PACLINE
OVERHEAD CONVEYORS
ISO 9001

PACLINE INSTALLATION CHECKLIST

The Pacline Overhead Conveyor Systems can be properly installed by carefully following the Pacline Instruction Manual shipped with each system. Upon completion of the installation ensure that the following steps have been taken:

1)	Check that **all** installation attachments have been tightened and secured with bolts or welds.	
2)	Ensure that track hanger clamps have been tack welded where appropriate. (Never inside ovens).	
3)	Test run the conveyor system for a minimum of one hour.	
	A. Ensure that drive dogs engage horizontal bearing.	
	B. Ensure that the chain lubricator is properly set up and filled with lubricant.	
	C. Adjust chain tension at take-up assembly, make sure there is no slack chain at any point in the system.	
	D) Check that chain pendant does not catch on any track joints.	
4)	Note any changes to layout drawing and inform Pacline engineering.	
5)	Instruct the end user on safe operation of the system.	
6)	Instruct the end user in the proper loading of the system.	
	A) The system should first be run in for minimum one revolution of entire chain before the product carriers are installed.	
	B) The system should be run for one revolution of entire chain after the product carriers are installed.	
	C) When loading the system for the first time only every other carrier should be loaded for the first revolution of entire chain.	
	D) Ensure chain pendants do not rub on track slot due to carriers having unbalanced loading. Advise the end user if off centre loading may be a concern.	

Note: The longer the system and the heavier the load, the more critical it is that the run in sequence be followed and the duration of each run-in cycle should be extended accordingly.

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To: Date:

From:

Attached for your reference is Pacline's Preventative Maintenance Schedule, which should be followed in conjunction with the Pacline engineering information supplied with the system.

The maintenance requirements of the Pacline Overhead Conveyor System will vary depending on the operating environment and load being conveyed. The length and complexity also are a factor in maintenance scheduling.

This Preventative Maintenance Checklist is a list of standard maintenance procedures, which should be carried out regularly.

We recommend that all points be checked at time of installation, after 500 hours of operation and then every 2,000 hours of operation.

If you have any specific questions do not hesitate to contact our engineering department at the following:

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PACLINE PREVENTIVE MAINTENANCE CHECKLIST

Customer:_____Date:_____

Plant Location:_____Conveyor #:_____

Service Performed By:_____Job N^{O}:_____

	Conveyor Drive: Check **ALL** hardware is tight.	**COMMENTS**	**CKD**
a)	Check that drive-dogs are engaged on horizontal bearing wheel.		
b)	Check drive-dog springs: Lift one half of drive dog off of the pressure plate and release. If the drive-dog snaps back the springs are operating properly, if not, they must be replaced.		
c)	Check that the drive-dog rollers spin freely. If not, replace.		
d)	Check drive-dogs along edges (beside rollers) where dog contacts pressure plate, align if necessary.		
e)	Check drive-dogs for wear at the point where the dog contacts the horizontal bearing wheel. If wear is excessive replace drive-dogs.		
f)	If uneven wear is present on the drive-dog faces, the drive-dog chain and the conveyor chain are out of alignment. Re-align if necessary.		
g)	Pressure Plate: Part No. DP-903	Wear	
		Alignment	
h)	Check pillow block bearings for wear, cracks in seals or housing, bolts and set screws being tight. Apply grease if needed.		
i)	Check tension of drive-dog chain assembly. Total chain deflection should be approximately 1".		
j)	Check tension of drive chain between reducer and drive shaft. Chain deflection should be 1/8" per foot.		
k)	Check motor for excessive noise. Clean fan & vents.		
l)	Sprockets:	Alignment	
		Wear	
		Lubrication	
		Set Screws - Tight	
m)	Wear Strips:	Wear	
		Fasteners	
		Lubrication	
n)	Drive Plate:	Tighten all bolts	
		Condition of chain slot for wear.	
		All stickers in place	
o)	Reducer: Check gearbox for proper oil level. Change oil after 2000 hours of operation. Check reducer for excessive noise.	Check Seals Motor secured properly Motor shaft has key in it.	
p)	Misc. Drive	Drive dog pins straight	
		Drive dog roller spring pin's slot must face up.	

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PACLINE PREVENTIVE MAINTENANCE CHECKLIST

	Track & Chain:	COMMENTS	CKD
a)	Check for broken or damaged pendants	Rectify cause.	
b)	If track slot exceeds 3/8” to 1/2" that portion of track should be replaced. Check slot alignment throughout system.		
c)	Check chain tension, 1/8" to 1/4" movement in direction of travel.		
d)	Chain inspection. Remove cover from inspection port. While the conveyor is operating observe the chain for any visible defects or irregularities. Make sure bearings turn freely and easily. Check for wear indicated by excessive play in bearing raceway.		
e)	Check for loose hardware, including support structure.		
f)	Is any contaminant reaching the chain surface.		
g)	Measure & record centers of 10 ft. section of chain.		
h)	Curves: Horizontal	Flattening or wear on inside radius or excessive slot width.	
i)	Curves: Vertical	Any opening of vertical slot.	
j)	Track:	Any bent or damaged sections	
k)	Track & Beam Clamps:	All hardware tight, bolted & welded securely	
l)	Flanges:	Welded & tightened correctly	
	Lubricator:		
a)	Make sure chain is being properly lubricated. Top-up lubricant.		
b)	Operational	Set up properly & operational.	
c)	Record:	Type of Lubricator:	
		Type of Lubricant:	
	Take-up Unit:		
a)	Check for adequate remaining adjustment		
b)	Alignment:		
c)	Springs:		
d)	Grease sleeves:		
	Carriers:		
a)	Check for damage and note:		
	Safety Guarding:		
a)	Check for proper installation		
b)	Check for product clearance		
c)	Safety signs in place		
d)	Padding at lower level		

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CATERPILLAR CHAIN REPLACEMENT

AS OF NOVEMBER 2006

Effective immediately, the older style CC-500 Caterpillar Chain assembly, and any of the parts making it up, will no longer be available. The most common of these parts are the DP-900 Drive Dog Pin and the DP-901 Drive Dog Spring c/w Insert Bushing.
If any of these parts are required by a customer, they will need to replace the complete Caterpillar Chain with the new style CC-2000 Caterpillar Chain assembly. This new assembly is an improved design, with larger Drive Dog Pins, and improved Drive Dog Springs. After initial extensive testing, it has been seen that there are far fewer problems with broken or bent Pins, and broken Springs. This improved assembly will be far superior in performance to the predecessor, and will provide much greater "up" time for the customer, and much less maintenance.
The initial investment cost for this new assembly will soon be offset by the improved performance it will provide.

CATERPILLAR CHAIN INSTALLATION:

It is very important that when replacing or installing a new Caterpillar Chain assembly, that it be correctly put onto the D-500 Drive Unit.
The Drive Dogs must be located so as to encompass the single horizontal bearing of the conveyor chain, not the two tapered vertical chain pendant bearings.

PACLINE, AN ISO 9001 REGISTERED COMPANY, IS DEDICATED TO THE SUPPLY OF QUALITY PRODUCTS, TOGETHER WITH A HIGH LEVEL OF CUSTOMER SERVICE.

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MULTI-DRIVE CHAIN ADJUSTMENT

This document will discuss two generic methods of removing slack chain from an enclosed track conveyor system. Every conveyor system is unique; therefore the method of removing slack chain may vary. Access points for the motors, inspection sections and take-ups can influence and determine the method of removing slack chain.

Ensuring the chain is tight throughout the conveyor system will allow for increased operational life and reduce the likelihood of downtime.

METHOD 1

This method requires access to the following:
- All drive units
- All take-up units
- One inspection section preferably located at a low elevation
- Two load bars (recommended)
- Chain lever hoist/ puller (recommended)

Method 1 requires all drive chains to be disconnected but only requires chain to be removed from a single inspection section. Figure 1 illustrates a generic multi-drive system and the location of the key components.

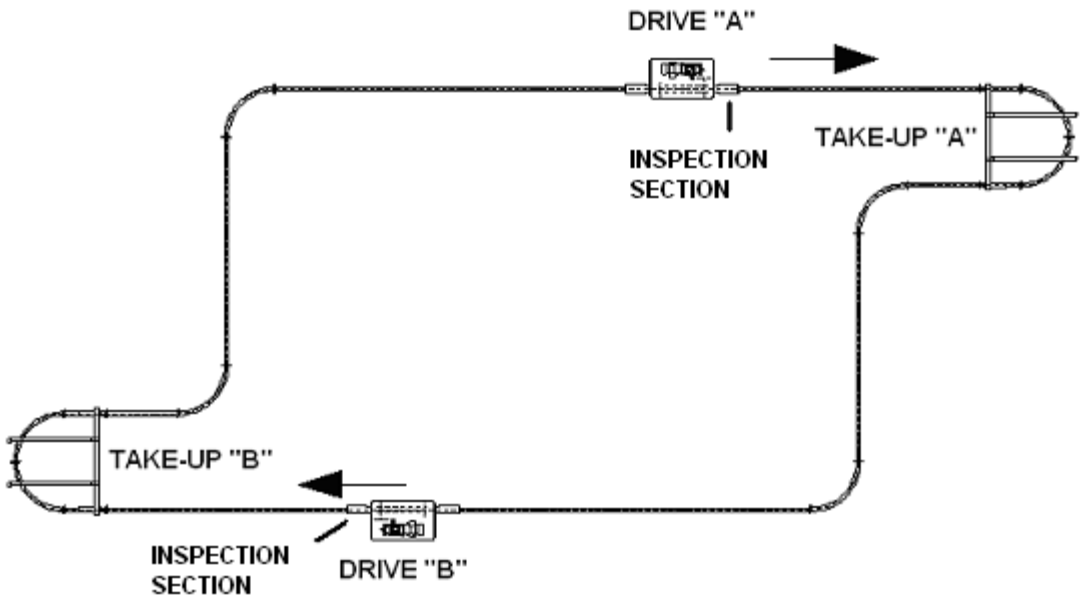

Figure 1. Multi- drive system

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Procedure for removing slack chain:

1. Locate an inspection section to remove slack chain. Slack chain is preferably removed in a low elevation plane as chain commonly accumulates in the lower areas of a conveyor system.

2. a. (Recommended method) Attach two load bars with side plates to two pendants. The load bars should be positioned on either side of the inspection section illustrated in figure 2. This method does not require any take-up adjustment. If an inspection section is available at a low area of the conveyor system, remove chain there.

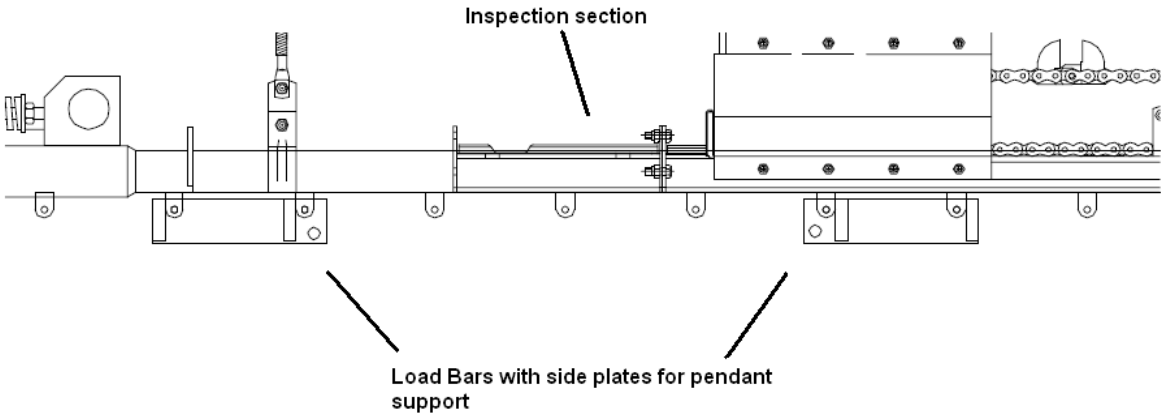

Figure 2. Load bars

b. (Alternative method if two load bars cannot be fabricated and a chain lever hoist/ puller is not available) Fully tighten each shipping nut on the take-up. This should be performed on each take-up unit on the conveyor system. Tightening the shipping nut will fully collapse the take-up unit releasing the tension on the chain in the system. Figure 3 illustrates a typical spring take-up unit.

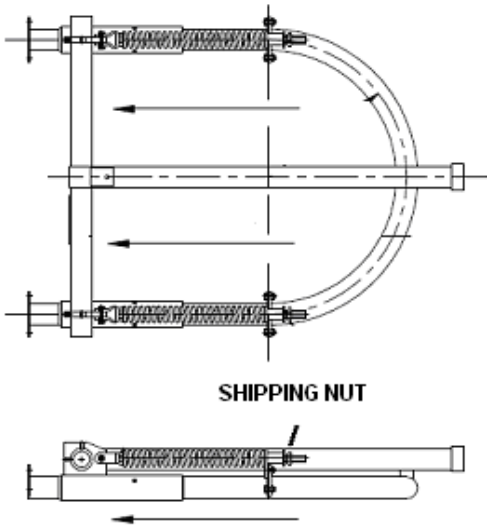

Figure 3. Adjust take-up in the direction of the arrow

3. Disconnect the drive chain from all drive units. If necessary, one drive unit may remain connected. Figure 4 illustrates the location of the drive chain.

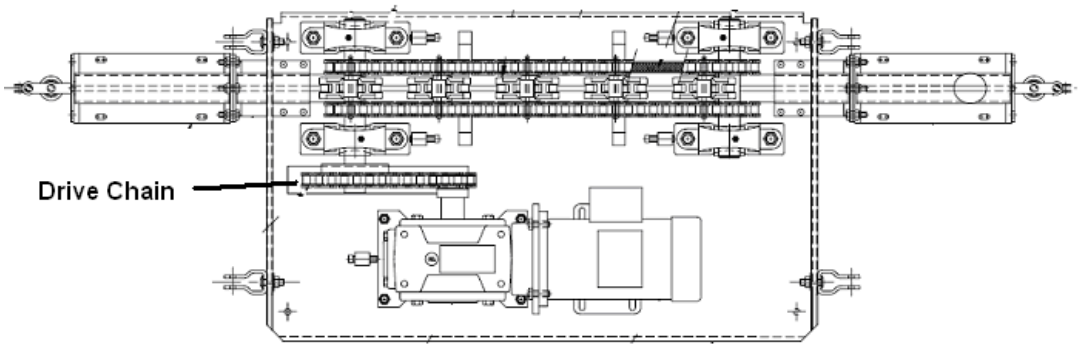

Figure 4: Drive unit

4. Disconnect the drive chain by removing the connecting link as shown in figure 5.

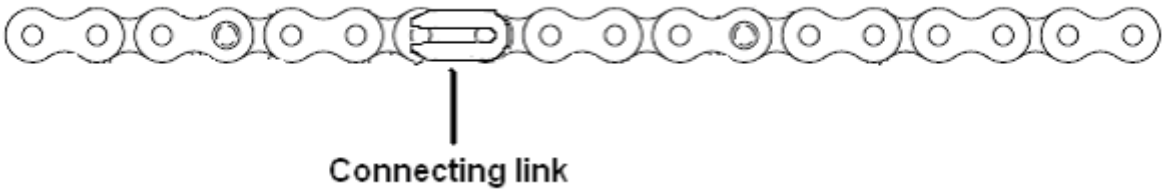

Figure 5: Drive chain connecting link

5. a. i. (Recommended method) Attach chain lever hoist/ puller to both load bars. Tighten the chain lever hoist/ puller to ensure the take-up slides are fully collapsed. Then remove chain in 6 inch increments through the inspection section. To disconnect the chain, remove the joining rivets shown in figure 6. Ensure the joining rivets are removed in 6-inch increments to allow for a male to female connection point.

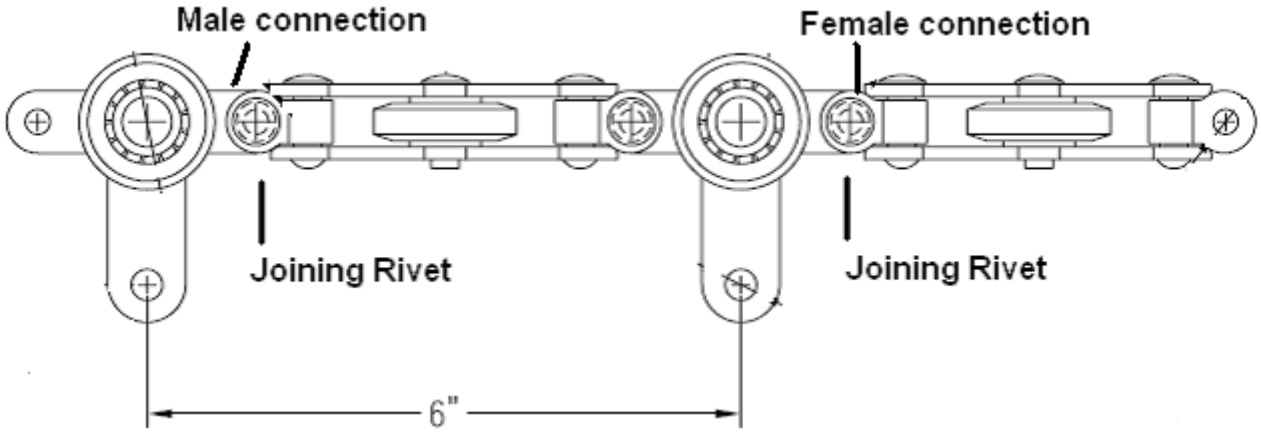

Figure 6. Pacline chain

ii. Once all the slack chain has been removed from the system, use joining rivets (Part # PJ-009) complete with a cotter pin to secure the male to female connection. Figure 7 illustrates the joining rivet used to re-connect the chain.

Figure 7. Part# PJ-009

5. b. i.(Alternative method if chain lever hoist/ puller is not available) Repeat steps 5a i and ii by removing chain in 6 inch increments by hand.

6. Extend the take-up unit to apply the correct tension on the chain.

7. Re-connect all drive chains.

METHOD 2

This method requires access to the following:
- All take-up units in the system
- Inspection section preferably located at a low elevation in between all drive units
- Two load bars (recommended)
- Chain lever hoist/ puller (recommended)

Method 2 does not require the drive chain to be disconnected however, chain must be removed at an inspection section located between **ALL** drive units. Figure 7 illustrates a generic multi-drive system broken into two areas, area “A” and area “B”. Chain should be removed preferably at a low elevation inspection section between drive units.

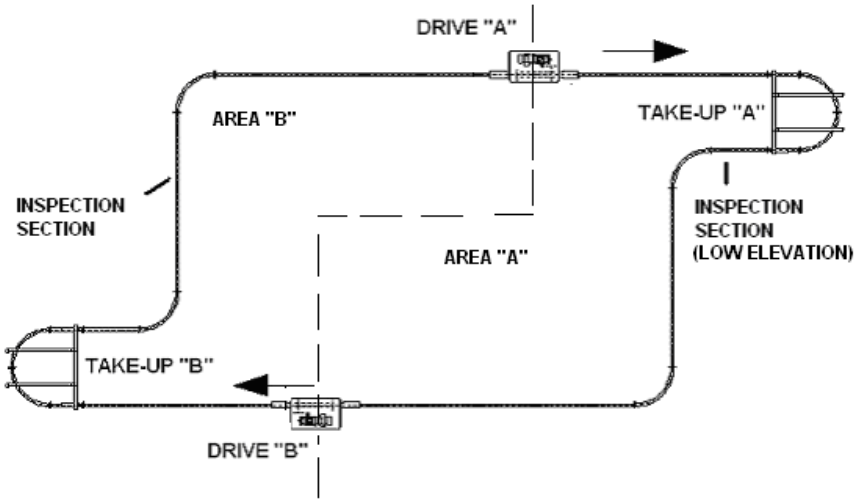

Figure 8: Conveyor system areas

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Procedure for removing slack chain:

1. Locate an inspection section between each take-up and drive unit. The inspection section is typically located at the exit area of the drive unit as shown in figure 1.

2. a. (Recommended method) Attach two load bars with side plates to two pendants. The load bars should be positioned on either side of the inspection section illustrated in figure 2. This method does not require any take-up adjustment.

   b. (Alternative method if two load bars cannot be fabricated and a lever hoist/ puller is not available) Fully tighten each shipping nut on the take-up unit. This should be performed on each take-up unit in the conveyor system. Tightening the shipping nut will fully collapse the take-up unit releasing the tension on the chain in the system. Figure 2 illustrates a typical spring take-up unit.

3. Remove inspection section cover to expose the chain.

4. a. i. (Recommended method) Attach the lever hoist/ puller to both load bars. Tighten the lever hoist/ puller and remove chain in 6 inch increments through the inspection section. To disconnect the chain, remove the joining rivets shown in figure 8. Ensure the joining rivets are removed in 6-inch increments to allow for a male to female connection point.

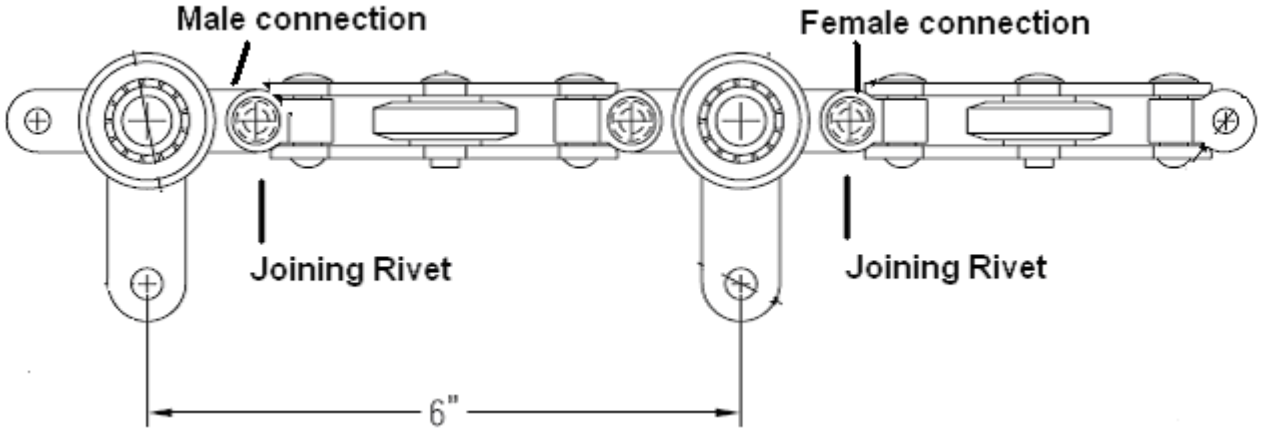

Figure 8. Pacline chain

   ii. Once all the slack chain has been removed from the system use joining rivets (Part # PJ-009) complete with a cotter pin to secure the male to female connection. Figure 8 illustrates the joining rivet used to re-connect the chain.

PJ-009
CONVEYOR CHAIN JOINING RIVET
C/W COTTER PIN (3/32"ø x 1/2" LG)

Figure 8. Part# PJ-009

4. b. i. (Alternative method if lever hoist/ puller is not available) Repeat steps 4a i and ii and remove chain in 6 inch increments by hand.

5. Repeat steps 1 to 4 at each inspection section located at the exit of each drive unit in the system.

6. (Alternative method only) Extend each take-up to apply the correct tension on the chain.

Please contact a Pacline Installation Supervisor if you have any questions or concerns.