

24H Grader Over Speed Control System Project

BMA Goonyella Riverside Mine

The Problem or Initiative

Issues re the safety aspects and brake system failures of the grader over speed necessitated investigations which led to the conclusion that a modification needed to be implemented. The investigations found the brake system failure could be directly attributed to operator influence thus supporting the need to find a solution that would eliminate this aspect of the grader operating capacity. Two separate control units have been fitted to eliminate over speeds. One gives a visual and audible warning alerting the operator he is approaching the limit, whilst the other disengages the inching pedal which eliminates the overriding of the system giving a true operation condition.

The Solution

Due to the excessive brake system failures that were occurring there was a need to find the root cause. This identified there was a need to eliminate operator influence to assist the diagnostics. Kial Hansen (Supervisor - Mobile Maintenance) and Steve Burns (Supervisor – Mobile Maintenance Projects) undertook the initial investigations to discover the cause of the problem and then through consultation with Remote Control Technologies in Western Australia were able to come up with a solution that was not costly but very effective.

A risk assessment analysis was conducted to determine the associated risks with operating at higher speeds than the operating ranges recommendations.

Benefits/Effects

Installation of the over speed control system aligns with the safety value in the company charter by showing an overriding commitment to the health and safety of the operators. The project supported the value courage to lead change by identifying an issue and addressing it whereby there was a strong need for acceptance and re-education of the personnel and supervisors to ensure success. It showed the commitment of our people to drive towards being a high performance organisation.

Since the installation of the system, over speeds and brake failures have reduced. The availability of the equipment has increased as it is not out of service for maintenance thus cutting 'down time' in production.

Installation of unit costs \$10,000 whereas cost of brakes would be \$80,000 and engine damage in the region of \$150,000 so financial benefit of the system is substantial.

This system is simple to use as it doesn't impact the way in which the machine is operated. The operators of the machine need to be aware and understand how it works and what measures need to be put in place should the alarm be activated.

Team understanding of machine function and working with RCT in Western Australia to ensure a designed system to achieve results.

To instill confidence in the device and gain operator acceptance was a challenge as we were changing operating habits of the drivers. Supervisors were an integral part of coaching operators.

Maintenance of the unit and the testing regime and fostering an understanding of the operations was vital to the success of the project. Ensuring that the device was simple to operate was a step towards user acceptance.

Transferability

All operations that use Caterpillar 24H Graders could have the over speed control system installed. The system is able to be installed in a short time frame thus not interfering with operation. Goonyella Riverside Mine is currently in the process of sharing this design with other BMA sites.

