



PRODUCT TECHNICAL BULLETIN 36349

Grader Brake System Update

Date: 24-06-2024
Issue: A
Prepared for: Industry/ End Users

Background:

The Underground Mining Grader Brake System MDR 088446 TBS was originally registered with the NSW department of planning in 2008 by Industrea Mining Equipment. Recently, improvements have been identified and implemented resulting in an alteration of the original System to MDR 088446 TBS-1. This document provides an overview of the alteration and makes recommendations regarding implementation.

Document History

Rev	Date	Description	Author	Reviewer
A	23-6-2024	Released	BMD	WSD

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Communication:

MDR 088446 TBS-1 braking system registration for the Underground Grader, manufactured by Cougar Mining Equipment has been registered with NSW department of planning. The alteration consists of design improvements detailed in the following communication.

Dual Brake Air Receivers – Service Brakes

The brake system consists of four service brake units that are pneumatic pressure applied wet disc brakes operating on the four drive wheel shafts.

The original registered braking system (MDR 088446 TBS) can be described as a dual circuit where an auxiliary air receiver segregated half the service brakes air supply. Mains air pressure was interlocked with the automatic brakes via the latching function of the brake control valve. However, a reduction in air pressure on the auxiliary reservoir may not be detected by the main air control valve.

MDR 088446 TBS -1a introduces a fully independent dual circuit.

One circuit has air supplied from the brake #1 air receiver, the other is supplied by an independent brake # 2 air receiver.

Both brake air receivers are filled from the main air tank via check valves and have individual drain valves.

Both air receivers are independently monitored for available brake air pressure and the SAHR brakes apply (and drive disengaged) if air pressure drops below 50 PSI

Individual gauges display service brake air pressure, both before the pedal and at the brakes themselves.

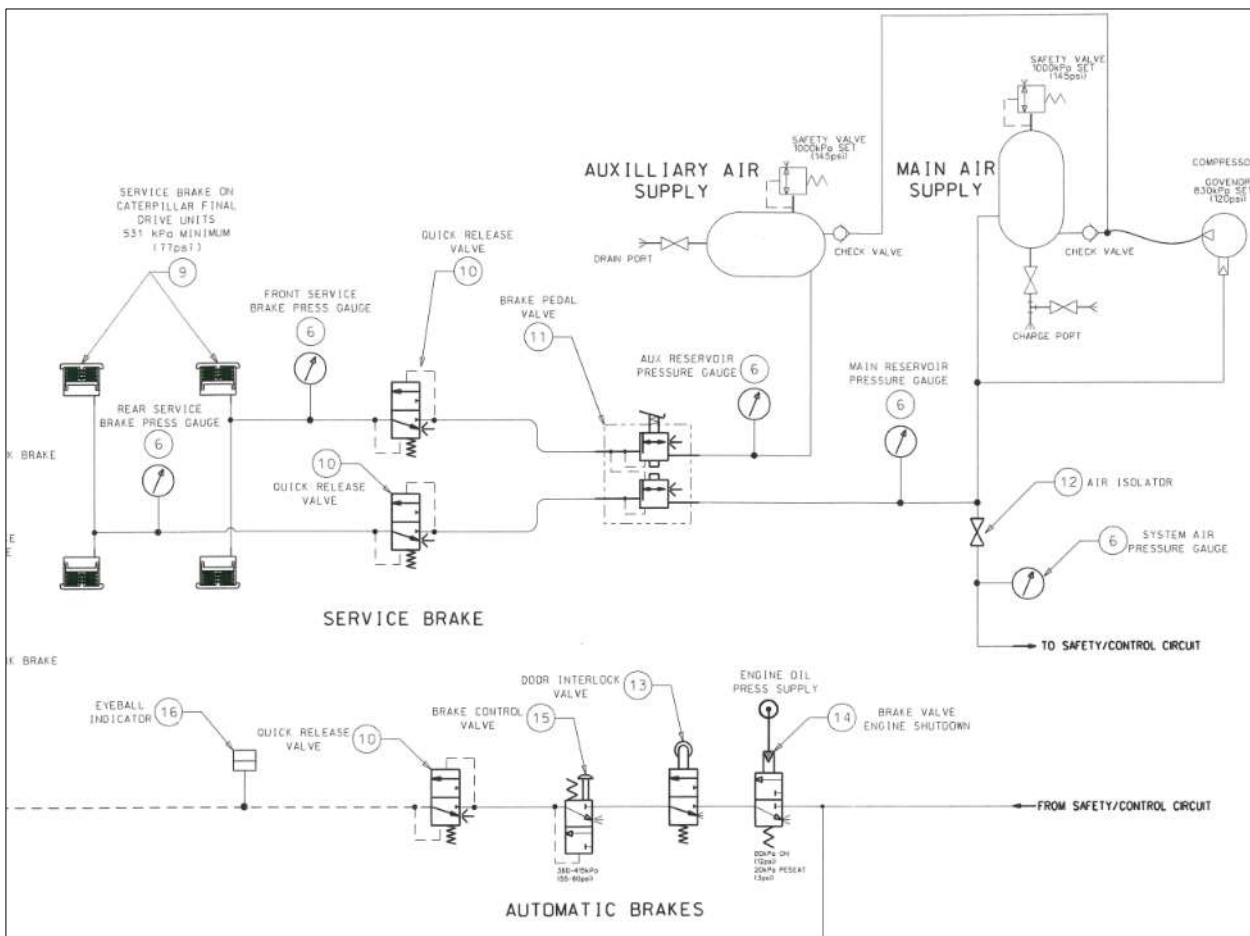


Figure 1 - Service and Automatic Brakes as per MDR 088446 TBS

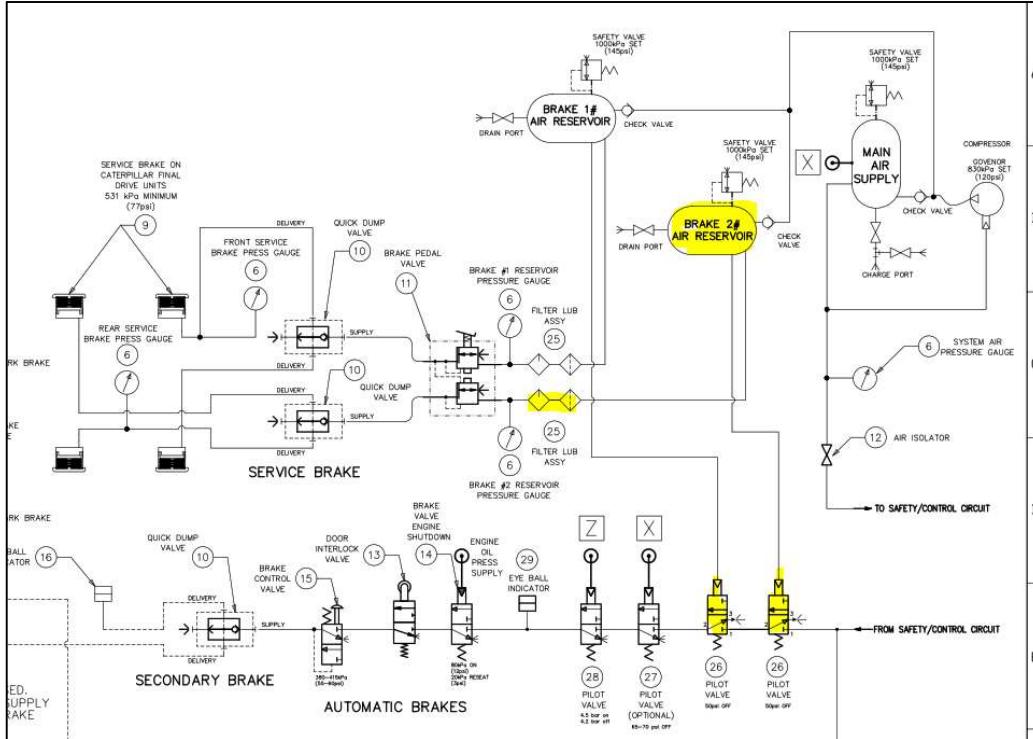


Figure 2 - Service and Automatic Brakes as per MDR 088446 TBS-1a

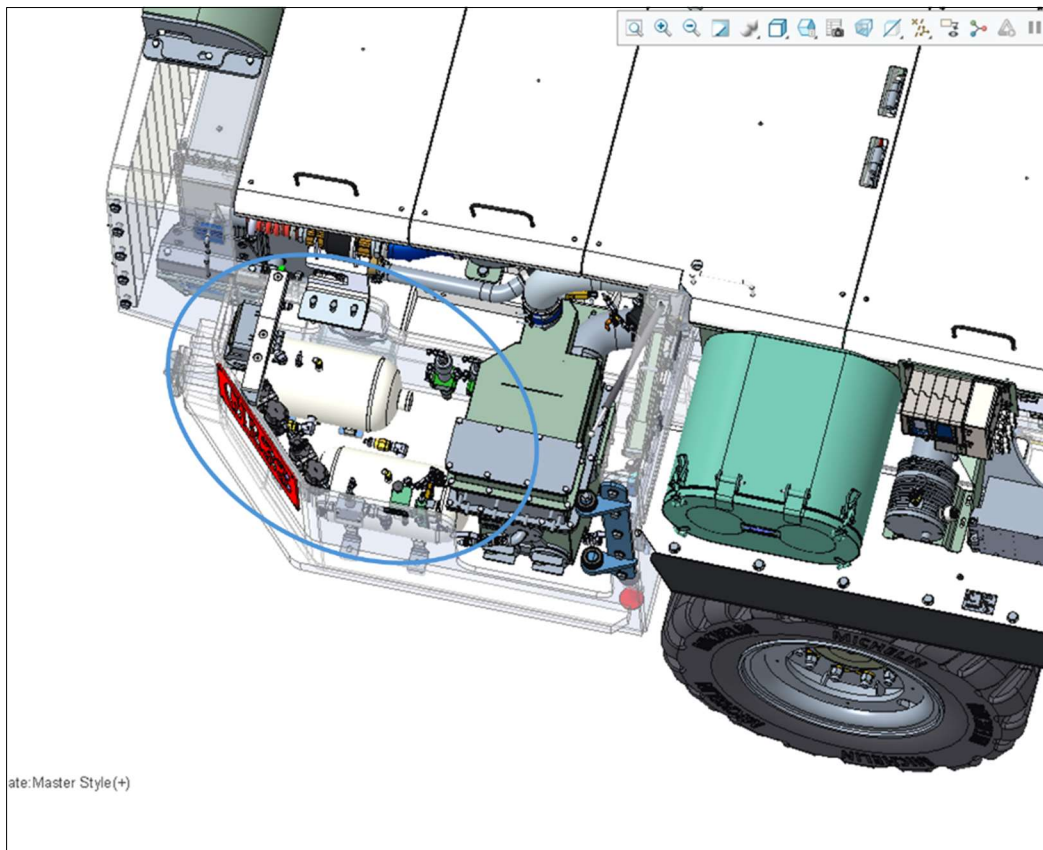


Figure 3 - Dual Brake Air Receiver Location

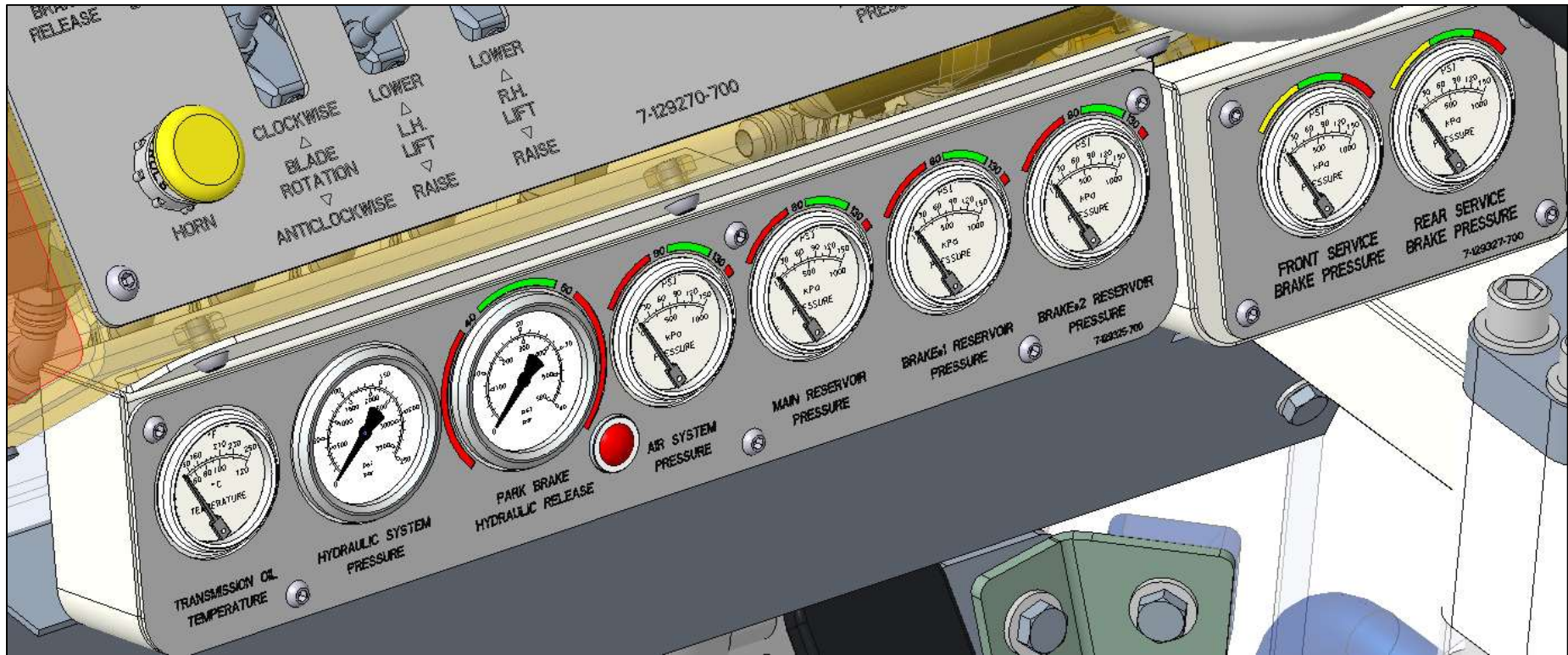


Figure 4 - Upgraded Gauge Panels

Pressure Monitoring – Park/Emergency Brakes

The park brake is an oil immersed multi disc design geared directly to the rear most axle in each tandem. Dragging emergency brakes due to insufficient release pressure can lead to Emergency brake wear and loss of effectiveness. The original braking system relied on the operator monitoring brake release pressure to detect brake drag. MDR 088446 TBS -1a introduces continuous hydraulic monitoring of the SAHR hydraulic release pressure. If the brake release pressure falls below 42 Bar, the Automatic brakes will apply and drive is disengaged.

An additional roto wink is provided to indicate when release pressure is above minimum requirements.

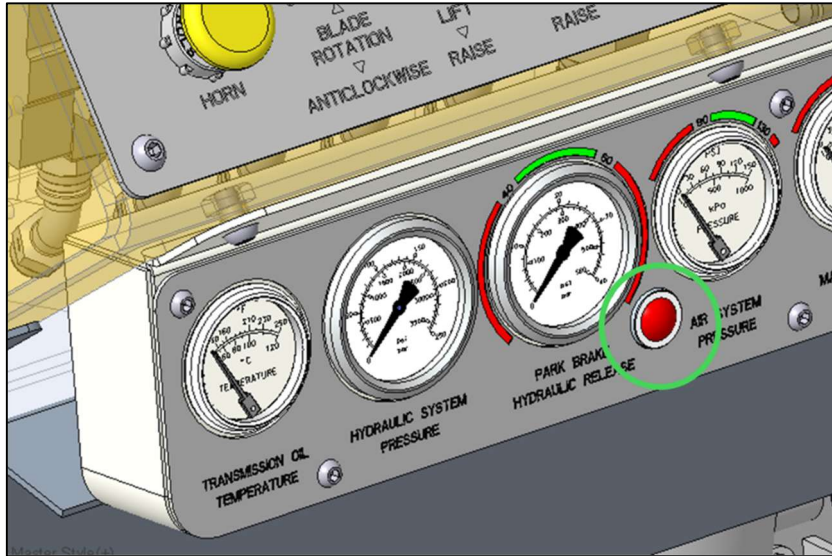


Figure 5 - Hydraulic Release Pressure Indicator

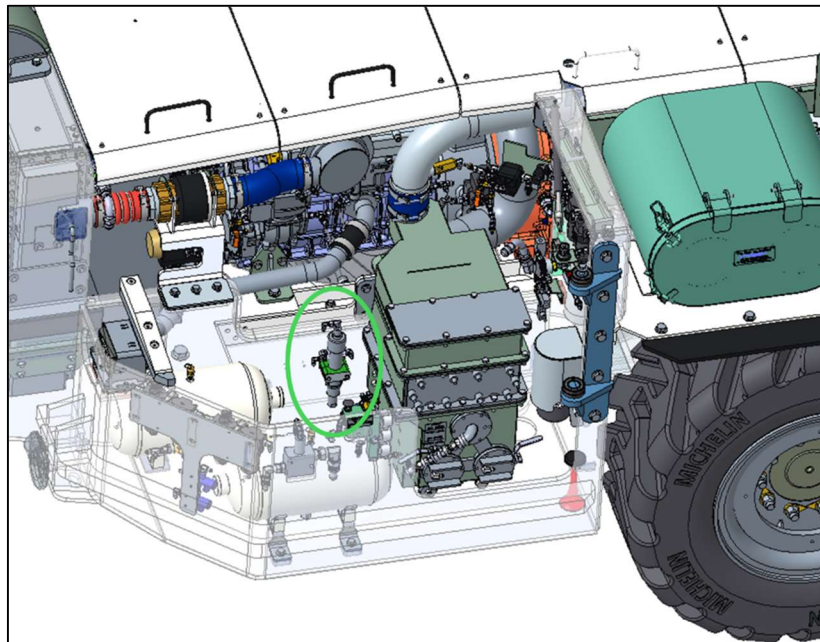


Figure 6 - Location of Release Pressure Monitoring Valve

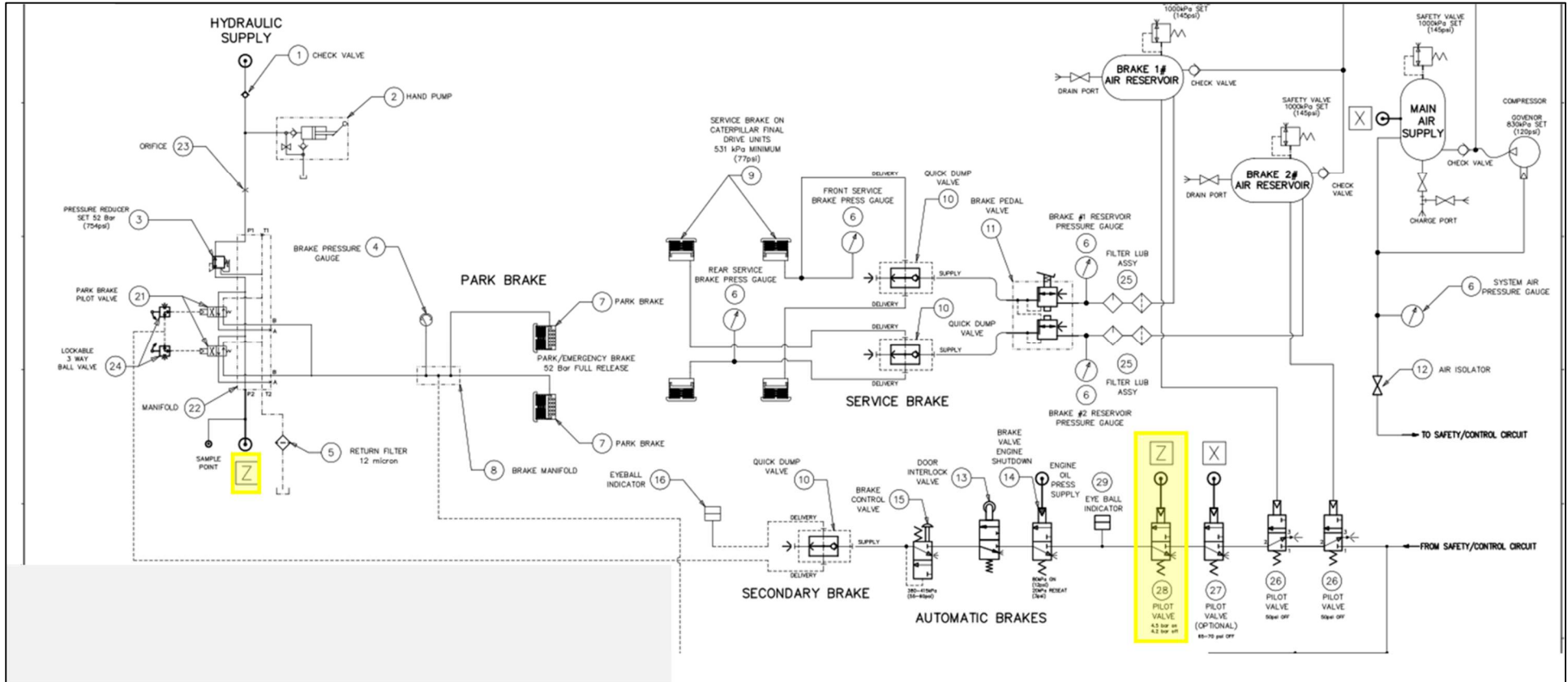
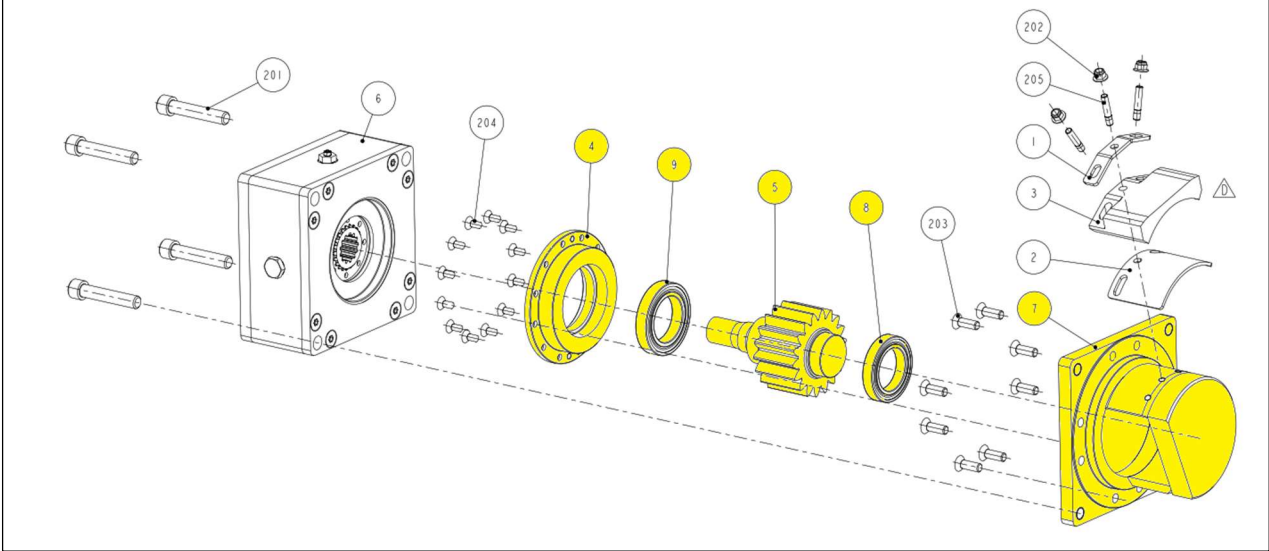


Figure 7 - Hydraulic Release Pressure Interlock with Automatic Brake as per MDR 088446 TBS-1

Park Brake Pinion Shaft Design improvement

As part of the upgrade to MDR 088446 TBS-1, the Park Brake pinion shaft design improvement is required. This improvement requires disassembly of the tandem beams and installation of the below components. It includes an updated chain guide as per items 1, 2 & 3.



The Park Brake pinion design improvement is detailed in Bulletin 36307 “**GRADER PARK BRAKE PINION SHAFT – DESIGN IMPROVEMENT**”

Recommendations:

- Upgrade machines installed with the original registered brake system with MDR 088446 TBS-1 or later. Contact Cougar Mining Equipment to make arrangements for this work.

Please distribute this bulletin to all relevant personnel

Cougar Mining Equipment Contacts in respect to this bulletin:

Technical Services General Manager
Operations Manager
Product Support Manager (QLD)
Spare Parts Manager
External Repairs and Overhauls Manager

Bill Davidson 0409 562 385
Garrad Latham 0407 272 296
Michael Ruhl 0428 561 237
Greg Davies 0422 025 295
John Wilkins 0448 221320