

Plant Service Bulletin

Spiral Bevel Gear Bolts - B&W Roll Wheel™ Pulverizer Gearbox

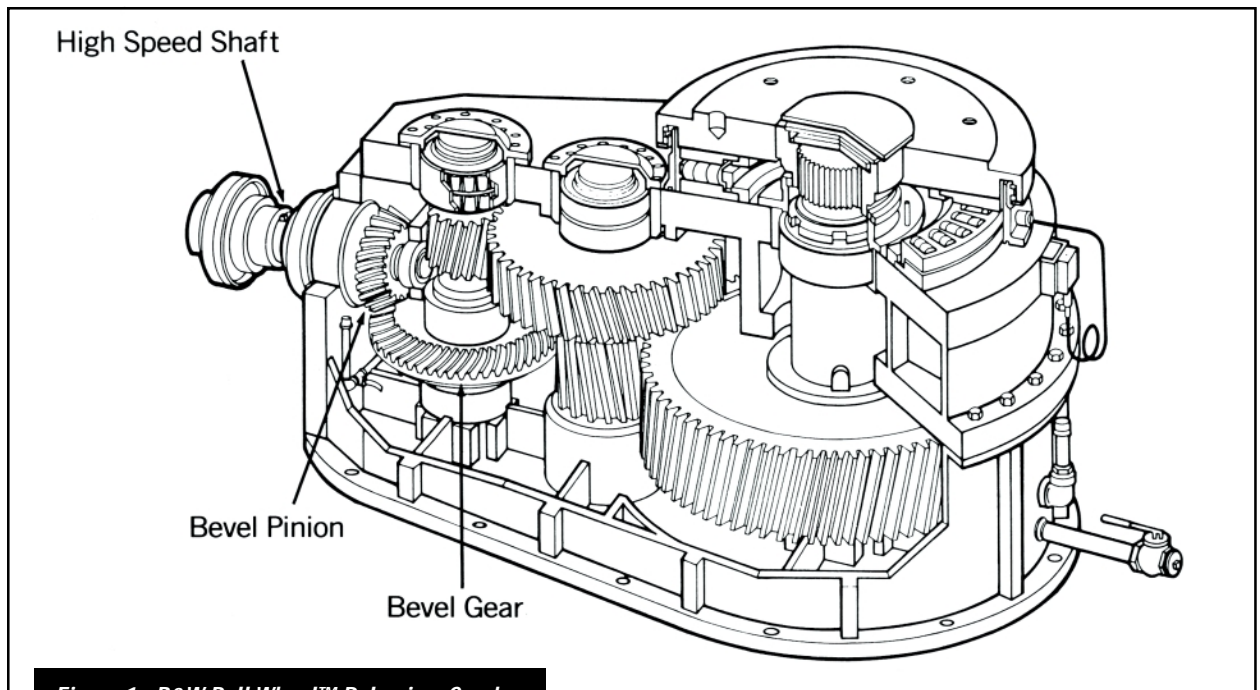


Figure 1 - B&W Roll Wheel™ Pulverizer Gearbox

Purpose

To alert owners and operators of B&W Roll Wheel™ pulverizers of a possible problem with the bolts on the spiral bevel gear (See Figure 1).

Problem

The constant cyclic loading in the B&W Roll Wheel™ gear drive may cause the spiral bevel gear bolts to work loose. Once loose, the bolts experience an additional bending load, thus failing due to fatigue. When failure occurs, the spiral bevel gear could spin on the spider (See Figure 2) or push the spider down on the first intermediate shaft.

Recommendation

The following procedure should be followed when performing pulverizer maintenance.

1. Remove the inspection door

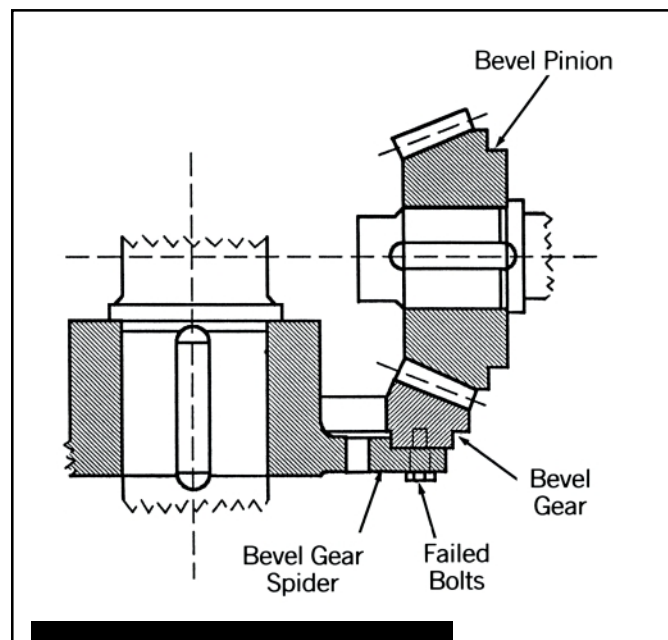


Figure 2 - Spiral Bevel Gear and Spider

located in the lower half of the gearbox. This door is located on the left side of the gearbox, when facing the input shaft (the side with the oil level dip stick).

2. Using a 1-1/4" open-ended wrench and without bending the washer lock tab, check to ensure all 16 bolts are tight. The bolt is considered loose if it can be turned more than half of a flat (about 1/12 of a revolution).
3. If all the bolts are found tight, the inspection door can be put back into place, tightened and the pulverizer can be put back into service.
4. If loose bolts are found, retorque all 16 bolts, one at a time in a cross pattern fashion. Retorque to 250 ft/lbs and replace all 16 bolts one at a time, in cross pat-

tern fashion. The replacement procedure is as follows:

- Procure replacement hex head cap screws. See the chart below for size required.
- Procure lock washers to replace the existing lock plate washers. See the chart below for size required.
- Clean threads of the replacement bolts using a solvent that removes the preservative.
- Drain gearbox oil. If the oil is not contaminated, it can be saved and reused. Contaminates can be found by doing a physical and spectrochemical analysis. Be certain to drain into clean drums if the oil is to be reused. Contamination of gear oil with engine oil will cause foaming.
- Bend lock tab away from the bolt hex head so that the bolt can be turned.

- Remove the existing bolt and lock plate washer one at a time and discard.
- Install the procured bolts with standard lock washers one at a time.
 - Use Loctite solvent to clean male and female threads. Blow dry with compressed air.
 - Apply Loctite Grade 262 to the bolt threads.
 - Torque to 250 ft/lbs.
- 5. Upon completing the procedure, the oil can be filtered and put back into the gearbox, the inspection door put back into place and the pulverizer put back into service.
- 6. If all bolts are tight or if bolts are replaced, repeat this procedure after 20,000-25,000 hours. If all bolts are found tight at two successive inspections, no further action is necessary.

Pulverizer Size	Size and Length
B&W-67™, B&W-75™ and B&W-89™	7/8" - 9 UNC x 2-2/4" Long *Grade 5 7/8" Standard Lock Washers
B&W-118™	1" - 8 UNC x 4-1/2" Long Grade 5 1" Standard Lock Washers

*Earlier B&W-89 pulverizers used cap screws that were 3" long.

Support

If you have any questions or require assistance in performing this inspection, please contact Babcock & Wilcox Field Engineering Services.

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