



Mines Safety Bulletin No. 142

Subject: Ratchet vehicle support stands

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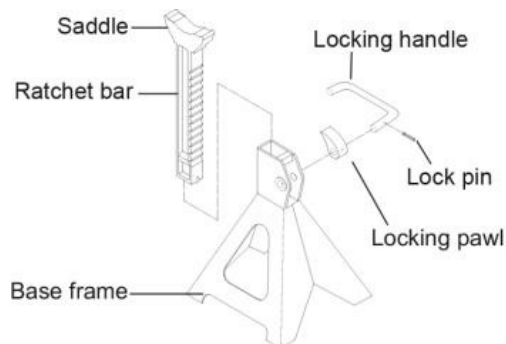
Background

The Department of Mines and Petroleum has observed a number of defective ratchet vehicle support stands during inspections at several mining operations.

This type of vehicle support stand is commonly used in workshops for a range of vehicle maintenance support tasks. These devices are very versatile as they are available in a range of sizes and associated mass limits. Ratchet support stands generally require minimal maintenance, have very few parts and are easily height adjustable.

A small but key element of the ratchet vehicle support stand is a lock pin (commonly a roll pin) that rigidly connects the locking pawl to the locking handle. The locking handle provides a downward force on the locking pawl when it engages with the ratchet bar during a height adjustment.

The lock pin can drop out, be damaged through shear forces or become distorted by crushing. If these problems occur the position of the locking handle may give a false impression that the locking pawl is engaged correctly in the ratchet bar.



Left. Configuration of a ratchet vehicle support stand. Right. Sheared lock pin located in the locking handle.

Summary of hazard

Incorrect handling or use of a ratchet vehicle support stand in a manner not intended by the manufacturer may lead to a damaged lock pin or defective components. This damage may result in the sudden failure of the stand to support a load and could lead to serious or fatal injuries for workers or those in the vicinity.

Contributory factors

The following can contribute to failure of the stand to support the load.

- Faults not being identified through a lack of understanding as to how the locking pawl, lock pin

and locking handle work in conjunction with each other.

- Damage or failure of the lock pin through:
 - inappropriate handling of the ratchet vehicle support stand
 - lifting or dragging the assembly by the locking handle
 - adjusting the height of the ratchet bar by manipulating the locking handle using a lever or impact.

Actions required

Principal employers and mine managers are reminded under the Mines Safety and Inspection Regulations 1995 that plant be maintained and operated in a safe manner [regulation 6.2] and that an employer has duties when plant is damaged or repaired [regulation 6.22].

Training

- Train and instruct workers in the inspection and correct use of ratchet vehicle support stands

Note: This includes identifying that the locking mechanism is fully engaged when a load is placed on the stand.

Use

- Check for any defects before using each vehicle support stand.
- Avoid shock loading or lowering stands when they are loaded.
- Mark each stand with its working load limit (in kilograms).
- Store vehicle support stands under cover in a dry location.

Inspection and maintenance

- Implement a scheduled inspection programme to verify:
 - that no modifications have been made to any part of the vehicle support stand
 - the frame and other parts are not distorted or cracked
 - there is no movement between the locking handle and the locking pawl
 - there is no corrosion or damage.
- Remove damaged vehicle support stands from service, investigate and resolve the reason for the damage.
- Maintain vehicle support stands and replace parts in accordance with the manufacturer's specifications.

Note: Some manufacturers do not advocate the use of lubricants on ratchet vehicle support stand components.

Further information

- Standards Australia, www.standards.org.au

AS 2538 Vehicle support stands

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