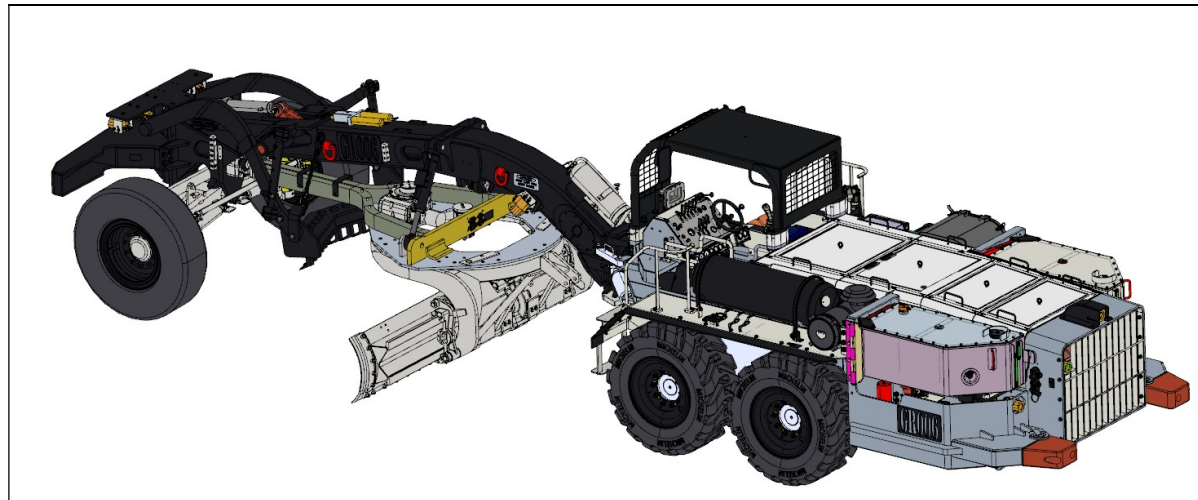




## PRODUCT TECHNICAL BULLETIN 36307 GRADER PARK BRAKE PINION SHAFT – DESIGN IMPROVEMENT



REVISION:A

1-5

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**Date:** Jan 2024  
**Issue:** A (release)  
**Prepared for:** Industry/ End Users

**Applicable machines:** Graders installed with mechanical park brake legacy pinion shaft 7-090909-700  
(serial numbers 014 – 039)

## Background:

This bulletin seeks to notify end users as of a potential hazard relating to the underground grader park brake pinion shaft that was originally installed on graders (serial numbers 014 – 039) produced by GE Industrea/Boart Longyear. The park brake pinion transfers brake torque from the park brake unit (7-090942-700) to the final drive gear on the forward wheels and via a chain on the rear wheels.

## Communication:

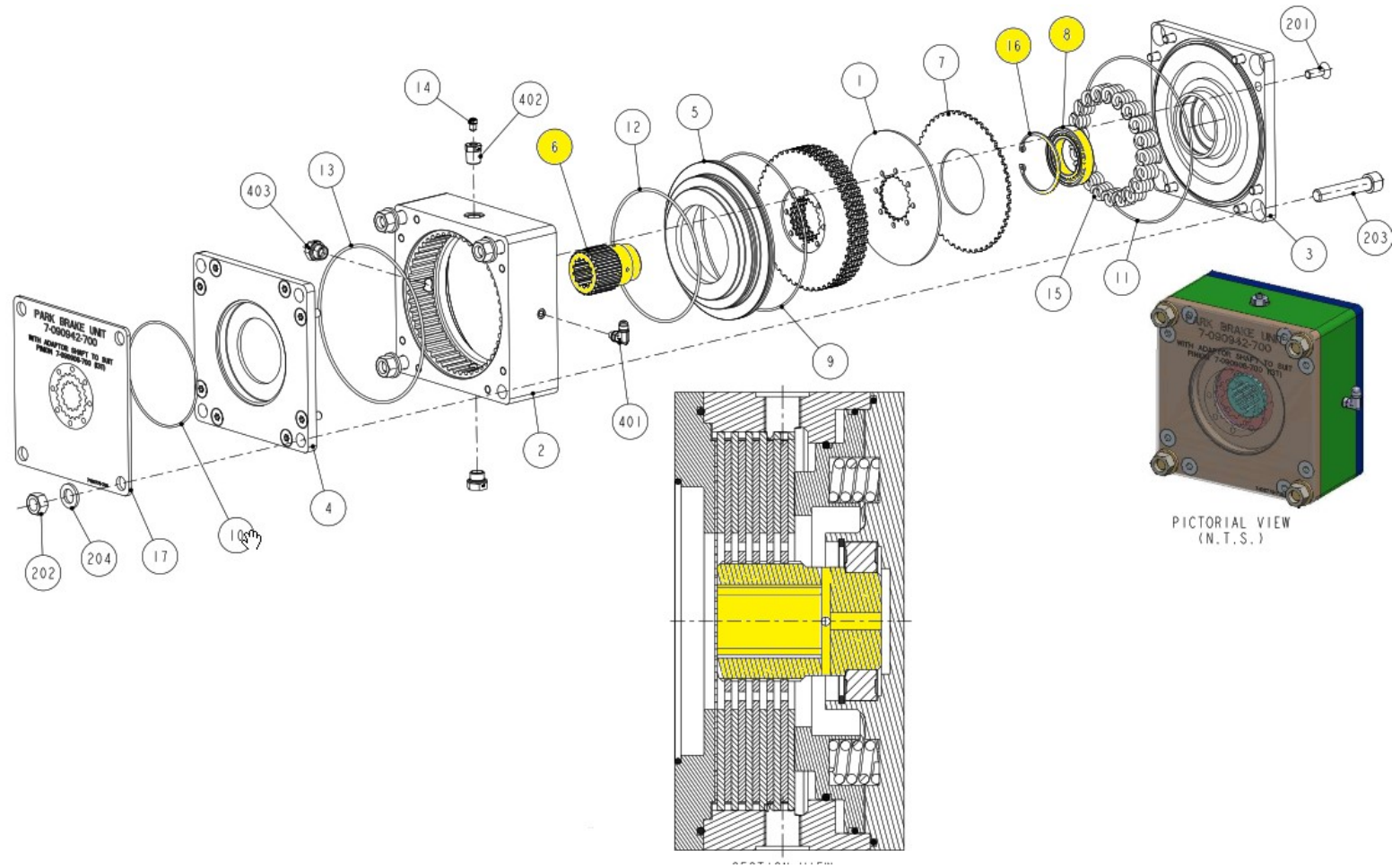
Under high repeated dynamic loading, some original brake pinion shafts have sheared in torsional fatigue. This failure results in a reduction in secondary and park braking capacity by 50% or one side. This failure mode does not impact the service brakes.

However, depending on the wear on the remaining serviceable brake pack and the grade, this could lead to a machine being unable to hold on a grade via the park brake.

Cougar Mining Equipment has developed an improved park brake pinion shaft design that has been tested and implemented on later machines.

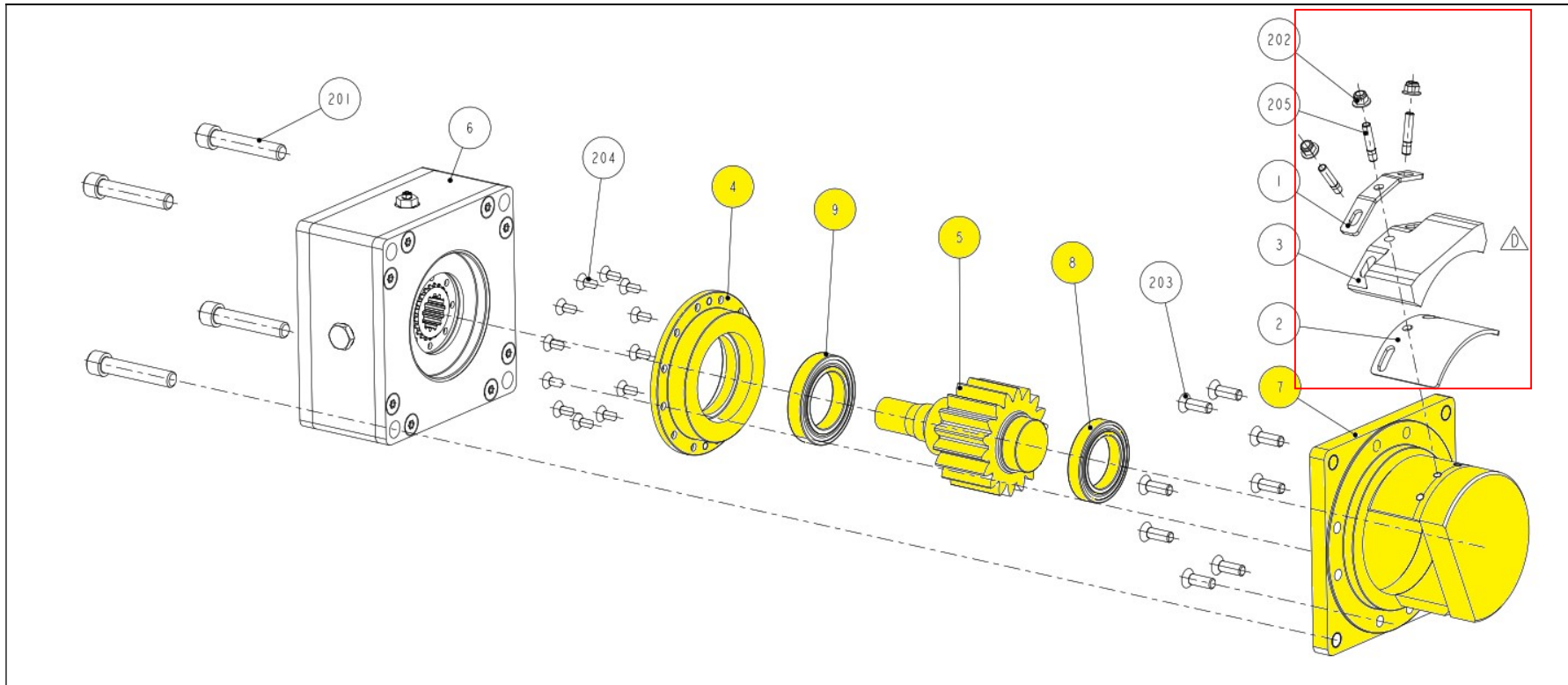
The park brake Pinion upgrade does not change the brake unit operation but does impact interfacing components.

The Pinion adaptor shaft in park brake assembly 7-090942-700 is no longer required as the pinion shaft direct engages the brake discs – refer figure 1



**Figure 1: Original Park brake assembly 7-090942-700 indicating spline adaptor shaft (no longer required)**

NOTE: when installed with the new pinion shaft, this adaptor is not required, if ordering a new brake assembly to suit the upgraded pinion, it can be ordered as **7-090942-700U** to be supplied without the spline adaptor shaft.



**Figure 2: The above indicated components are replaced for the pinion upgrade**

NOTE: The upgraded Pinion shaft design also includes an improved chain guide as indicated by items the red box. The chain guide has additional fasteners to prevent slippage of the chain guide.

## Recommendations:

- Upgrade machines installed with the legacy park brake pinion shaft to the later improved design. Contact Cougar Mining Equipment to make arrangements for this work.  
Note: If park brake Pinions are not upgraded to the later design, the original pinion shaft should be non-destructively inspected via magnetic particle inspection at a frequency not exceeding 2000hrs or 2 years.
- Review brake testing methods and environmental stress factors that may reduce the in-service life of components, these include the frequency of dynamic testing, tandem beam chain wear, brake pack wear. Refer Cougar Mining Equipment maintenance schedule for Grader inspection and testing. MS\_07
- Operational procedures should include following vehicle park up procedure, including lowering the grading implement and facing the steer wheels to the rib, if underground.
- If brake components are replaced on one side of the machine, both sides should be replaced to avoid uneven brake performance.

Please distribute this bulletin to all relevant personnel

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