

SAFETY ALERT



FAILURE OF BRAKING SYSTEMS ON MOBILE EQUIPMENT

INCIDENT

The secondary braking system on mobile equipment has failed a number of times. This has led to unintentional movement. The secondary braking system includes the parking, emergency and automatic brakes.

CIRCUMSTANCES

Most failures happened when the engine was shut down and the operator had left the driver's compartment. The park, automatic or emergency brakes did not work.

INVESTIGATION

Failure of the secondary braking system is more likely on mobile equipment that relies on a 'single line component' to automatically apply the brakes, eg. 'spring return pilot operated valve'.

The 'pilot operated valve' controls all secondary braking functions. It works by releasing system pressure to apply the brakes. Failure of this valve may allow hydraulic pressure from a charged accumulator to release the park and emergency braking systems. As a result the mobile equipment may move unintentionally if parked on a slope.

Most pilot valves rely on a spring to move and hold the spool in the safe position. In the past, these types of valves have not worked due to failure of the spring, excess wear or seizure of the spool because of contamination and corrosion. The engine may or may not be running when failure occurs.

RECOMMENDATIONS

All mines and manufacturers should check if any of their mobile equipment could move unintentionally due to a 'single line component' failure.

For all machines where this may occur it is recommended that:

Mines should

1. Conduct a risk assessment to determine the appropriate action.
2. Ensure that routine inspections and tests of pilot valves take place.
3. Consider alterations to transport rules (eg include sequence for mobile equipment to be parked with wheels facing the rib or other equivalent barrier).

Manufacturers should

1. Advise mines of the mobile equipment on which this may potentially occur and also provide recommendations on how to deal with it.
2. Improve secondary brake system reliability.

Further information on brakes is available from MDG 39 (issued February 2001).

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