# MIN-3886 - Meeting with Ryman Healthcare - Cardan Shaft Brakes

2 June 2022

The Minister is attending a meeting with Andrew Crerar, Chief People and Safety Officer at Ryman Healthcare, and s 9(2)(a) to discuss their concerns with the safety of Cardan Shaft Brakes. Waka Kotahi NZ Transport Agency has been asked to provide information on the actions underway to address the Cardan Shaft Brake safety issue to support the meeting.

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**Waka Kotahi NZ Transport Agency response:**

- A new in-service testing regime for vehicles with Cardan Shaft Brakes is on track to be introduced on 1 October 2022. This new test will mean the park brake is tested using a Roller Brake Machine in place of the current stall test method. The new test is expected to be much more effective in identifying poorly performing brakes.
- A concerted education and awareness campaign is being developed to support this change in testing and ensure vehicle owners and wider industry are aware and prepared for the expected outcomes this change will generate. The campaign includes:
    - Material to educate vehicle inspectors on how to conduct the new test, including a training video.
    - Letters mailed directly to vehicle owners (approx. 60,000 different owners) to inform them of this change and provide further information on Cardan Shaft Brakes. This will include suggesting they have their brakes serviced regularly to ensure compliance and desired performance.
    - Material to support the service industry on how to service Cardan Shaft Brakes correctly. This includes a training video. Waka Kotahi expect that more vehicles will fail their Certificate of Fitness as a result of this new park brake test, therefore the service industry need to be prepared for an influx of service requests.
- In addition to the above, there will be notices in a range of industry publications to ensure people are aware of this in service testing change and provide access to more information on Cardan Shaft Brakes via the Waka Kotahi website at https://nzta.govt.nz/vehicles/choosing-the-right-vehicle/choosing-and-operating-a-heavy-vehicle/servicing/cardan-shaft-park-brakes .
- Chris Rodley, Manager Policy, Op Policy, Standards and Network will be attending the meeting on behalf of Waka Kotahi.

**Worksafe input:**

- WorkSafe are currently engaged with Ryman Healthcare as an Enforceable Undertaking (EU) was accepted from them in regard to the January 2018 fatal incident involving Graeme Rabbits in Lynfield.
- The enclosed *Driveshaft parking brake failures in commercial and industrial vehicles* was published by Worksafe in October 2019. Since the publication, the technical team has not actively worked on anything relating to the Cardan Shaft Park Brake System.
- Hayden Mander, National Manager: Investigations will be attending the meeting on behalf of Worksafe.

WORKSAFE
Mahi Haumaru Aotearoa

HSWA

TECHNICAL BULLETIN

October 2019

# Driveshaft parking brake failures in commercial and industrial vehicles

This technical bulletin is aimed at owners and operators of trucks and plant fitted with Cardan shaft parking brakes.

This bulletin has been developed in consultation with, and is endorsed by the Commercial Vehicle Safety Team of the New Zealand Police, and the New Zealand Transport Agency (NZTA).

## Background

WorkSafe New Zealand has recently investigated incidents of driveshaft parking brakes failing to keep vehicles stationary.

Driveshaft (also known as Cardan shaft) parking brakes are fitted as original equipment to some small, medium and heavy trucks. They are also fitted to other vehicles, including commercial and industrial vehicles, such as telehandlers.

Driveshaft parking brakes are available as either drum brakes or disc brakes and unlike wheel-mounted parking brakes, act on a single drum or disc attached to the drive shaft of the vehicle. (If you're unsure about your vehicle, ask your mechanic.)

Failures of this type of brake are usually attributed to design, poor maintenance, or misuse.

## Design-related failures

- Exceeding the capability of the parking brake by altering the loading of the parked vehicle after the parking brake was set (eg loading equipment onto the vehicle, emptying a truck-mounted tank, or operating truck-mounted equipment).
- Loss of traction or grip at one of the rear wheels while parked on a slope (eg one wheel set parked on grass or other loose surface and the other on a sealed surface). Because the brake acts on the driveshaft, the vehicle's differential still may allow one wheel to rotate freely.

## Use and maintenance-related failures

- User failing to fully engage the parking brake (the hand lever may require around 60 kg of force when vehicle is fully laden).
- Brake failure due to wear or misalignment of the brake mechanism, cable stretch etc.
- Oil leaking onto the parking brake (eg a leaking engine or transmission seal).
- Premature wear of the friction material (eg by driving the vehicle without fully disengaging the parking brake).
- Damaging the parking brake (eg engaging the parking brake while the vehicle is still moving).

## Controls

If this type of brake is correctly maintained and adjusted, and its limitations are understood by the operator, it can be effective. **However if its limitations are not understood, it is used or maintained incorrectly, or it's damaged, it can become ineffective**.



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It is especially important in situations where the vehicle is parked on a slope and the load is being altered that the parking brake not be solely relied upon. Use wheel chocks as an additional precaution. Wheel chocks should be chosen to ensure their size and design will keep the vehicle stationary on the steepest slope on which the vehicle is required to be parked.

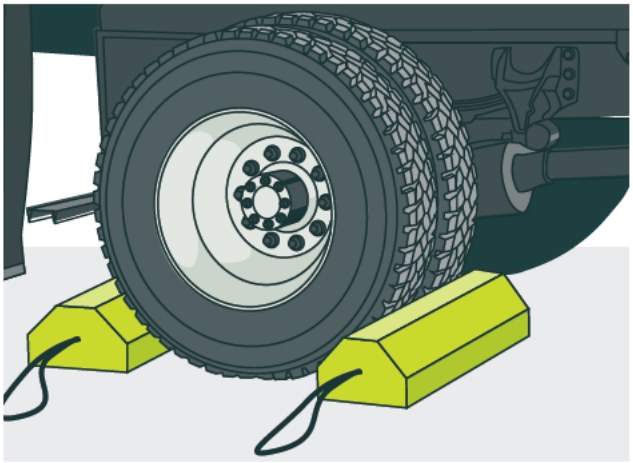


**FIGURE 1:** Wheel chock

A wheel chock should be approximately 25% of the diameter of your vehicle tyre and fit snugly into the tyre (eg a 600 mm diameter tyre would require a 150 mm high wheel chock).

Operators of vehicles must:

- Identify all vehicles fitted with a driveshaft parking brake system and ensure there is a maintenance system in place to ensure the vehicles and brakes are regularly and effectively cleaned, inspected, and serviced. This should also include ensuring the operating mechanism is adjusted correctly, and that lever travel and cable stretch is accounted for.
- Ensure that all drivers are trained in and understand the limitations of driveshaft parking brakes and what they need to do to prevent damage to the brake and roll-aways, including when wheel chocks must be used.
- Ensure users are physically capable of engaging the brake fully.
- Keep personnel out of the vicinity or potential path of vehicles where a parking brake is being relied upon to hold a vehicle on a slope.

**Operators should not assume that a current Certificate of Fitness (CoF) ensures the brake will be fully operational in all circumstances.**

## Further information

Our website has further guidance on overlapping duties, risk management, and major hazard facilities: worksafe.govt.nz