Writing Sample – LB Benton

Preventative Maintenance Procedure for Carrying out a PM on a Bucket Conveyor

Client requested a preventative maintenance procedure to be used as a template for their maintenance department following their form and format. The following is a sample of pages from the document.

Company information has been removed.

2015

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COMPANY NAME, L.L.P.

Preventative Maintenance Program

Bucket Conveying Equipment

Functional Location Number: XX-XX-NNNN-NNNN

Appendix XYZ of Manual 123

Description: Contains safety requirements,major and minor PM's procedures, and routine lubrication schedules.

Equipment Covered by This PM: (Enter List with Equipment Numbers)

Location: *To be entered*

Last Updated: May 30, 2005

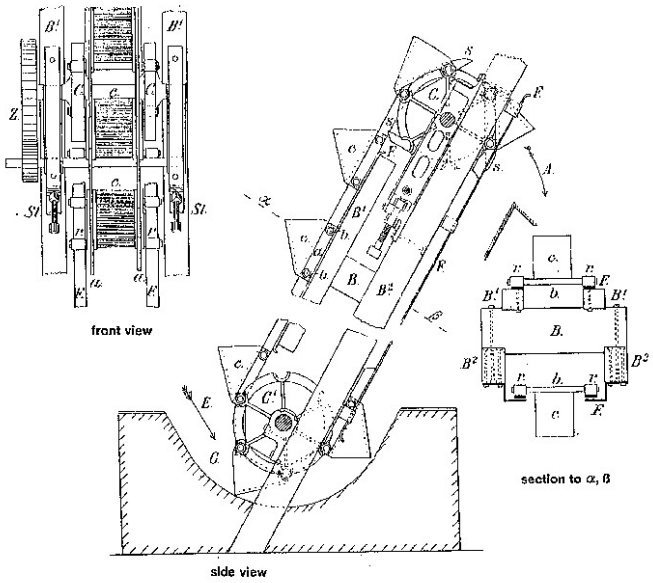
by: LBB

Bucket Conveying Equipment
Safety Procedures

Notice: All safety procedures must be carried out before beginning the PM. Attach all permits, certificates, dwgs. etc. to work order as required. All required signatures must be obtained prior to beginning work.

Item Number	Step	Results	Initial When Completed
1	Complete first safety step	Completed – Permit obtained and attached to work order	John Doe
2	Complete second safety step	Completed	Continue
3			
4			
5			
6			
7			
8			
9			

Safety procedure to be developed.



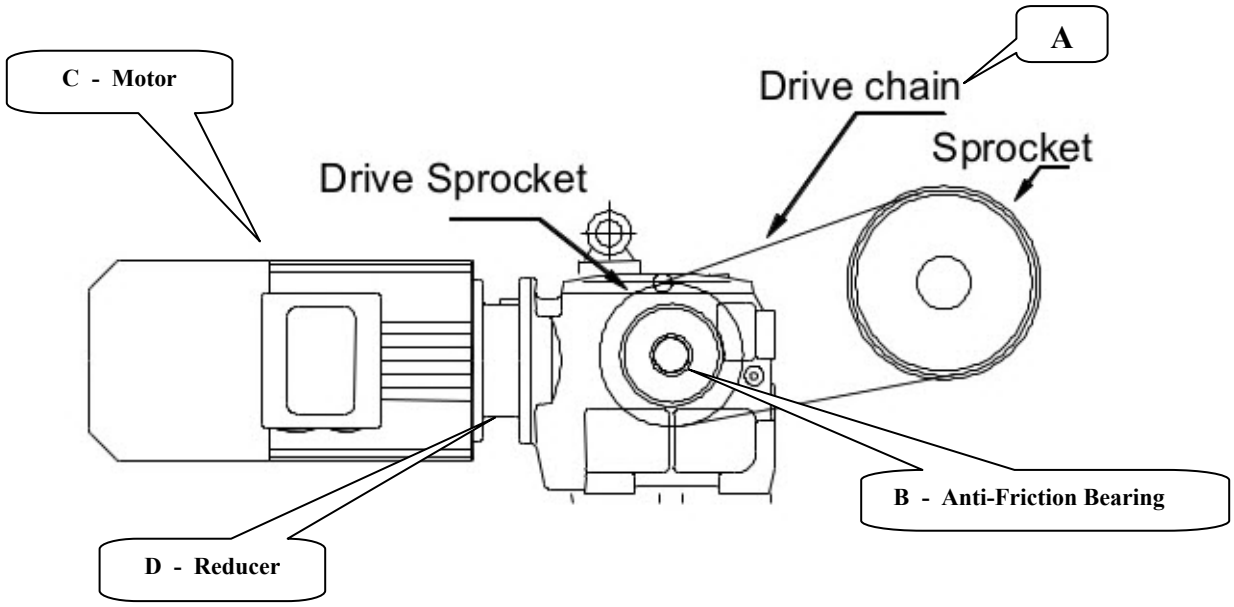
Bucket Conveyor Assembly – Typical
Figure 1

General Lubrication Program

Item Number	Task/Job	Results/Reading	Completed By / Initial
1	General: – Conveyor shall not be lubricated while in operation unless it is impractical to shut down. – When adjustments or maintenance must be done while equipment is in operation, only trained and qualified personnel are allowed to make these adjustments or perform this maintenance.		
2	– Check the oil level of the reducer weekly. Also, check for water condensation in the oil. If water is present, drain completely, flush out, and fill to correct level with new oil.		
3	– Vent plugs and breathers must be clean and operative.		
4	– Each bearing is adjusted at the factory for average roller bearing speeds and service. Consult the bearing manufacturer's special instructions for the correct amount and type of lubricants. – However, the bearing housing operating temperature must not exceed 200 degrees F (93 degrees C). Should the bearing housing exceed this temperature, consult the bearing manufacturer. – The Lubrication Table below presents a lubrication schedule. **STOP: DO NOT LUBRICATE TRACTION WHEEL**		
5	– Re-torque all bolts after first 100 hours of operation.		

LUBRICATION TABLE
Table 1

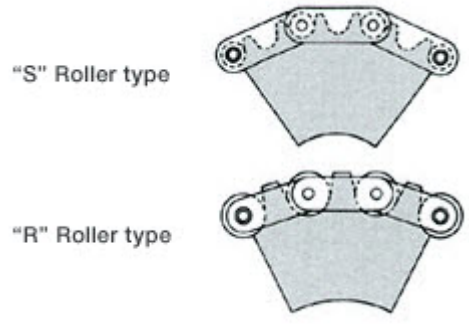
Item & Reference	Lubricant	Frequency	Method	Remarks
A - Drive Chain	SAE 30 Oil	Continually	Dip-bath in oil / Tighten chain guard	Oil in guard should be changed every 2 or 3 months
B – Anti-Friction Bearing	See Manufacturer's Bulletin	As per supplier		
C – Motor	See Manufacturer's Bulletin	As per supplier		Motor is lubricated before leaving factory
D - Reducer	See Manufacturer's Bulletin	As per supplier		Reducer is shipped without oil. On first use, fill to proper level with correct oil before placing in service.



Drive Chain Assembly – Typical
Figure 2

1000 HOUR ROUTINE INSPECTION

Carry out the following on a routine basis. (1000 hours is approx 5-6 weeks)

Item Number	Task / Job	Results / Reading	Completed By / Initial
1	Check buckets for loose bolts and build-up of material. All damaged buckets should be either repaired or replaced to eliminate material falling into the boot.		
2.	Check rubber lip on inside of the discharge spout of elevator. Replace if worn.		
3.	Traction Wheels and Sprockets: – Check for unusual wear such as hooking on the sprocket teeth. – Check and re-torque bolts on replacement segmental rims on both head and foot shafts (See data sheet 3520-25, page 2 of 2). STOP: New segmental rim assembly must be installed as a unit, in its entirety. Each rim segment will be lettered for identification purposes. During the replacement or assembly of the sprocket segments, it is imperative that all mating (machined) surfaces be free of any and all foreign material. This includes grease, paint, material build-up, and in the event of new replacement parts, the rust preventative coating will have to be removed with solvent. Any burrs that are evident should be filed off also to insure perfect mating of all parts.  Roller Types – Sprocket Segments Figure 3 Another method for replacing the segmental rim traction wheel or sprocket is to first remove the upper head section covering the head-shaft assembly. Use a choker to choke		

	off one strand of chain and hitch it back to the platform or building steel. Repeat this same procedure with the second strand of chain. Remember to maintain a firm grip on the chain at all times to prevent the chain form running away. This leaves the segmental rim traction wheel or sprocket free to be unbolted and to be replaced with a new assembly. The tension on the come-along or chain-fall should be left on until the chain has been reconnected. The segmental rim traction wheels and sprockets are initially fastened with Huck fasteners. The Huck fasteners are tightened with a special hydraulic tool that eliminates initial run-in and re-torquing operations of the segmental rims. **STOP: It is imperative that the torque values of the segmental rim bolts, as indicated in 'Torque Table' below, be set after the new rims are installed (use grade 5 bolts only).** **STOP: DO NOT LUBRICATE TRACTION WHEEL.**		
4.	Check take-up of the bucket with the bottom of boot. Remove a two link section if required.		
5.	For safety to personnel and equipment, keep areas around loading and discharge points, drives, controls, and safety devices clean and free from obstructions.		
6.	Inspect the chain regularly. Chain inspection list follows: – Sidebar inner face should be checked for wear. This is an indication on misalignment. – Loose or unseated pins are danger signals and could lead to a sudden and unexpected chain separation (shutdown). – Excess material buildup on/in the chain and attachments could cause improper seating on sprockets and rough elevator operations Results can be excessive wear. – Round parts in chain – that is, the pins and bushings – should be inspected for wear. See data sheet No. 3520-27, page 5 of 7. – Sprockets should be inspected for alignment and excessive wear. Worn sprocket teeth (hooking) will cause chain to hang up or to back-flex, resulting in damage to the buckets.		

TORQUE TABLE
Table 2

Bolt Diameter		Torque Values – Grades 5 and 8.8 Only	
Eng. Std.	**Metric**	**Eng. Std.**	**Metric**
5/8”	-	180 ft.lbs.	-
1/2”	-	320 ft. lbs.	-
1”	-	710 ft. lbs.	-
-	M16 x 2	-	210 N m
-	M20 x 2.5	-	425 N m
-	M24 x 3	-	730 N m