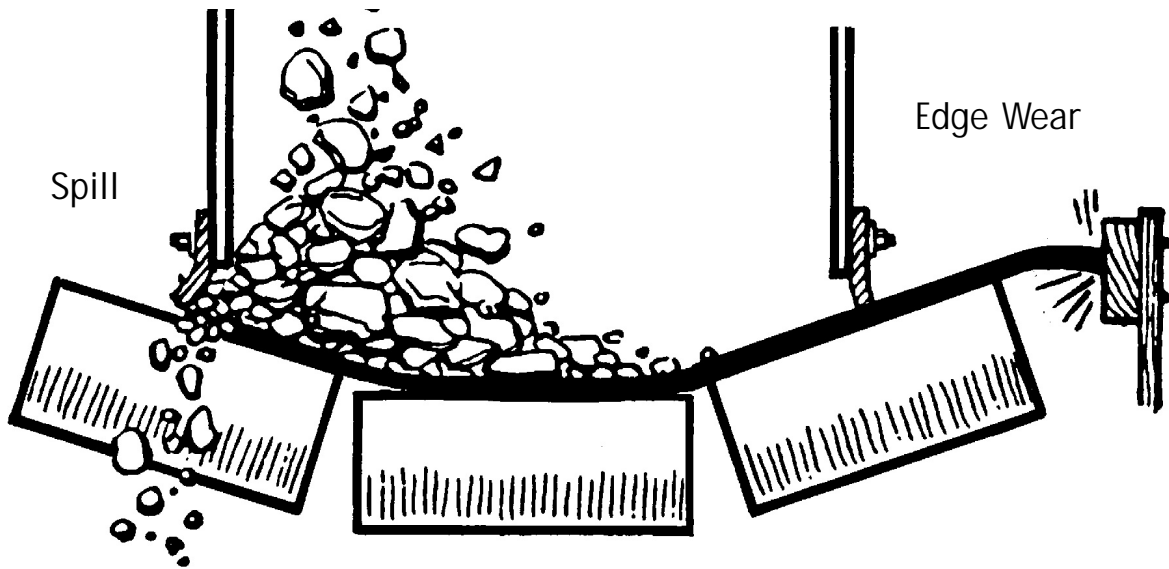


Trouble Shooting



Effects of Off-Center Loading

The enclosed conveyor belt trouble shooting chart can serve as a general guide for some of the more common conveyor belt problems.

If your belt problem does not seem to resolve itself with these corrective measures, or if your belt problem is not found on this list, then contact All-State Belting Co and request a visit by one of our factory representatives.

* The idler junction is the gap between the functioning surfaces of the center roll and one of the side rolls of the idler (See Fig. 1). This gap poses a potential hazard for the belt by providing a narrow space in which the belt can settle experiencing highly detrimental flex and possible exposure to oil or grease from the idler bearings (Fig. 2). When slipping of the belt into the idler junction is the cause of belt damage, it is called idler junction failure. The idler gap should be less than .4" or twice belt thickness- whichever is less.



Fig. 1



Fig. 2

Trouble Shooting

Problem/Cause

For Solutions Refer to Answer #

- A. Belt runs off at tail pulley.
- B. Belt runs to one side for long distance or entire length of conveyor.
- C. Particular section of belt runs to one side at all points on conveyor.
- D. Belt runs off at head pulley.
- E. Conveyor runs to one side at given point on structure.
- F. Belt runs true when empty, crooked when loaded.
- G. Belt slips.
- H. Belt slips on starting.
- I. Excessive belt stretch.
- J. Grooving, gouging or stripping of top cover.
- K. Excessive top cover wear, uniform around belt.
- L. Severe pulley cover wear.
- M. Longitudinal grooving or cracking of bottom cover.
- N. Covers harden or crack.
- O. Cover swells in spots or streaks.
- P. Belt breaks at or behind fasteners; fasteners pull out.
- Q. Vulcanized splice separation.
- R. Excessive edge wear, broken edges.
- S. Transverse breaks at belt edge.
- T. Short breaks in carcass parallel to belt edge, star breaks in carcass.
- U. Ply separation.
- V. Carcass fatigue at idler junction.*
- W. Cover blisters or sand blisters.
- X. Belt Cupping-Old Belt (was OK when new).

39	10	1	19	31	
39	8	5	1		
6	7	46			
33	10	1	3		
5	4	1	2	3	44
8	51	52			
34	33	31	10	4	30
34	31	33	30	42	43
12	35	32	43		
13	4	15	16	53	
19	20	10	8	36	
4	9	10	17	1	27
4	10	9	33	36	
23	37				
21					
24	22	48	30	47	49
38	30	12	17	25	
8	10	40	7	50	38
18	25	26			
16	17				
29	30	23			
25	26	27	28	29	36
45	21				
21	23				

Conveyor System Problems/Causes and Their Solutions

1. **Idlers or pulleys out-of square with center line of belt:** readjust idlers in affected area.
2. **Conveyor frame or structure crooked:** straighten in affected area.
3. **Idler stands not centered on belt:** readjust idlers in affected area.
4. **Sticking idlers:** free idlers and improve maintenance and lubrication.
5. **Build-up of material on idlers:** remove accumulation; improve maintenance. Install scrapers or other cleaning devices.
6. **Belt not joined squarely:** remove affected splice and resplice.
7. **Bowed belt:** for new belt this condition should disappear during break-in; in rare instances belt must be straightened or replaced; check storage and handling of belt rolls.
8. **Off-center loading or poor loading:** adjust chute to place load on center of belt; discharge material in direction of belt travel at or near belt speed.
9. **Slippage on drive pulley:** increase tension through screw take-up or add counterweight; lag drive pulley; increase arc of contact.
10. **Material spillage and build-up:** improve loading and transfer conditions; install cleaning devices; improve maintenance.
11. **Bolt heads protruding above lagging:** tighten bolts; replace lagging; use vulcanized-on lagging.
12. **Tension too high:** increase speed, same tonnage, same speed; reduce friction with better maintenance and replacement of damaged idlers; decrease tension by increasing arc of contact or go to lagged pulley; reduce CWT to minimum amount.
13. **Skirt boards improperly adjusted or of wrong material:** adjust skirt board supports to minimum 1/4" between metal and belt with gap increasing in direction of belt travel; use skirt board rubber (not old belt).
14. **Load jams in chute:** redesign chute for proper angle and width.
15. **Material hanging up in or under chute:** improve loading to reduce spillage; install baffles; widen chute.
16. **Impact of material on belt;** reduce impact by improving chute design; install impact idlers, or impact bed.
17. **Material trapped between belt and pulley:** install plows or scrapers on return run ahead of tail pulley.
18. **Belt edges folding up on structure:** same corrections as for 1, 2, 3; install limit switches; provide more clearance.

19. **Dirty, stuck, or misaligned return rolls:** remove accumulations; install cleaning devices; use self-cleaning return rolls; improve maintenance and lubrication.
20. **Cover quality too low:** replace with belt of heavier cover gauge or higher quality rubber or other elastomer.
21. **Spilled oil or grease: over-lubrication of idlers:** improve housekeeping; reduce quantity of grease used; check grease seals
22. **Wrong type of fastener, fasteners too tight or too loose:** use proper fastener and splice technique; set up schedule for regular fastener inspection.
23. **Heat or chemical damage:** use belt designed for specific condition.
24. **Fastener plates too long for pulley size:** replace with smaller fasteners; increase pulley size.
25. **Improper transition between troughed belt and terminal pulleys:** adjust transition in accordance with All-State Belting Catalog.
26. **Severe convex (hump) vertical curve:** decrease idler spacing in curve; increase curve radius.
27. **Excessive forward tilt of trough rolls:** reduce forward tilt of idlers to no more than 2° from vertical.
28. **Excess gap between idler rolls:** replace idlers; replace with heavier belt.
29. **Insufficient transverse stiffness:** replace with the proper belt.
30. **Pulleys too small:** use larger diameter pulleys.
31. **Counterweight too light:** add counterweight or increase screw take-up tension to value determined from calculations.
32. **Counterweight too heavy:** lighten counterweight to value required by calculations.
33. **Pulley lagging worn:** replace pulley lagging.
34. **Insufficient traction between belt and pulley:** lag drive pulley; increase belt wrap; install belt cleaning devices.
35. **System underbelted:** recalculate belt tensions and select proper belt.
36. **Excessive sag between idlers causing load to work and shuffle on belt as it passes over idlers:** increase tension if unnecessarily low; reduce idler spacing.
37. **Improper storage or handling:** refer to All-State Belting for proper storage or handling instructions.
38. **Belt improperly spliced:** resplice using proper method as recommended by All-State Belting.
39. **Belt running off-center around the tail pulley and through the loading area:** install training idlers on the return run prior to tail pulley.
40. **Belt hitting structure:** install training idlers on carrying and return run.

41. Improper belt installation causing apparent excessive belt stretch: pull belt through counterweight with a tension equal to at least empty running tension; run belt in with mechanical fasteners.
42. Improper initial positioning of counterweight in its carriage causing apparent excessive belt stretch; check with All-State Belting for recommended initial position.
43. Insufficient counterweight travel: consult All-State Belting for recommended minimum distances.
44. Structure not level: level structure in affected area.
45. Cover cuts or very small cover punctures allow fines to work under cover and cut cover away from carcass: make spot repair with vulcanizer or self-curing repair material.
46. Worn edge: press edge.
47. Interference from belt scrapers: adjust belt scrapers.
48. Tension too high for fasteners: use vulcanized splice.
49. Belt carcass too light: select stronger carcass.
50. Belt misalignment: see training recommendations.
51. Variations in nature and formation of load: use notched chute to keep load peak in exact center of belt.
52. Belt not making good contact with all idlers: adjust height so all idlers contact belt.
53. Sharp edges of material or tramp iron coming in contact with cover: use jingle bars, impact idlers, magnetic removal equipment.