



CORNERSTONE AUTOMATION
SYSTEMS, INC.

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CONTACT PERSONNEL

Cornerstone Automation Systems, Inc.

Chad Hallerman Engineering Manager (972) 346-2242 ext. 109
challerman@cornerstoneautosys.com

Rodney Bell Customer Service Manager (972) 346-2242 ext. 115
rbell@cornerstoneautosys.com

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Cornerstone Automation Systems, Inc.
Engineering
P.O. Box 729
Prosper, TX 75078

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1 INTRODUCTION

1.1 SYSTEMS DESCRIPTION

1.1.1 The book sortation system consists of an infeed conveyor, a gapping conveyor, and a sorter conveyor with inbound scanners and SM150 sorting devices. The system is controlled via a CASI 1100 controller with an AS-I I/O network.

1.1.2 The sections below will describe the adjustments and general maintenance required for the system.

2 *Infeed and Sorter Conveyors*

2.1.1 Belt.

2.1.1.1 Tension: to ensure proper tracking and performance the belt tension should be periodically adjusted as required. The belts will stretch over time resulting in belt performance that appears inconsistent. This can be observed easily during the start up process. As the conveyor motor begins to turn the belt may appear sluggish or may visibly slip on the drive rollers. This is an indication that a slight tension adjustment is required.



TAIL PULLEY END OF CONVEYOR

A tail pulley tracking adjustment can be found near the tail pulley on each belted conveyor.



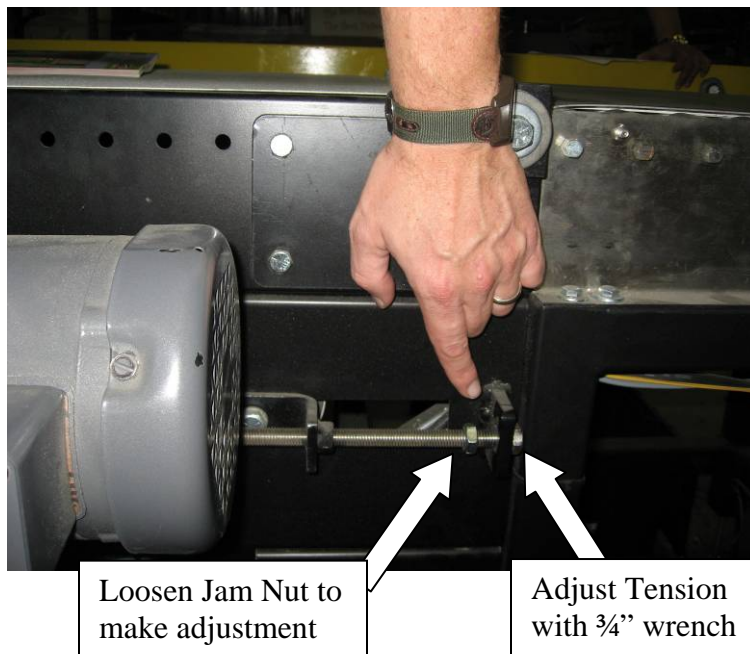
NOSE PULLEY END OF CONVEYOR

- All adjustments should be small, incremental adjustments of perhaps $\frac{1}{2}$ turn at a time.
- “Tightening” (or turning clockwise) the adjustment bolt will increase the tension.
- “Loosening” (or turning counter clockwise) will decrease the tension

- “Loosening” the tension on one side of the conveyor will tend to track the belt to that side.

The tensioning and tracking adjustments should be performed as follows:

1. Loosen the Jam Nut
2. Tighten (or Loosen) the adjustment bolt
3. Repeat on the other side of the conveyor (to avoid tracking change)
4. Observe the results for a few minutes before making further adjustments
5. Tighten the Jam Nut when finished making adjustments.



NOSE PULLEY END OF CONVEYOR

The Jam Nut is shown loosened here.

- 2.1.1.2 Wear: the belt should be inspected periodically for signs of wear. These could include fraying of edges, tears or cuts.
- 2.1.1.3 Seam: the belt seam should be securely joined with the seam pin fully in place. The pin should not protrude beyond the belt width and should be reasonably centered. Substantial movement may indicate a problem that should be investigated.
- 2.1.2 Lubrication: The Tight Nose Rollers require periodic lubrication. Once or twice weekly is typical, however the frequency should be adjusted by maintenance personnel based upon the observed needs of the system. A long lasting grease is adequate.

3 GAPPING CONVEYOR

- 3.1.1 The Gapping Conveyor is a 24Vdc MDR (Motor Driven Roller) conveyor that utilizes two internally powered 24Vdc rollers to drive the belt. Each roller has a drive module (located under the conveyor) that turns the roller on and off and allows for speed adjustment.
- 3.1.2 The belt on the Gapping Conveyor does not require adjustment. This belt is self guided.

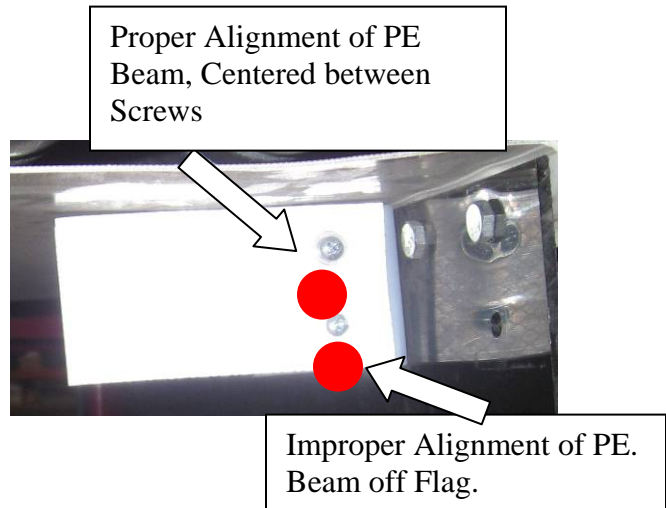
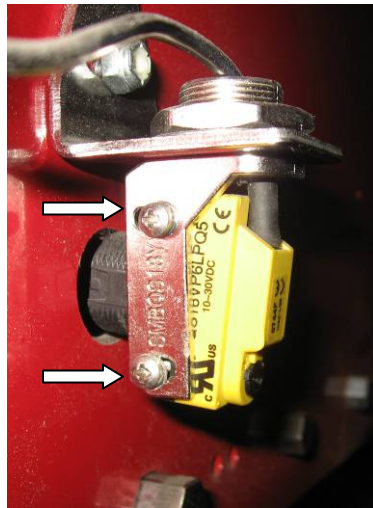
4 SORT MASTER 150

- 4.1.1 *The Sort Master 150 (SM150) utilizes a belt-mounted brush assembly to sweep product from the Sorter Conveyor belt into gayloads. The belt is powered by a 24Vdc MDR.*



Brush/Paddle assembly and Reflective Flag shown.

4.1.2 *Reflective Flags are used to indicate the rotation of each cycle. The Flags are “seen” by a Photo Eye mounted in the SM150 Housing.*



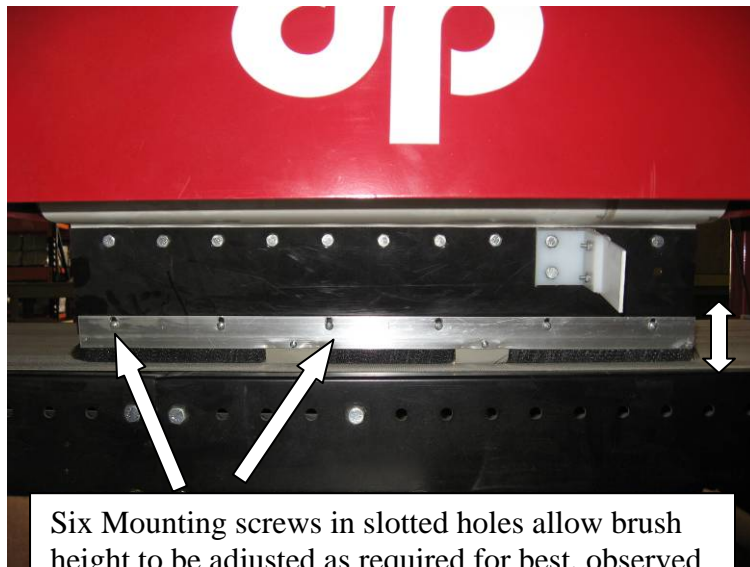
The Photo Eyes should be “aimed” at the CENTER LINE of the Reflective Flags. Two Screws allow the Photo Eye to be adjusted while sitting through the Photo Eye hole in the SM150. The mounting screws on the

Reflective Flag make a good reference for aiming the Photo Eye red beam.

1. Remove 24Vdc power from the system by unplugging the 24Vdc power supply in the CASI 1100 Controller.
2. Rotate the SM150 belt by hand until the Reflective Flag is visible through the Photo Eye hole.
3. Adjust the Photo Eye alignment as needed so the beam lands along the center line of the Reflective Flag (hint: use the two mounting screws as your visual reference).
4. Tighten all screws and fasteners and repeat on remaining PE's as required.
5. Plug the 24Vdc Power Supply back in when finished.

4.1.3 Brush Height should be set to make contact with the belt/product. As the brushes wear and when the brushes are replaced, adjustments will be required.

4.1.3.1 An 11/32" wrench or nut driver and a Philips head screwdriver are used to loosen and tighten the mounting screws.



Six Mounting screws in slotted holes allow brush height to be adjusted as required for best, observed performance.



CHANGE LOG

This section records document changes pertinent to this installation.

Date	Customer Contact	Change Description	Other Notes

