CONNEXUS INDUSTRIES INC
Chain & Industrial Manufactured Solutions

CHAIN AND ELEVATOR Maintenance Checklist

Preventative Maintenance Checklist

1. The buckets should be checked periodically for loose bolts and build-up of material. All damaged buckets should either be repaired or replaced to eliminate material falling into the boot.

2. Check the rubber lip on the inside of the discharge spout of the elevator after approximately three months of operation. Replace if worn.

3. Traction wheels and sprockets.
   - Check for unusual or excessive wear such as hooking of the sprocket teeth
   - Check and re-torque bolts on replacement segmental rims on both head and foot shafts

4. Check take-up for bucket clearance with bottom of boot. Remove a two-link section when required.

5. For the safety of personnel and equipment, keep areas around loading and discharge points, drive, controls and safety devices clean and free from obstructions.

6. Inspect the chain quarterly/during scheduled shutdown.
   - Inner faces of the bush hole sidebar should be checked for wear. This is an indication of misalignment.
   - Loose or unseated pins are danger signals and could lead to a sudden and unexpected chain failure resulting in shutdown.
   - Excess material build-up in the chain and attachments could cause improper seating on sprockets and rough elevator operation. This will result in accelerated wear.
   - The pins and bushings should be inspected for wear.
   - Sprockets should be inspected for alignment and excessive tooth wear. Worn sprocket teeth (hooking) will cause the chain to hang-up and/or back flex, resulting in damage to the chain and buckets.

100 hour (Preliminary) Inspection

Inspect chain for signs of premature wear. Pay particular attention to signs of "scrubbing " on inner sidebars. This is a sign of machinery misalignment which must be corrected before further operation.

2000 hour (Minor) Inspection

Chain Inspection
- Check inside block links for unequal wear from traction wheel (or sprocket).
- Check all sidebars and bushing ODs for uneven or deep wear patterns.
- Visually inspect clearance between each set of inner and outer sidebars. Excessive clearance suggests pin fracture. Inspect pin and replace if fractured. If more than five fractured pins are found, replace the entire chain at earliest convenience.

Traction Wheels and Sprockets
- Check for unusual or excessive wear such as hooking of sprocket teeth or crowning of wheels.
- Check torque values for segmental rim bolts.

Buckets
- Check for loose or missing bucket bolts. Re-torque or replace as required.
- Check for unusual wear patterns of damaged buckets.

Rubber Peeler
- Inspect and adjust rubber peeler lip on the inside of the discharge spout. Replace if excessively worn.

Stop Blocks
- Check stop blocks. Check for free operation of take-up guides. Check for wear on guides.

8000 hour (Major) Inspection

Chain inspection
- Check all sidebars and bushing ODs for uneven or deep wear patterns.
- Check inside block links for unequal wear from traction wheel (or sprocket)
- Check for chain elongation wear.

Step 1.
Accurately measure the length of chain and if the chain has elongated more than 1.5% proceed to Step 2.

Step 2.
Remove 5 pins at random. Measure the pin OD and the bushing ID. Record these dimensions and contact your chain manufacturer immediately for suggestions.

Note: Wear rate drastically accelerates when the pin and bushing wear past the case-hardened depths.

Caution: Bushing OD Should be inspected for signs of rapid wear due to sprocket scrubbing or traction wheel slippage. If wear exceeds 0.150" (3.81mm) exposure of the pin may be imminent and all bushings should be checked to see if they have worn through. If wear exceeds 0.150" (3.81mm, the bushing outer hard case has been worn through. Replace the chain at earliest convenience. If any pins are exposed, the chain should be replaced immediately.

Sidebars
Visually inspect all sidebars at pin and bushing holes for fatigue cracks. Replace all sidebars with fatigue cracks. If more than two cracked sidebars are found, replace the entire chain at earliest convenience.

Attachments
- Visually inspect the bend line of all attachments. Replace any links with cracks.

Segmental traction wheels and sprockets
- Check for loose or missing segmental rim bolts. Check torque values. If bolts are missing , replace with proper diameter high strength type.
- Check for evidence of axial movement along the shaft. Check setscrew or re-torque fasteners on shaft/hub locking device per service manual.
- Check for evidence of unusual or excessive wear and replace sets of segments as required.

Bearings
- Check head shaft bearings for evidence of wear and re-grease per service manual.
- Check foot shaft bearings and sleeves for evidence of wear. If the inner 3/8" thick ring has worn through the top side, replace.

Gravity take-up
- Check stop blocks. Check for free operation of take-up guides. Check for evidence of wear on guides. If guides have worn and can not be adjusted to maintain 1/8" clearance, replace.

Buckets
- Check for loose or missing bucket bolts (re-torque/replace as required)
- Check for unusual wear patterns or damaged buckets.

20,000 hour (Special) Inspection

Chain Inspection
- Remove approximately 10'0" (3.04m) of chain and buckets. Disassemble buckets from chain. Completely check chain components for fatigue cracks by non-destructive methods such as magna flux, dye penetrant check, or sonic testing, If any fatigue failures are detected in this sample, the entire chain should be replaced at the earliest convenience.
- If no evidence of fatigue, check the 10'0" (3.04m) sample for elongation wear per Step 1 of the 8,000 hour (Major) Inspection.

Segmental traction wheels and sprockets; See 8,000 hour (Major) Inspection.
Bearings; See 8,000 hour (Major) Inspection.
Gravity Take-up; See 8,000 hour (Major) Inspection.
Buckets; See 8,000 hour (Major) Inspection.

CORRECT ALL DEFICIENCES BEFORE CONTINUING OPERATION

CXS DURA LINK PLATINUM SERIES ELEVATOR CHAINS

CXS Dura Link Platinum Series Elevator Chains are designed to perform. Our Dura Link design and manufacturing processes create a durable chain with long life. For even greater life and reliability we offer our Dura Link Elevator Chains in a sealed joint configuration for your most severe applications.

Our Dura Link Platinum Series Elevator Chains are guaranteed to meet or exceed our competition in heat treat accuracy, surface hardness and our case hardened and induction hardened surfaces will have the greatest depth possible.

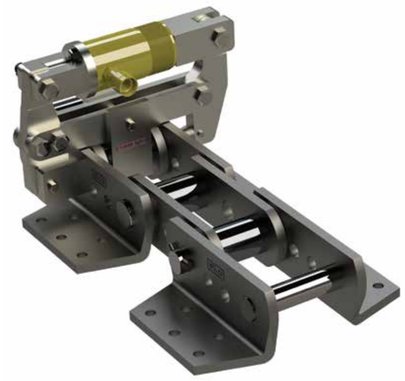
Only alloy steels are used in the construction of the Dura Link Platinum Series Chains. This leaves no doubt that you are getting the highest quality chain available on the market today.

MATERIALS

- Side bars are manufactured from low alloy steel and are quenched and tempered to achieve a through hardened material
- Pins are machined from 4140 bar stock, quenched and tempered to achieve through hardening. The pin is then further induction hardened to provide extra wear resistance in the rotating components.
- Bushings are made from low carbon alloy steel to allow for a carburizing heat treatment process. This ensures both the interior and exterior surfaces achieve maximum hardness while retaining a tough core.

We also offer complete elevator manufacturing services for numerous applications. For more information, contact us at any of our locations.

CHAIN ASSEMBLY AND DISASSEMBLY TOOLS



INSPECTION SEQUENCE

IMPORTANT NOTE;

If at any time a chain pin or sidebar breaks and the chain fails during operation, follow 8,000 hour (Major) Inspection procedure, plus complete non-desructive test of 10' 0" (3.04m) of chain as explained in 20,000 Hour (Special) Inspection

HOURS OF SERVICE	TYPE OF INSPECTION	HOURS OF SERVICE	TYPE OF INSPECTION
100	PRELIMINARY	20,000	SPECIAL
500	PRELIMINARY	22,000	MINOR
2,000	MINOR	24,000	MINOR
4,000	MINOR	26,000	MINOR
6,000	MINOR	28,000	MINOR
8,000	MAJOR	30,000	MINOR
10,000	MINOR	32,000	MINOR
12,000	MINOR	34,000	MINOR
14,000	MINOR	36,000	MINOR
16,000	MAJOR	38,000	MINOR
18,000	MINOR	40,000	SPECIAL

LUBRICATION CHART

ITEM	LUBRICATION	FREQUENCY	METHOD	REMARKS
Drive Chain	SAE 30 Oil	Continually	Dip bath in oil tight chain guard	Oil in guard should be changed every 2 or 3 months
Bucket Chain	None	Never		Lubricant when combined with materials being handled is rendered ineffective due to lack of flowability into chain joint
Anti-Friction Bearings	High quality NLGI # 1 or #2 multi-purpose bearing grease	See Manufacturer's Bulletin in Service Manual	Lubrication Fitting	Purge Seals when adding grease
Motor	See Manufacturer's Bulletin in Service Manual			Motor is oiled before leaving factory
Reducer	See Manufacturer's Bulletin in Service Manual			Reducer is shipped without oil. Fill to proper level with correct oil before placing in operation

ELEVATOR CHAIN*

Chain	Pitch P	Style	Inner Width W	Pin Diameter D	Pin Length L	Bushing Diameter G	Sidebar Height E	Sidebar Thickness T	Minimum Ultimate Strength
CXS ER956	6"	A	3.000"	1.000"	6.437"	1.750"	3.000"	0.500"	97000 LBS
CXS ER857	6"	B	3.000"	1.000"	6.437"	1.750"	3.250"	0.500"	97000 LBS
CXS ER958	6"	A	3.000"	1.125"	6.437"	2.000"	3.250"	0.562"	97000 LBS
CXS ER859	6"	B	3.750"	1.250"	7.437"	2.375"	4.000"	0.625"	155000 LBS
CXS ER864	7"	B	3.750"	1.250"	7.437"	2.375"	4.000"	0.625"	155000 LBS
CXS ER984	7"	A	3.750"	1.375"	7.437"	2.500"	4.000"	0.625"	155000 LBS
CXS ER994	7"	A	3.750"	1.580"		2.500"	4.000"	0.630"	200000 LBS

* All sizes available in TS sealed joint version

Four Locations to better serve you:

Langley CAD HQ
27474 Gloucester Way, Langley BC, Canada V4W 4A1
t 604.882.1602 f 604.882.1603 toll free 1.800.324.1244

Portland USA HQ
9525 SW Commerce Circle, Wilsonville, OR, USA 97070
t 503.222.9992 f 503.222.0073 toll free 1.800.367.9992

Quebec Branch
1892 1'Ere Rue, St Romuald, QC, Canada G6W 5M6
t 418.834.5116 f 418.834.5901 toll free 1.888.650.6090

Atlanta Branch
3411 Novis Pointe, Acworth, GA, USA 30101
t 678.797.0777 f 678.797.5554 toll free 1.877.941.1500

CONNEXUS INDUSTRIES INC
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