

PREVENTATIVE MAINTENANCE CHECKLIST

Chain and sprockets should be inspected after **three** months service and **six month** intervals thereafter. These mostly visual inspections will uncover potential problem areas before they become more serious. Always correct apparent problems as they are uncovered to assure all steps are taken to guarantee long life and trouble free service.

INSPECTION CHECK LIST

- 1. Wash chain and sprockets with a heavy stream of clean water or steam to remove excess material buildup which can cause improper seating on the sprockets resulting in accelerated wear. Direct the water spray to flush out the joints that could clog and prevent the entry of lubricants, or cause tight joints through a buildup of corrosion.

- 2. Inspect the sprockets for usual or excessive wear, or an uneven wear pattern on the sprocket teeth, deep grooves in the pockets, a hooking wear pattern on the teeth, or for any other indications of misalignment. Inspect for cracked welds, and retighten set screws or other ring bolts if you are using segmental sprockets.

- 3. Check the inner face of the sidebars of the chain for a shiny surface which could signal a misalignment problem, especially if the wear is more prevalent on one side than the other. Misalignment problems should be corrected as soon as possible. The chain should run freely and without interference with the sprocket teeth. (note: We frequently see poor sprocket / chain interaction because the sprockets are not properly matched to the chain). It is a good idea to purchase chain and sprockets from the same source and to have the chain wrap checked prior to shipment.

- 4. Check for loose, cracked, or unseated or rotating pins. Any of these conditions indicate a danger signal that can lead to chain breaks, work stoppages, and lost productivity. Check for signs of corrosion, or corrosive buildup which can lead to tight joints, and fatigue breaks. If a bad situation is present, the condition may require some special action to reduce the corrosion causing conditions, or possibly special pin treatment to reduce the damaging effects of corrosion. Corrosive conditions are one of the leading causes of pin



breakage in Welded Steel Chains. (Note: See appendix for an in depth discussion of the effects of corrosion on pin life with some suggestions for corrective actions.)

5. Check bushings for signs of uneven or excessive wear, cracks, or broken welds. These conditions usually indicate sprocket scrubbing, misalignment, overload, or improper tooth design. The conditions can sometimes be corrected by adjusting the take-ups, and by paying more attention to the amount of chain sag, but usually trial and error, or just plain good judgment are all that it takes once there is understanding that chain sag is necessary for good chain performance.

6. Check the chain joints for signs of “wallowing out”, which is excessive wear of the sidebars at the pin location. This condition can cause chain stretch, jumping of sprocket teeth, a conveyor surge, early pin breakage, and also create a dangerous situation. When a condition like this is noticed, the link should be removed and replaced. If there are several links with this problem, the chain should be replaced. Wallowing out usually occurs because of a poor press fit of the pin in the sidebars. This could occur because of poor control of the pin diameter, or more likely improper piercing of the sidebars.

Frequently maintenance personnel replace pins in chain, to increase chain life. Because of the difficulty in maintaining a press fit, some grind or turn the pin to get an easier replacement. This, of course, reduces the life of the chain and the loose pins begin turning, which then leads to the wallowing out process.

7. Lubricate the chain immediately. To be effective, the lubricant should be directed into the chain joint area where it is most effective. Adequate lubrication is the most important element in long chain life, so care should be taken to insure the lubricant seeps between the pin and bushing, and between the pins and the sidebars. The extra time it takes to do a complete job pays very big dividends in trouble free operation.

If possible, some type of oiling system should be installed to keep the joints in contact with some type of lubricant. Because clean water has some lubricating qualities, some run a stream of water over the joints with enough force to remove buildup, and to keep the joints clean. A petroleum based lubricant is better, but clean water can also be used effectively.

8. Run the chain to seat the joints and to check for any signs of pulsing, or surging. The chain should run smoothly over the sprockets and along the tracks. Tight joints will not articulate over the sprockets and can be readily observed and



immediately replaced or repaired. Usually surging chain indicates a potential problem and the need for corrective action. Some possible causes of surging:

- A. Take-up tension is too tight or too loose. Best solution is to try to adjust the take-up until the chain runs smoothly without jerks or surges.
- B. Improper sprocket design or number of teeth. As a general rule, use sprockets with as many teeth as practical, and use a sprocket with a diameter of 3-4 times the chain pitch.
- C. If the conveyor is running at a very slow speed, try increasing the speed to overcome the frictional forces that could cause the surges.
- D. Check sprockets for excessive wear patterns. Worn sprockets can cause chain to jump teeth or catch in the pockets.
- E. Check the loading of the chain and try to eliminate very rough loading onto the chain. Dropping heavy logs onto the chain is very destructive. A better method is to slide the load onto the chain without the impact of a high drop. Chains were not designed to accept a rough loading that causes the chain to jump or bounce.



9. Check all the attachments for cracked welds, tighten bolts, and look for signs of inappropriate wear. Loose attachments are particularly dangerous so make sure they are properly welded. Because most chain sidebars are heat treated, the welding of attachments becomes more critical. Use a low hydrogen rod, pre-heat the parts to be welded, and then slow cool. A good method is to toss a heavy blanket or canvass over the new weld until it cools naturally in this controlled atmosphere. Rapid cooling will cause stress cracks with will lead to premature fatigue failures.



10. Remember the importance of the **three** and **six** month inspections, and remember to keep the chains well lubricated. These rules are guidelines that are sure to increase chain life, reduce failures, and improve the productivity of your operation.

