

# **POWERED ROLLER CONVEYOR**



# SERVICE AND MAINTENANCE MANUAL



# POWERED ROLLER CONVEYOR

The information within this manual covers **SYS**TEC standard powered roller conveyor. **SYS**TEC Conveyors provides basically two types of roller conveyor - Powered Roller Only conveyor, referred to in this manual as PRO conveyor; and Powered Accumulating Roller conveyor, referred to as PAR conveyor.

Illustrations A and B show the basic operational differences between the PRO and PAR conveyors. PRO conveyor is a "full time drive" conveyor. When the drive motor is on, the conveyor load carrying rollers are turning and moving material. This "full time drive" restricts the maximum length of a single conveyor line to 40'-0" on a one horsepower drive motor.



**ILLUSTRATION A** 

PAR conveyor has the ability, through pneumatic and electrical controls, to drive individual sections of the conveyor line, otherwise known as zones or areas of accumulation. With this feature, one motor can drive a single conveyor line up to a 70'-0".



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### POWERED ROLLER ONLY CONVEYOR, OR PRO CONVEYOR



# **CONVEYOR SAFETY**

Where safety is concerned, conveyor is no different from any machinery or processing equipment. In many cases, the conveyors can start running without notice. Additionally, most conveyor rollers are "free turning", and, in any case, injury could result from anyone standing or walking on a conveyor line. **SYSTEC** Conveyors believes that a Conveyor Safety session should be incorporated into your existing safety training program for all personnel that work on or around conveyor systems.

Below is Illustration C, showing the safety labels provided with SYSTEC's Conveyor Systems. These labels should be installed to alert personnel of the potential hazards caused by improper use of the conveyor equipment. Where foot traffic exists, personnel should be discouraged from walking on a conveyor line.

Should you need additional labels, please contact **SYS**TEC's Parts Department at the address or phone numbers shown in the front of this manual.



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# **CONVEYOR SAFETY** (continued)

For those areas where personnel must crossover a conveyor line, **SYSTEC** Conveyors recommends that Crossover Walkplates be installed at designated crossover areas. The Walkplates, as shown in Illustration D, must be installed in "low risk" areas of the conveyor line. That is, an area where maximum visibility for oncoming loads exists and no "bidden control features" exist that could cause the conveyors to start running by interrupting photoelectrics.



TWO STYLES OF **POWERED CONVEYOR** WALKPLATES

> If you have questions about locating walkplates within your conveyor system, please contact **SYS**TEC's Customer Service Department at the address or phone number listed in the front of this manual.

Lockout is a very important part of your Maintenance and Service Department procedures. **SYS**TEC provides Lockout Switches, as shown in illustration E, for each drive motor provided on each



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conveyor line and device.

# SERVICE AND PARTS

The drawings within this section are designed to help you understand how components of the conveyor are assembled and disassembled. The exploded views also allow you to quickly and easily identify the parts that may need to be serviced and/or repaired.

The parts identification page(s) provide the corresponding part numbers to the drawings, and indicates recommended quantities for each conveyor line, recommended spare parts, description, part number, and order quantity. This is a faxable form, for your convenience, to order parts for stock or for needed replacement parts. Simply fill in the order quantity, the necessary purchase order number, and shipping information. Then fax the form to **SYSTEC** Conveyor's number shown on the form. An Order Acknowledgment will be faxed back with the estimated ship date and pricing information.

The drawing below shows how the conveyor sections are spliced together. The balloons are typical of the following drawings for identifying all parts on the conveyors. By referencing the parts identification page 11, you will find the items description and other information as outlined above.



### **ASSEMBLY DRAWING 1**

Notes:

The location of off-center slotted holes on splice plates must be installed as shown. Splice hardware is not required at the jointing of a drive section to a takeup section.

POWERED CONVEYOR SECTION SPLICING



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ASSEMBLY DRAWING 3 Notes: Bolt path shown is for PAR (accumulating) conveyor. Mount in upper slot for PRO conveyor.

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The illustration below shows the belt path at the drive and takeup ends of a typical conveyor line.



### **ILLUSTRATION F**

The takeup drum should be in the forward position while installing the belt. The belt should overlap by 2" after pulling by hand, and must be cut square on both ends. Install the belt lacing and splice the belt using the nylosteel rod. Next, adjust the takeup drum with the adjustment bolts on the takeup package. DO NOT OVER TENSION THE BELT. This could result in premature failure to bearings or other drive components. To check for proper tension, pull the belt from the top, at the center of the conveyor. You should be able to pull the belt off the pressure rollers approximately 1".







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POWERED CONVEYOR MIDSECTION





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PHOTOEYE



Photoeye Sensitivity Adjustment

#### COMPONENT DRAWING 1 Notes:

There are three indicators on top of the unit. The yellow light indicates the output is active. The red LED light indicates the margin of light received by the photoeye. With no load in front of the photoeye, only the yellow light should be on. To adjust the sensitivity on the photoeye, remove the cover as shown and, using a small screwdriver, adjust to the desired setting. Adjust photoeye sensitivity so that the photoeye is not sensing a false object.

### LIMITSWITCH



### **COMPONENT DRAWING 2**

Notes:

Limitswitches should be adjusted to contact the actuator according to the operation. For example, on a pusher, the full forward limitswitch will be free to move and the switch is not activated until the pusher device strikes the arm causing the switch to activate and will stop the motion of the device. Check to see that the arm is clear of debris and adjusted, if required, so that it will contact the device at the appropriate location.



#### COMPONENT DRAWING 3 Notes:

The proximity sensor is used to sense a metal object or actuator. The sensor has a red LED on the bottom that indicates whether the sensor is detecting a metal object. Using the threads on the sensor, adjust it up or down so that it operates according to the function of the device. Maximum sensing distance on this unit is about 1/2".



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PENDANT SWITCH



### **COMPONENT DRAWING 4**

Notes:

The pendant switch is typically mounted overhead. It is generally placed in an area where an operator needs to activate a conveyor line or device, but a pushbutton station cannot be used due to obstacles or interference. Make sure the pull cord is securely tied to the switch and that it cannot get caught in machinery or lift truck traffic.



#### COMPONENT DRAWING 5 Notes:

This switch is designed to be a safety lockout switch for the motors in the conveyor system. Each motor should have a switch located near it. The labels identifying lockout notice and motor number should be placed near the switch. Please follow your facilities lockout/tagout procedure when working on any conveyor or associated device.

LOCKOUT

SWITCH

FOOT SWITCH



### **COMPONENT DRAWING 6**

Notes:

This unit is primarily used to allow a "hands free" operation of a lift, conveyor, or other machinery by foot control. The foot switch is an electrical controlled component.

FOOT VALVE



### **COMPONENT DRAWING 7**

Notes:

This unit is also primarily used to allow a "hands free" operation of a Roller Transfer Device or any other machinery requiring foot control. The foot valve is a pneumatically controlled component.





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### **COMPONENT DRAWING 8**

Notes:

These units are in place to give both audible and visual alert to personnel for impending movement of machinery. Be sure to check the strobe bulb during every routine inspection to ensure it is functional. Do not alter, block, or muffle the sound alert.





### **COMPONENT DRAWING 9**

Notes:

This unit is designed to detect load movement through roller motion. The sensor should be adjusted so that the metal studs in the white wheel are detected by the proximity sensor and activate the unit. For proper operation, the motion detector wheel must have a positive contact with the load carrying rollers from which it is mounted.

ENCODER ASSEMBLY



### **COMPONENT DRAWING 10**

Notes:

The assembly shown is designed to determine load travel on the rollers. For proper operation, ensure the wheels are sitting firmly against the bottom of the load carrying rollers. If ever the need occurs to move or replace this unit, follow the wiring schematics - exactly! Incorrect wiring will cause damage to the unit.



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SOLENOID VALVE ASSEMBLY



### **COMPONENT DRAWING 11**

#### Notes:

The solenoid valve assembly is used to control conveyor operation. By engaging a solenoid, a section of conveyor is able to drive, a brake can be actuated, or some other pneumatic device can be operated automatically. The assemblies need to be checked periodically for air leaks. See the Preventive Maintenance Schedule, page 18, for inspection periods.

#### COMPONENT DRAWING 12 Notes:

The air filter regulator is used to prevent dirt, oil and water from getting into the solenoid valves, and to regulate the amount of air pressure applied to the pneumatic operated devices. Normal air pressure requirements for standard conveyor is 60 PSI (pounds per square inch) and 100 PSI for all devices requiring air operation. See the Preventive Maintenance Schedule for inspection periods.

### AIR FILTER REGULATOR



### AIR MOUNTS (AIR BAGS)

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#### **COMPONENT DRAWING 13** Notes:

The air mounts shown are used throughout the conveyor system to operate many areas of conveyor and devices. The smaller air mounts are used primarily on the conveyor for driving specific areas of the conveyor. The larger air mounts are mostly used on conveyor devices. Both units must be checked for air leaks on routine maintenance checks.



## AIR SUPPLY FITTINGS

### **COMPONENT DRAWING 14**

Notes: Use teflon tape on threaded fittings to ensure against air leaks





Some items on this parts list require "fill-in" or additional information to receive the needed part. Please be sure to provide all information requested on this list, or within this manual to assure that you do infact get exact replacement parts. **SYSTEC's** Parts Department will assist you in obtaining the proper part information, or answering any questions by calling 1-800-578-1755.

Hom	Oh	Rec.	Description	Part	Ċ,	Order
item	Qty.	Spare	Description	Number	ы.	Qty.
1	1		Safety Label - Motor Switch Location	000-0307	-00	
2	3		Safety Label - Do Not Walk On Conveyor	000-0303	-00	
3	1		Safety Label - Photoeye Location	000-0306	-00	
4	1		Safety Label - Automatic Equipment	000-0300	-00	
5	1		Safety Label - Lock Out For Safety Before Servicing Equipment	000-0305	-00	
6	1		Walpklate, 48" W. X 0'9" L., 11/16" HEX, L.O.	11D0040	01	
	1		Walpklate, 60" W. X 0'9" L., 11/16" HEX, L.O.	11D0040	02	
	1		Walpklate, 72" W. X 0'9" L., 11/16" HEX, L.O.	11D0040	03	
	1		Walpklate, 84" W. X 0'9" L., 11/16" HEX, L.O.	11D0040	04	
	1		Walpklate, 96" W. X 0'9" L., 11/16" HEX, L.O.	11D0040	05	
7	2		Walkplate, 48" W. X 0'3" L., 11/16" HEX, L.O.	1180012	05	
	2		Walkplate, 60" W. X 0'3" L., 11/16" HEX, L.O.	1180012	07	
	2		Walkplate, 72" W. X 0'3" L., 11/16" HEX, L.O.	1180012	08	
	2		Walkplate, 84" W. X 0'3" L., 11/16" HEX, L.O.	1180012	09	
	2		Walkplate, 96" W. X 0'3" L., 11/16" HEX, L.O.	1180012	10	
	2		Walkplate," W. X 0'3" L., 11/16" HEX, L.O.	**	**	
8	4	4	Splice Plate	11A0002	00	
9	8		Bolt, Carriage, 3/8-16 X 1-1/4" L.	835-6234	-22	
10	8		Washer, 3/8 Flat, SAE	800-0234	-00	
11	8		Nut, Nyl Ins Lock 3/8-16	790-2234	-00	
12	*		48" Roller, 2-1/2" Dia., 11/16" HEX, 11GA, L.O.	10D0020	11	
	*		60" Roller, 2-1/2" Dia., 11/16" HEX, 11GA, L.O.	10D0020	13	
	*		72" Roller, 2-1/2" Dia., 11/16" HEX, 11GA, L.O.	10D0020	15	
	*		84" Roller, 2-1/2" Dia., 11/16" HEX, 11GA, L.O.	10D0020	18	
	*		96" Roller, 2-1/2" Dia., 11/16" HEX, 11GA, L.O.	10D0019	00	
	*		" Roller, 2-1/2" Dia., 11/16" HEX, 11GA, L.O.	**	**	
13	4		Bolt, Hex Head, 5/16-18 X 1-1/2" L.	740-0230	-25	
14	4	4	Pressure Roller Channel Bearing	13A0005	00	
15	4	4	Powered Roller Conveyor Wear Pad	13A0001	00	
16	4		Washer, 5/16 Flat, SAE	800-0230	-00	
17	4		Nut, Nyl Ins Lock 5/16-18	790-2230	-00	
21	4	12	Belt Lacing Clip #2	570-0010	-00	
22	2	3	Belt Lacing Nylosteel	570-0020	-00	
23	1		Belt, 15" W X '0" L.			
31	1	1	Motorswitch, Hubbell 3-Pole	500-5000	-00	
32	*	8	18" Roller, 2-1/2" Dia., 11/16" HEX, 11GA, S.L.	10D0150	05	
33	2	2	Pressure Roller Channel, 11/16" HEX," L.	1380008	**	
34	4	4	Powered Conveyor Return Roller Bracket, 11/16" HEX	13A0006	00	
35	1	2	Powered Conveyor Accumulator Lift Channel, 21" L.	13C0022	02	
36	1	4	Airmount, Firestone, 1M1A	630-1000	-00	
37	1	1	Gearmotor, Snuggler	ref. page 8		
38	1	1	Gearmotor, Inline	ref. page 8		
39	1		Keystock, 5/16" X 5/16" X 1-1/4" L.	845-3600	-00	
40	1		Keystock, 1/4" X 1/4" X 1-1/4" L.	845-3500	-00	



Item	Qty.	Rec. Snaro	Description	Part Number	Gr.	Order
41	1	3 <b>0010</b>	Drive Pulley 8" Crowned X 18" L. Face - 1-3/8" Shaft X 30-1/16" L	550-6090	-00	હાપુ.
41		1	Drive Pulley 8" Crowned X 18" L. Face - 1-1/4" Shaft X 29-5/16" L	550-6080	-00	
43	1	1	Bearing 2-Bolt Flange 1-3(8" Bore	580-2030	-00	
43		1	Bearing, 2 Bolt Flange, 1 3/8 Bore	580-2020	-00	
45	2	2	Bearing, 2 Bolt Flange, 1 194 Bore	580-2010	-00	
46	2	4	Roller Spacer - 1" Rigid Conduit X 1-1/4" I	465-0025	-00	
47	1	2	24-1/2" Roller. 2-1/2" Dia., 11/16" HEX, 11GA, S.L.	10D0150	20	
48	1		Wrap Roller 2-1/2" Dia, X 18" L. Face - 1" Shaft X 23-1/8" L.	550-6130	-00	
49	1	6	Airmount, Firestone, 1M1A	630-1000	-00	
51	1		24-1/2" Roller. 2-1/2" Dia., 11/16" HEX, 11GA, S.L.	10D0150	20	
52	1	2	Take-Up Pulley 4" Crowned X 18" L. Face - 1" Shaft X 23-1/8" L.	550-6110	-00	
53	2		Roller Spacer - 1" Rigid Conduit X 1-1/4" L.	465-0025	-00	
54	2		Bearing, 2-Bolt Flange, 1" Bore	580-2010	-00	
55	2	2	Powered Conveyor Take-Up Slide Plate	1380206	00	
56	2	2	Powered Conveyor Take-Up Slide Spacer	13A0201	00	
57	2	2	Powered Conveyor Take-Up Slide Assembly	1380204	00	
58	2	2	Powered Conveyor Take-Up Rod Assembly	1380211	00	
59	2		Nut Hex 5/8-11	790-0250	-00	
60	2		Airmount, Firestone, 1M1A	630-1000	-00	
61	*	2	Roller Assist	11D0100	00	
71	1	1	Proximity Photoeye	430-0085	-00	
72	1	1	Retro-Reflective Photoeye	430-0086	-00	
73	1	2	Polarized Retro-Reflective Photoeye	430-0087	-00	
74	1	1	Limitswitch	410-0300	-00	
75	1	1	Limitswitch Arm	410-0310	-00	
76	1	1	Proximity Sensor	420-0005	-00	
77	1	1	Pendant Switch	410-0080	-00	
78	1	1	Lockout Switch	000-0118	-95	
79	1	1	Footswitch, Single	410-0040	-00	
80	1	1	Footswitch, Twin	410-0060	-00	
81	1	1	Footvalve	675-1010	-00	
82	1	1	Strobe Light	460-1000	-00	
83	1	1	Horn	460-2000	-00	
84	1	1	Motion Detector	18D0010	00	
85	1	1	Encoder Assembly	1880030	00	
86	1	1	Solenoid Valve	660-1000	-00	
87	1		Solenoid, 1-Valve Assembly	18D0001	01	
88	1		Solenoid, 2-Valve Assembly	18D0001	02	
89	1		Solenoid, 3-Valve Assembly	18D0001	03	
90	1	1	Solenoid, 4-Valve Assembly	18D0001	04	
91	1	1	Air Filter Regulator	620-0010	-00	
92	1		Airmount, Firestone 1M1A	630-1000	-00	
93	1	2	Airmount, Firestone #16	630-1010	-00	



ltem	Qty.	Rec. Spare	Description	Part Number	Gr.	Order Qty.
100	1		Elbow, 1/4" FPT	650-0270	-00	
101	1		90° Male Elbow, 1/4" MPT	650-0210	-00	
102	1		90° Male Elbow, 1/8″ MPT	650-0220	-00	
103	1		Union Elbow, 3/8" O.D. Tubing	650-0200	-00	
104	1		90° Female Elbow, 1/4" FPT	650-0230	-00	
105	1		Male Elbow, 1/4" MPT, 1/4" FPT	650-0280	-00	
106	1		90° Elbow, 1/4" FPT	650-0207	-00	
107	1		Hex Head Plug, 1/4" MPT	650-0070	-00	
108	1		Long Nipple, 1/4" MPT	650-0190	-00	
109	1		Close Nipple, 1/4" MPT	650-0180	-00	
110	1		Male Connector, 1/4" MPT	650-0100	-00	
111	1		Union, 3/8" O.D. Tubing	650-0140	-00	
112	1		Union Tee, 3/8" O.D. Tubing	650-0300	-00	
113	1		Plug, 3/8" O.D. Tubing	650-0050	-00	
114	1		Square Head Plug, 1/4" MPT	650-0060	-00	
115	1		Quick Dump Exhaust, 1/4" MPT	620-0050	-00	
116	1		Proximity Sensor	420-0005	-00	

\* Please specify Quantity and/or Length for any bill-of-material items with an asterisks.

For gearmotor information refer to Page 8, as indicated in this material list, to identify the motor and gearbox data plate information needed to order exact replacement parts.



This Maintenance Schedule is intended to cover all basic types of conveyor and the related devices and components. Although your system may not have all the parts listed below this schedule should help in identifying those components or parts that may require service or inspection that may otherwise be neglected. Should you need assistance in identifying the location of some of these components, contact **SYSTEC's** Customer Service Department at **1-800-578-1755**.

		HOURS IN SERVICE				
ITEM	INSPECTION OR SERVICE REQUIRED	500	1,000	2,500	5,000	10,000
	Clean, Check for Noise, Leaks, and Mounting	Х				
Gearmotor	Check Oil Level			Х		
	Change Oil					Х
	Check Roller Bearings for Noise				Х	
Bearings	Check Pillow Block (PB) and Flange Block (FB)	Х				
	bearings for Noise, Mounting, and *Lubrication					
Belt	Check for Belt Ware, Tracking and Tension		Х			
Chains	Check Tension, Wear, Lube and Adjustment	Х				
Wire Cables	Check Tension, Wear, and Adjustment	Х				
Springs	Check Tension, Wear, and Adjustment	Х				
Sprockets	Check Alignment, Wear and Mounting	Х				
Pulleys	Check Alignment, Wear and Mounting	Х				
UHMW Blocks and Pads	Check for Wear and Fit			X		
Cams and Rollers	Check for Wear and Alignment	Х				
Transfer Rails	Clean with Degreaser	Х				
Photoeyes	Clean with Soft Cloth or Dry High Pressure Air	Х				
Limitswitches	Clean debris and Check Arm for Free Movement	Х				
Proximity Switch	Clean Debris and Check for Proper Operation	Х				
Pendant Switch	Check for Proper Operation			Х		
Lockout Switch	Check for Proper Operation and Safety Labels			Х		
Foot Switch	Check for Proper Operation			Х		
Foot Valve	Check for Proper Operation			Х		
Strobe Light	Check for Proper Operation			Х		
Sound Alert	Check for Proper Operation			Х		
Motion Detector	Check for Proper Operation			Х		
Load Measuring Device	Check for Proper Operation			Х		
Air Filter/Regulator	Check and Clean Trap and Adjust Pressure	Х				
Solenoid Valve	Check for Air Leaks			Х		
Air Mount (air bag)	Check for Air Leaks	Х				
Air Supply Line	Check for Air Leaks	Х				

\* Check bearing type for regreasable (zerk) fitting. Some bearings may be "sealed-for-life" and do not require regreasing.



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When order parts, please call, fax or e-mail Systec at the address and/or the numbers shown below.

SYSTEC Conveyors Parts Department 10010 Conveyor Drive Indianapolis, IN 46236

> Tel 317.890.9230 1.800.578.1755 Fax 317.890.9232

On The Net @ http://www.systec-online.com/