveyor screen allows the operator to adjust the conveyor settings. See Figure 3-2. If the UF-5000 option has been activated in the T-1000-S14 program, this screen is displayed when the **UF-5000** button is pressed on the Bagger Options Menu.

To enable the conveyor, toggle the **UF5k** mode toggle button located at the top of the screen to the green on position. To disable the conveyor, toggle the UF5k button to the red off position.

Press the **Conv Index** button to manually cycle the conveyor without cycling any other equipment. The bagger will automatically enter Setup mode when this button is pressed. Press the **Accum Open** button to manually open the accumulating funnel.

**Index Delay**: The amount of time, in seconds, the conveyor waits for a signal from the part sensor before it begins another index cycle. If a part is detected before this time elapses, the conveyor cycles normally. If a part is not detected before this time elapses, operation will

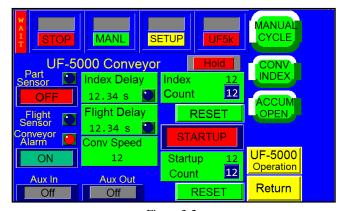


Figure 3-2

stop. The amount of time the conveyor will wait before cycling after receiving a signal from the bagger auxiliary input.

**Flight Delay Setting**: The amount of time, in seconds, the flight sensor is active when the flight passes through the optical eye.

**Conv Speed**: The speed of the conveyor. To adjust this setting, press the **Conv Speed** button, enter a value in the numeric keypad and press the **ENT** button.

**Index Count**: The number of compartments that will be indexed per cycle.

**Startup Count**: The amount of product that must pass through the optical eye before the conveyor before the system begins operation. Press the Reset button to set this count to zero.

Part Sensor: If a part is not detected after the conveyor belt stops and after the Index Delay time has

elapsed, this LED illuminates and an error message is displayed. See Figure 3-3. To turn this option on and off, press the Part Sensor **ON / OFF** button.

**Flight Sensor LED**: Illuminates when a flight passes through the optical eye.

**Conveyor Alarm**: This LED illuminates when the conveyor encounters an error.

**Aux Out**: Displays the status of the conveyor's communication to the bagger. When Aux Out displays

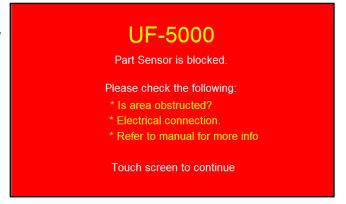


Figure 3-3

READY, the conveyor is ready to drop parts to the bagger. When Aux Out displays HOLD, the conveyor is still cycling. If Aux Out displays OFF, auxiliary communication is disabled.

**Aux In:** Displays the status of the bagger's communication to the conveyor. When Aux In displays READY, the bagger is ready to receive product. When Aux In displays HOLD, the bagger is still cycling. Aux In displays OFF when auxiliary communication is not enabled.

## 3.8 UF-5000 Operation Screen

The UF-50000 Operation screen allows the operator to view the current conveyor settings and status. See Figure 3-4. This screen is accessed by pressing the **UF-5000 Operation** button from the UF-5000 Conveyor screen.

**Conv Index**: Displays the current count the conveyor is indexing.

**Startup**: The amount of product that must pass through the optical eye before the conveyor before the system begins operation. Press the



Figure 3-4

**Reset** button to set this count to zero. Press the **ON/OFF** toggle button to turn the Startup function on and off.

**AF-10**: If the machine is equipped with an accumulating funnel, this display indicates the status of the funnel.

**Preset Count Remaining**: Displays the number of cycle operations left before the bagger will stop automatically. The Preset Count counts down from a preset number and stops the machine when the preset number of cycles 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.

### Chapter 4: Maintenance and Troubleshooting

Flight Sensor Adjustment / Compartment Positioning Chain Tension Belt Tension Height and Tilt Adjustments Tracking and Side Rail Alignment Funnel Positioning

### 4.1 Flight Sensor Adjustment / Compartment Positioning

The position that each compartment stop can be adjusted to ensure that the product falling from the final compartment is completely evacuated from the conveyor. The compartment adjustment can be made in two methods: 1) Program Setting adjustment, see 3.7 Flight Delay Setting, and 2) Mechanical adjustment of the Sensor Position (see below).

If the compartment cleat is not stopping at the proper position, adjust the position of the flight sensor according to the following procedures:

#### **Procedures:**

- 1. Press and lock the E-Stop button located on the top center control panel.
- 2. Located the flight sensor behind the control panel/
- 3. Slightly loosen the screws using a socket wrench.
- 4. Move the flight sensor opposite to the direction of the required compartment position.
- 5. Slightly retighten the flight sensor.
- 6. Set the UF-5000 to run in continuous mode (refer to Chapter 4 for Mode settings)
- 7. Set the Output Delay to 1.0 second (refer to Chapter 4 for Output Delay settings)
- 8. Place the UF-5000 in RUN mode (refer to Chapter for RUN / STOP selection
- 9. Check the new stopping position of the cleat/final compartment
- 10. Repeat steps 1-9 until you are satisfied with the operation.
- 11. Press and lock the E-Stop button
- 12. Retighten the flight sensor screws.

CAUTION: To avoid physical harm, do not attempt to make mechanical adjustments to the UF-5000 while it is in motion. Turn off the power or press and lock the E-Stop button.

CAUTION: To avoid physical harm, do not remove the control panel while the conveyor is plugged into a power source.

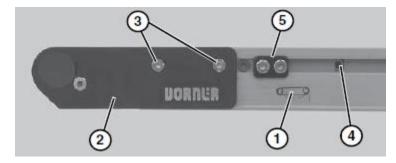


Figure 4-1

### 4.2 Belt Tension Adjustment

- On tension end of the conveyor, identified with a label (Figure 4-1, item 1), adjust head plate assembly (Figure 4-1, item 2): On both sides of conveyor, loosen fastening screws (Figure 4-1, item 3) and rotate pinion gear (Figure 4-1, item 4) to adjust head plate assembly.
- Adjust head plate assembly so end of conveyor frame aligns with or between the head plate tensioning marks (Figure 4-2, item 1 & 2). Replace belt if proper tensioning cannot be obtained while aligning the end of the conveyor frame with or



Figure 4-2

between the tensioning marks. See NOTE.

After adjusting proper tensioning, tighten fastening screws (Figure 4-1, item 3) on both sides of conveyor to 60 in-lb (7 Nm).

• If equipped with cam tracking assemblies (Figure 4-1, item 5), position against head plates and adjust belt tracking. Refer to "Tracking and Side-Rail Alignment".

### 4.3 Tracking and Side-Rail Alignment

Non V-guided belt conveyors are equipped with belt tracking cam assemblies (Figure 4-3, item 1) for belt tracking adjustment.

When adjusting belt tracking, always adjust the discharge end of the conveyor first. To adjust belt tracking:

• Ensure head plate fastening screws (Figure 4-3, item 2)

on both sides of conveyor are tightened.

• On both sides of conveyor, loosen two (2) cam fastening screws (Figure 4-3, item 3). Adjust cams (Figure 4-3, item 4) until indicator slots (Figure 29, item 5) are horizontal and facing end of conveyor. Then slide cam assemblies against head plates (Figure 4-3, item 6) and re-tighten cam fastening screws (Figure 29, item 3) to 60 in-lb (7 Nm).

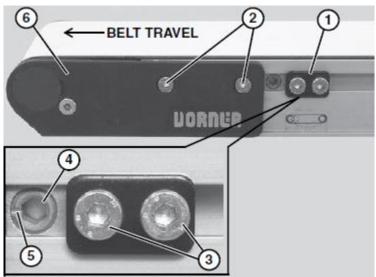


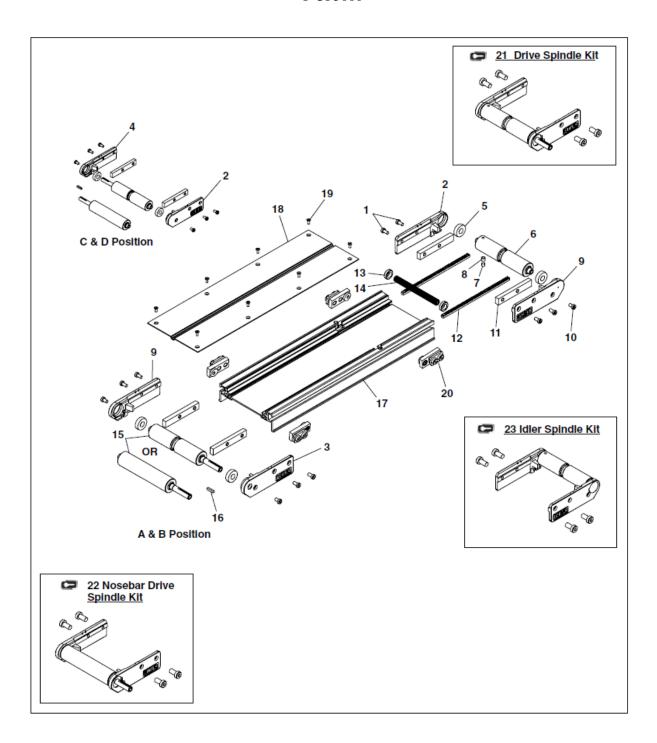
Figure 4-3

- On the side toward which the belt is tracking, loosen head plate fastening screws (Figure 4-3, item 2).
- With the conveyor running, use a 5 mm hex-key wrench to rotate the tracking cam (Figure 4-3, item 4) in small increments until the belt tracks in the center of the conveyor. Then while holding the cam in position, re- tighten the head plate fastening screws Figure 4-3, item 2) with a 4 mm hex-key wrench to 60 in-lb (7 Nm).

## Chapter 5: Parts

### UF-5000 Conveyor BOM T-UF5000 5.1

Item	Part Number	Description
1	920692M	Socket Head Screw, M6 x 12 mm
2	240425	Head Plate LH
3	240427	Head Plate LH Drive Side, Position A and B
4	240428	Head Plate RH Drive Side, Position C and D
5	22BK2	Bearing Kit (x2)
	22BK4	Bearing Kit (x4)
6	<u>2</u> 473WW	Idler Spindle
7	808-020	Magnet, 0.25" Dia. x 0.25" long
8	450226SSP	Sleeve, 0.25" Magnet (Stainless Steel)
9	240426	Head Plate RH
10	920691M	Socket Head Screw, M6 x 10 mm
11	240329	Tension Slide Bar
12	240420	Rack Gear, 14.5 Degree PA x 24P
13	240421	Pinion Bushing
14	<u>2</u> 030WWM	Pinion Gear
15	<u>4</u> 564WW	Drive Spindle, 2" (51 mm)
	<u>2</u> 476WW	Nosebar Drive Spindle, Lagged 2" (51 mm)
16	980422M	Square Key, 4 mm x 22 mm
17	<u>2</u> 404WW <u>-</u> LLLLL	Conveyor Frame
18	<u>2</u> 405WW <u>-</u> LLLLL	Conveyor Bed Plate
19	807–1105	Flat Head Torx Screw, M6 x 10 mm
20	240025	Cam Mounting Assembly
21	22A- <u>WW</u>	Drive Spindle Kit, Position A and B – Grooved (Includes Items 1,2, 3, 5, 9 and 15)
	22D- <u>WW</u>	Drive Spindle Kit, Position C and D – Grooved (Includes Items 1, 2, 4, 5, 9 and 15)
22	22NA- <u>WW</u>	Nosebar Drive Spindle Kit, Position A and B – Lagged, Smooth (Includes Items 1, 2, 3, 5, 9 and 15)
	22ND- <u>WW</u>	Nosebar Drive Spindle Kit, Position C and D – Lagged, Smooth (Includes Items 1, 2, 4, 5, 9 and 15)
23	22T- <u>WW</u>	Idler Spindle Kit (Includes Items 1, 2 and 5 through 10)



### 5.2 NOTES

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