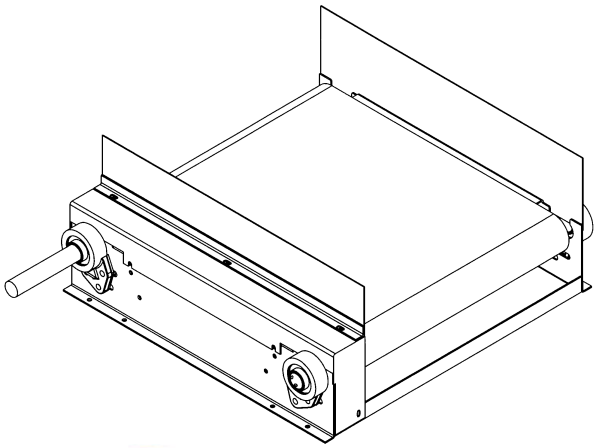
OWNER'S MANUAL

QUEUE-FLO™

SINGLE CHAIN QUEUING
BELT CONVEYORS



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Conveyor Location: _____
Model Number: _____
Serial Number: _____

PS-281 7/04

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1. General Description of QUEUE-FLO™ conveyors

The Queue-Flo conveyor is an all-steel straight conveyor designed to facilitate the indexing or queuing products on a transport conveyor line and overcomes belt tracking problems associated whenever a short wide conveyor belt is used.

The Queue-Flo conveyor eliminates side load belt tracking problems encountered on regular belt conveyors by utilizing a belt drive chain. Unlike most straight conveyors, the Queue-Flo conveyor does not use the end roll to drive its conveyor belt. The belt is pulled along by its outside edge by the belt drive chain. A special chain attachment link connects the belt drive chain to a series of grommeted holes along the edge of the belt. The belt drive chain runs in a track along the side of conveyor and holds the belt in the correct position.

3. Safety and Operation Precautions

A. Be sure that the conveyor is not running and cannot be started while performing maintenance or service work.
B. All guards must be in place at all times during operation.
C. Insure that no objects are rubbing against the conveyor belt.
D. No loose clothing should be worn when standing near an operating conveyor.
E. Never lift a conveyor by the drive shaft extension.
F. A Queue-Flo conveyor that has an uneven end roll gap or that is adjusted with the belt tight against the end roll will damage the equipment and may become hazardous.
G. Do not adjust the end rolls to minimize the transfer distance to an adjoining conveyor.
H. Misalignment of sprockets can cause premature chain and sprocket wear or cause the chain to jump the sprocket teeth.
I. Do not adjust the chain so it is tight against the sprockets. This will cause premature wear or damage to the chain, chain wear guides, sprockets, end roll and belt.
J. Install the connecting link clip with the open end opposite to the direction of belt travel.
K. Running a conveyor that does not have adequate lubrication will damage the conveyor and substantially shorten the life of the belt.
L. Do not stand or place any heavy weight on the chain cover or sideguards. They may bend down and contact the belt resulting in damage to the belt.

4. Installation Instructions

Queue-Flo conveyors are shipped partially disassembled. The drive unit, floor supports and sideguards will have to be attached to the conveyor unit.
After uncrating the conveyor and moving it to the site, the assembly process may begin.

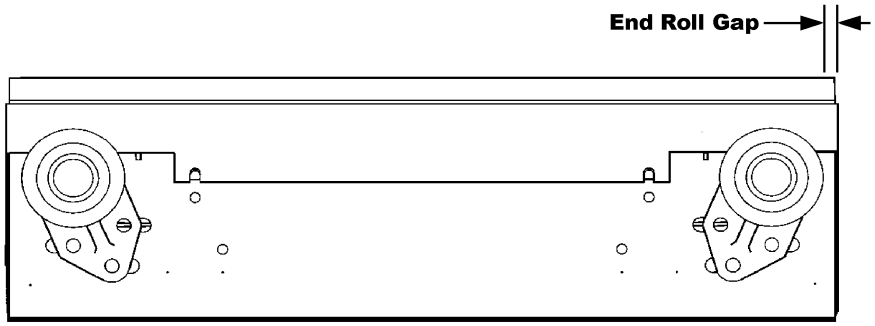
1. Raise the conveyor and attach the floor supports and braces using the bolts provided. Be sure to observe all safety precautions when working under hoisted equipment.
   Note: Never lift a conveyor using the drive shaft extension or shaft deflection can result.

2. Position the conveyor in relation to the adjoining conveyors. Level and securely attach the conveyor to the floor. It may be necessary to shim the legs if the floor is uneven.

3. Mount the drive unit on the discharge end drive shaft extension. The drive unit is not normally supplied with a motor starter or other controls.

4. Before startup, check to be sure that the belt is not rubbing against any other part, such as a conveyor sideguard, chain cover or an adjoining conveyor.

5. Place a straight edge across the face of the conveyor end to verify a consistent end roll gap. It is also possible to check the end roll gap by measuring the positions of the bearings in the frame. When adjusting the end roll, be careful not to bring the belt tight against the end roll.



6. During the initial run-in period listen for any unusual noises that may indicate that something is out of alignment. Some small adjustments may be necessary and are described in further detail in this manual.
WARNING: Do not adjust the end rolls to minimize the transfer distance to an adjoining conveyor.

7. Inspect the chain tension after setup. Attempt to maintain the initial chain tension when making future adjustment. The first semi-annual check should be made after the first 40 hours of operation. (See the Preventative Maintenance Schedule p. 18)

Note: *Future adjustments to allow for chain stretch must be done, taking care not to bring the belt tight against the roll.*
WARNING: A CONVEYOR THAT HAS AN UNEVEN END ROLL GAP OR THAT IS ADJUSTED WITH THE BELT TIGHT AGAINST THE ROLL MAY DAMAGE THE EQUIPMENT AND BECOME HAZARDOUS.

5. Service and Maintenance

5a. Visual check: Check for any changes, rub marks, abrasion, noises, excessive dust or damage to the belt. The belt must be relatively clean and gouge free. The chain should be adjusted so it is snug, not tight. The belt should never be tight against the end roll or damage to the conveyor may result.

5b. Fasteners: Inspect all fasteners to be sure they are tight.

5c. Adjusting chain tension:

1. Remove the bolts that attach the chain cover to the frame. Lift off the chain cover being careful not bend or distort it.

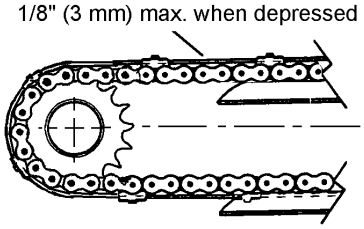
2. Check the alignment of the sprockets. They should be located in the center of the normal chain path.
   Note: Misalignment can cause premature chain and sprocket wear or cause the chain to jump the sprocket teeth.

3. Check the sprocket set screw to insure that they are tight.

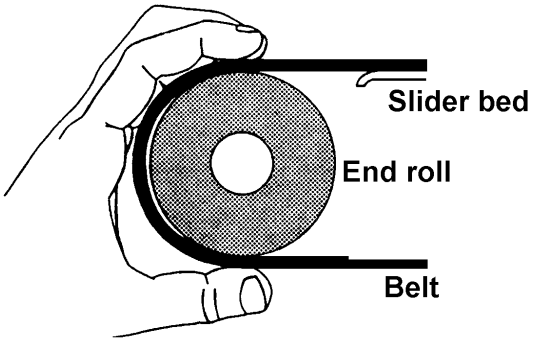
4. Use a straight edge to verify that the end roll gap is consistent on all four corners of the conveyor. It is also possible to check the end roll gap by checking the positions of the bearings in the take-up frames.

5. Check the vertical alignment of the end roll to insure that it is in line with the flat section of the slider bed.

6. Check chain tension between the end roll sprockets and the end of the chain guide strips. Adjust the position of the end rolls until the chain deflection is between 1/16-1/8” (1.6-3 mm).



7. Check the belt tension on the end roll at the non-chain side of the belt by the “squeeze-pull” method as shown.



Squeeze and pull --- 1/16" to 1/8" gap
1.6 - 3.2 mm
(at the non-chain side of the belt)

Note: The belt should NEVER be adjusted tight against the end roll. HIGH belt tension is NOT required for optimum performance and can cause damage or premature failure.

8.. Return the chain cover to its position and bolt it into place.

5e. Belt replacement:

1. Remove the chain cover. Be careful not to bend or twist it as you lift it off.

2. Move the belt assembly forward until the special chain connecting link is near the top side of the discharge end of the conveyor.

3. Loosen the chain tension slightly.

4. Remove the special connecting link from the chain.

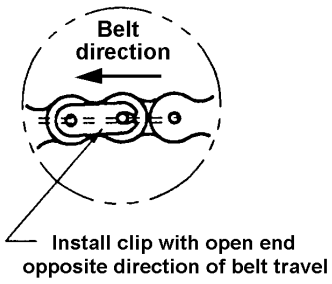
5. Using a needlenose pliers, remove the lacing pin.

6. Roll the belt assembly up on the top of the conveyor. Pull the belt assembly forward and continue rolling until the entire belt is rolled up. Take the belt assembly off from the conveyor.

7. Place the replacement belt on top of the conveyor. Unroll the belt with the bottom side of the belt down. Pull the end of the belt and chain over the infeed end roll of the conveyor. Insert the chain into the lower chain guide and pull the belt and chain under the conveyor. While the chain rides in the chain guides, the belt runs over the return rollers.

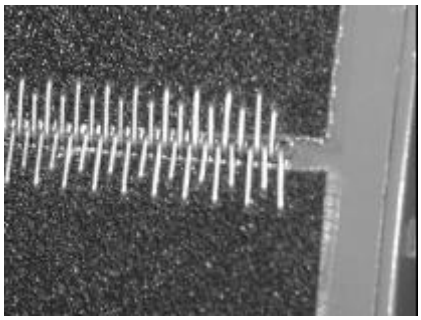
8. Position the ends of chain on top the sprocket at the discharge end of the conveyor.

9. Connect the chain using the special connecting link. Install the connecting link clip with the open end opposite the direction of belt travel.



10. Push the belt lacing from both ends of the belt together and insert the lacing pin.

11. Loop the lace pin back into the belt approximately 1” on each end of the lace seam.



12. Readjust the chain tension.

13. Replace the chain cover.

5f. Replacing broken attachment links:

If a foreign object gets caught under the chain cover, it is possible for an attachment link to break.

1. Remove the chain cover.

2. Move the belt assembly forward until the broken attachment link is on the top side of the conveyor.

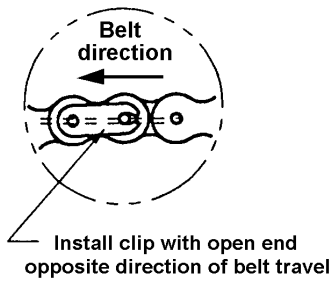
3. Loosen the chain tension slightly.

4. Using a chain breaker tool, break the chain at the link before and after the broken attachment link.

5. Grind off the head of the rivet and remove the broken attachment link.

6. Inspect the belt grommet to insure that it is in good condition.

7. Install a new attachment link in the chain using a new connecting link on each side of the attachment link. Install the connecting link clip with the open end opposite the direction of belt travel.



8. Insert a new rivet, washer and nylon bushing up through the grommet hole. The top of the rivet should be inserted into the hole in the attachment link.

9. Place a heavy piece of flat steel under the rivet and peen over the top of the rivet to secure it to the attachment link. The rivet should not be peened to tightly so as to stop the nylon bushing from rotating in the grommet hole.

10. Readjust the chain tension.

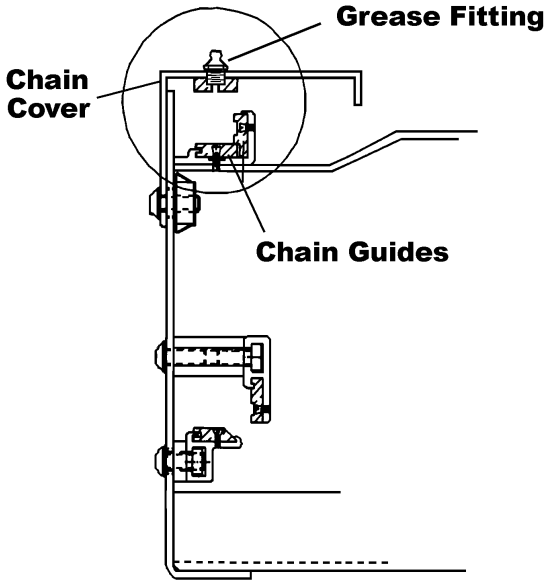
11. Replace the chain cover.

5g. Chain assembly lubrication:

This conveyor is equipped with grease fittings located in the chain cover along the length of the chain. We recommend using Lubriplate Molith #2 grease. The frequency of lubrication and amount required will depend upon the load, speed and environmental conditions. Some general guidelines are as follows:

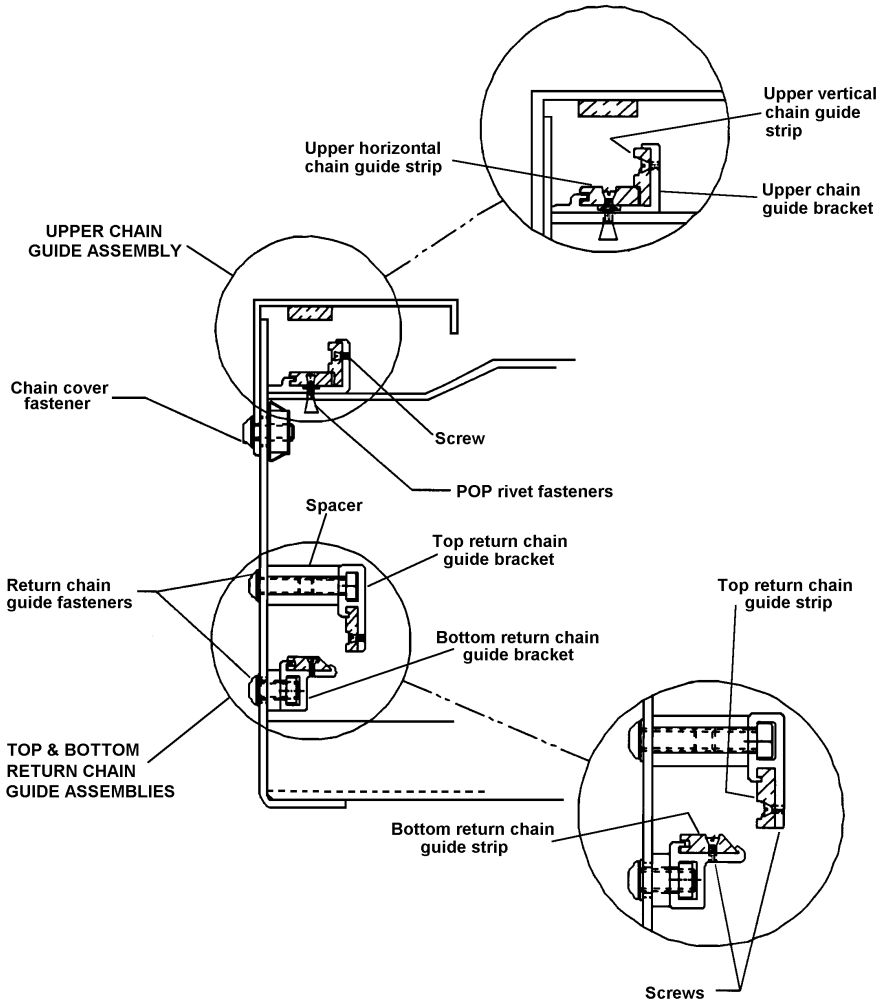
Clean conditions @ 8 hours per day - Lube every 3-4 months
Clean conditions @ 18 hours per day - Lube every 6-8 weeks
Dusty conditions @ 8 hours per day - Lube every 4-6 weeks
Clean chain every 4-6 months
High humidity - Lube enough to stop rust and every 4-5 weeks

Periodic chain cleaning in fuel oil is highly recommended when operating in dusty conditions. After cleaning, apply new grease to the entire length of the chain and work it well into the moving parts.
WARNING: ***Running a conveyor that does not have adequate lubrication will damage the conveyor and substantially shorten the life of the chain***.



5h. Chain guide replacement:

1. Remove chain cover.
2. Move the connecting link to the top of the conveyor bed. Remove the connecting-link and the belt lacing pin. Remove the conveyor belt
3. Remove the end roll assembly on one end.



4. Remove the 6-32 x ½" flat-head screws at both end of the upper vertical guide and/or the upper horizontal guide.
5. Slide the worn or damaged guide(s) from the guide bracket.
6. Slide the new guide(s) in the guide bracket to the correct position.

7. Drill a 7/64” (2.8 mm) hole from the back side using the existing hole in the aluminum as a guide. Drill a second hole in the opposite end.
8. Install the 6-32 x ½” flat-head screws at both ends of the upper vertical guide and/or upper horizontal guide. Grind off the protruding end of the screw on the back side of the aluminum bracket.
9. Remove upper rows of fasteners along the lower side of the frame to disconnect the top return guide brackets. Slide the top return guide bracket out one end of the conveyor. The top return guide bracket with chain guide must be replaced as a unit.
10. Remove the 6-32 x ½” flat-head screws at both ends of the bottom return guides.
11. Slide the worn or damaged guide out of the guide bracket.
12. Slide the new guide(s) into the guide bracket(s) to the correct position and install one 6-32 x ½” screw at each end.
13. Slightly bend the ends of the bottom guide and bracket down to ease the entry or exit of the chain.
14. Slide the top return guide bracket into position under the conveyor. Install the fasteners and tighten. Put the belt chain in this assembly.
15. Reinstall the end roll assembly.
16. Reassemble the belt chain using the connecting-link and the belt lacing pin.
17. Check the alignment of the belt chain and sprockets to the new chain guides. Adjust the sprocket position if necessary.
18. Lubricate the chain.
19. Replace the chain cover and sideguard. Move the end caps close to the end roll without touching the conveyor belt.

Note: Do not stand or place any heavy weight on the chain cover or sideguards. They may bend down and contact the belt resulting in damage to the belt.

Note: It is not necessary to remove all guides if only one guide is replaced. When installing the upper horizontal guide, make sure not to drill into one of the rivets that attach the chain guide bracket to the slider bed. If the upper guide bracket is changed, remove the upper horizontal guide and drill out the pop rivet fasteners to remove the bracket fro the slider bed. Install a new chain guide bracket with new rivets.

5i. Drive unit:

Gear reducer

The gear reducer should be checked to insure that the lubricant level is maintained at the manufacturer's recommended level. The mounting bolts should periodically be inspected to be sure they are tight.

Motor & drive unit mounts

The motor should be periodically checked to insure that it is not overheating, making unusual noises or vibrations. V-belt or chain drives should be properly aligned with the correct tension. All fasteners should be checked for tightness.

6. Troubleshooting guide

Problem	Cause & Solution
Lace hooks coming out of belt	1.) Belt tight against end rolls and chain loose against sprockets. SOLUTION: Replace belt assembly 2.) Lace rubbing against adjoining conveyors or foreign object. SOLUTION: Realign conveyor or remove obstruction.
Problem	**Cause & Solution**
Sprocket and chain noises	1.) Sprocket & chain misalignment SOLUTION: Realign sprockets 2.) Worn chain sprockets SOLUTION: Replace sprockets 3.) Belt excessively worn SOLUTION: Replace belt assembly
Problem	**Cause & Solution**
Groove cut or wore in belt	1.) Chain cover or sideguards crushed down on belt SOLUTION: Repair or replace chain cover Replace belt if damage is severe 2.) Contact with adjacent conveyor or foreign object SOLUTION: Remove foreign object or readjust conveyor position so nothing contacts the belt. Replace belt if damage is severe.
Problem	**Cause & Solution**
Excessive wear on one side of the belt	1.) End roll out of alignment SOLUTION: Realign end rolls 2.) Chain guide supports bent near the end of the conveyor SOLUTION: Bend chain guide supports so that the chain exits straight off end of the conveyor.

6a. Troubleshooting guide

Problem	Cause & Solution
Premature wear of chain wear guides	1.) Sprockets out of alignment SOLUTION: Align sprockets 2.) Excess chain tension SOLUTION: Adjust chain tension 3.) Inadequate chain lubrication SOLUTION: Lubricate chain 4.) Uneven end roll adjustment SOLUTION: Adjust end roll
Problem	**Cause & Solution**
Chain slipping on sprocket	1.) Chain tension too loose SOLUTION: Adjust chain tension 2.) Sprocket damaged or badly worn SOLUTION: Replace sprocket
Problem	**Cause & Solution**
End roll bearing wobble or noise.	1.) Bearing failure from overtensioning SOLUTION: Replace bearing & adjust end roll position 2.) Bearing failure from lack of lubrication (regreaseable bearings only) SOLUTION: Replace bearing & increase lubrication schedule
Problem	**Cause & Solution**
Gear reducer dripping oil Note: Some gear reducers are equipped with internal pressure equalizers and do not have external vent plugs.	1.) Shaft seal failure SOLUTION: Replace shaft seal 2.) Vent plug clogged SOLUTION: Clean vent plug 3.) Vent plug in wrong position SOLUTION: Reposition vent plug 4.) Shipping plug was not replaced with vent plug during installation SOLUTION: Remove shipping plug and replace with vent plug 5.) Gear reducer oil overfull SOLUTION: Remove excess oil

7: Preventative maintenance schedule

Service Interval	Component	Maintenance Inspection	
weekly	Complete unit	Visual inspection: - All components in place - No apparent damage	
monthly	Chain	See lubrication instructions p. 12	
monthly	Belt	Check: - Belt tension - General condition & cleanliness - Seams	
monthly	Drive unit	Check for: - Excessive heat - Dripping oil from gear reducer - Loose fasteners Insure that guards are in place	
semi-annual	Chain	Remove chain cover Check: - Chain tension - Condition of chain guides - Sprocket alignment & wear Lubricate chain	
semi-annual	Belt	Check: - Belt tension - General condition and cleanliness - Seams - Grommets - Attachment links - Nylon bushings	
semi-annual	Drive	Check for: - Excessive heat & vibration - Dripping oil from gear reducer - Loose fasteners Check: - Sprocket alignment & wear - Chain tension & lubrication - Lube levels in gear reducer	
semi-annual	Rollers	Check: - Free movement of rollers - Clean & free of foreign matter - End roll set screws Grease bearings if regreaseable	

Note: The above Preventative Maintenance Schedule is based on a conveyor operating 40 hours per week in clean conditions. The frequency of maintenance will depend upon the load, belt speed, time in operation and environmental conditions.

Note for new conveyors: The first semi-annual maintenance check should be performed after the first 40 hours of operation.

8. Recommended Spare Parts List for Queue-Flo Conveyors

Listed below are the Spare Parts we recommend be stocked for 1-5 Flomaster® Queue-Flo conveyors. By utilizing genuine Flomaster spare parts, you can be assured that these components are proper for your particular unit's continual operation and are backed by the full Flomaster warranty. When ordering please show model number and serial number to insure accuracy in parts replacement. We ship F.O.B. Canon City, CO, Net 30 days.
NOTE: Model and Serial Numbers of unit are located on the metal identification plate located on the side of the frame of the conveyor.

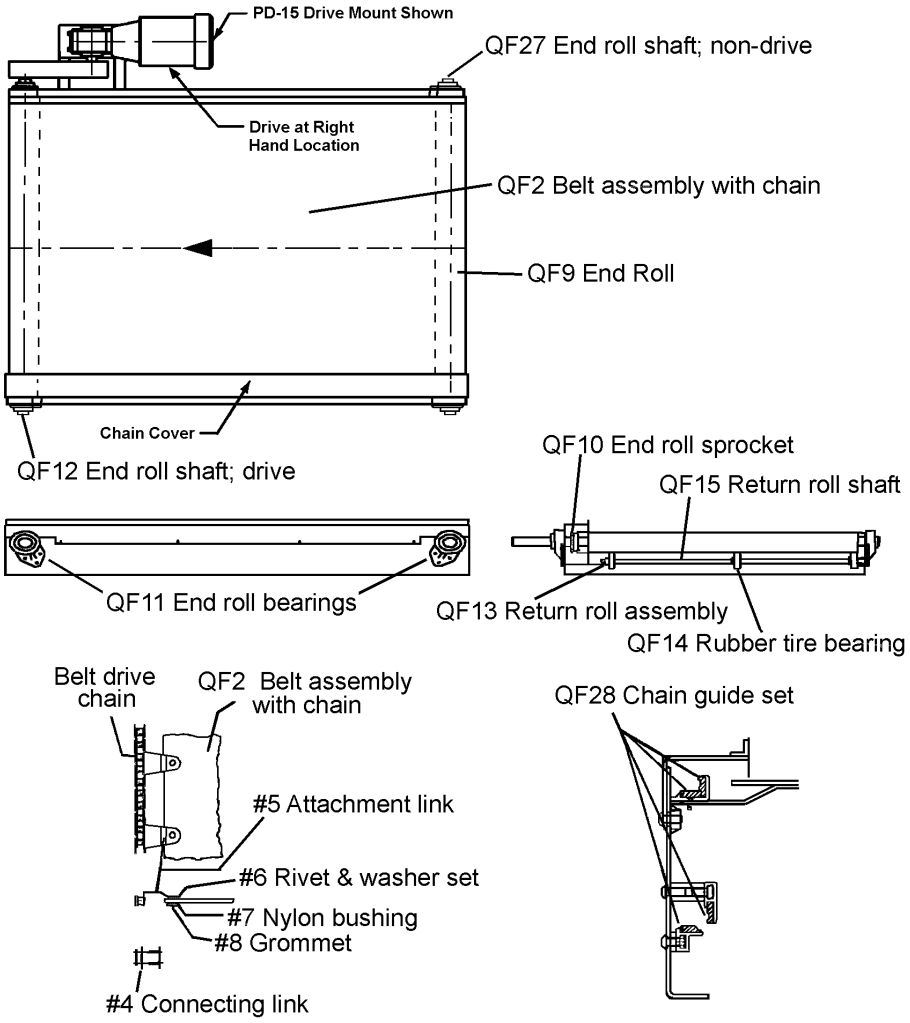
Recommended Quantity	Portec Item Number	Description
1	QF2	Belt assembly with chain
2	4*	Special connecting link
10	5*	Special attachment link
10	6*	Rivet & washer set
10	7*	Nylon bushing
10	8*	Grommet
1	QF9	End roll
1	QF10	End roll sprocket
1	QF11	End roll bearing
1	QF12	End roll shaft; drive end
1	QF13	Return roll assembly
1	QF14	Rubber tire return roller
1	QF28	Chain guides; complete set

* These parts are universal on all sizes

9. Spare Parts List

Conveyor Model: No._____ Serial No._____		
Item #	**Description**	**Part #**
QF2	Belt assembly with chain; complete unit ready for replacement with installation of lacing (supplied)	
3CT	Chain breaker tool	
4	Special connecting link #50 chain	
5	Special attachment link #50 chain	
6	Rivet and washer set	
7	Nylon bushing	
8	Grommet	
QF9	End roll	
QF10	End roll sprockets; 50B17 x 1-7/16 ID	
QF11	End roll bearings	
QF12	End roll shaft; drive 1-7/16 OD with extension	
QF13	Return roll assembly;includes shaft, bearings & rolls	
QF14	Rubber tire bearings; 5/8" bore	
QF15	Return roll shaft; 5/8" Ø	
QF27	End roll shaft; non-drive; 1-7/16 OD	
QF28	Chain guide set; complete upper and lower	

10. Illustrated parts diagram



TERMS AND CONDITIONS

VALIDITY – Quotations shall be considered current if outstanding no more than thirty (30) days from date of quotation, unless otherwise stated on quotation.

FREIGHT POLICY – Shipments of products, unless otherwise stated, is EX WORKS PORTEC'S factory. Written claims for damage in shipment should be made against the carrier. Written claims for shortages should be made against the carrier, specifically if there is evidence of shipping carton/container damage and/or if according to the shipping records there is a discrepancy in numbers of containers shipped versus numbers received.

Only in a situation where the container(s) shipped have been received in good condition, checked for physical content, and signed for verification within three days of delivery, and if such shortage has been found, and if PORTEC is notified in writing within 10 days upon receipt of order, PORTEC will establish that there was or was not a shortage. If a shortage is determined, PORTEC will provide the customer with the product/parts at PORTEC'S expense and shall ship F.O.B. as stated in the freight policy. If no shortage is determined, or if others than PORTEC caused the shortage, the claim shall be deemed invalid and it shall be the responsibility of the customer to arrange payment to PORTEC to fill the requirements of the deficiency.

PRICE ACCEPTANCE – The prices quoted herein are based on the quantities specified. Any change in quantities may affect quoted price. All orders are subject to acceptance at PORTEC'S factory. Any expense incurred by PORTEC as a result of cancellation or the making of any change will be included in PORTEC'S invoice unless prior waiver of such expense is obtained from PORTEC.

SHIPMENTS – Quoted Shipment dates are subject to change, without liability for delays beyond PORTEC'S control.

TERMS OF PAYMENT – Invoices are payable net cash 30 days, unless otherwise noted. There will be an interest charge of 1-1/2% per month for all payments received after 35 days. International **(except Canada)** orders are shipped against confirmed irrevocable letters of credit. All payments shall be in U.S. dollars. If the financial responsibility of a purchaser becomes impaired or is unsatisfactory, or if credit is not established, PORTEC reserves the right to request payment in advance or satisfactory guarantee that invoices will be paid promptly when due.

QUALITY ASSURANCE – All of its manufactured products are subject to PORTEC'S Warranty for material and workmanship.

GENERAL – Terms, conditions, and product specifications are subject to change without further obligation to PORTEC.

LIMITED WARRANTY ON NEW EQUIPMENT – PORTEC provides a Limited Warranty that warrants the material and workmanship of its manufactured products, with exceptions noted, for a period for 60 months beginning one month from the date of shipment from PORTEC'S factory, according to recorded serial numbers.

Within the stated warranty period, any material or workmanship showing defects will be repaired or replaced, provided PORTEC is given written notice within 30 days after failure, and a willingness is expressed to submit the product to PORTEC, and if PORTEC authorizes the return of the product, and the product is returned. This warranty does not cover against normal wear of parts or materials. Warranty parts are supplied via EX WORKS PORTEC'S factory and unless PORTEC makes express agreement, the purchaser shall bear the expense of installation. PORTEC reserves the right at any time to supervise or install any part of replacement, or supervise adjustment incident to satisfactory operation of equipment. *A possible Warranty PO for parts and/or service may be required prior to shipping parts or exercising warranty labor.*

ITEMS IDENTIFIED AS COMPONENT AND REPLACEMENT PARTS – PORTEC parts will be warranted for a period of one (1) year from the date of shipment from the PORTEC Factory. This warranty on parts will cover only defects in workmanship or material. The warranty *does not cover the costs of the installation of such parts unless authorized by the designated PORTEC representative*.

Unauthorized returns, modifications, additions or variations, from procedures and information contained in PORTEC'S Owner's Manuals, and Product Data bulletins, or any misuse, negligence, accident, product jam, or loading beyond rated capacity invalidates this warranty.

EXCEPTIONS:

1. Because of varying operating conditions, all belting supplied will necessarily be subject to manufacturers', warranty rather than that of PORTEC.

2. Some OEM equipment including motors and gear reducers will be subject to the manufacturer's warranty, not PORTEC'S. PORTEC Customer & Product Support will provide assistance in contacting the proper manufacturer's representative. If a replacement is provided from PORTEC stock, a Possible Warranty PO must be provided. If the warranty is deemed invalid and PORTEC is not reimbursed for the warranty claim, the PO will be exercised.

3. PORTEC further reserves the right to void its warranty where final destination and specific application are withheld; product is improperly installed or maintained by others; product is modified without the consent from the designated PORTEC service representative; product is improperly protected against hazards and adverse environmental conditions during storage prior to or during installation; and/or product is used for applications/conditions other than indicated upon placement of order.

The foregoing warranty is exclusive and in lieu of all other warranties whether written, oral, or implied (including any warranty of merchantability or fitness for any purpose). Under no circumstances shall PORTEC be liable for incidental or consequential damages. The foregoing warranty cannot be changed except by written authorization signed by an authorized PORTEC representative, and no attempt to repair or promise to repair or improve PORTEC products by any other representative of PORTEC shall change or extend said warranty in any manner whatsoever.