

OIA request

The request is from [Phil Pennington – RNZ Reporter] for:

- **Any communications** – other than strictly administrative ones such as organising meetings – since **start of 2019** till the response date of this OIA, **between WS and any other govt agency, including NZTA and Worksafe**, about what to do about the documented **failures since 2010 of driveshaft parking brakes on trucks**, including but not limited to Sanwa Seiki brakes, that have led to fatalities, crashes and injuries
- As part of the above, pls include as a subset any communications where **WS receives or makes recommendations/suggestions or similar about what to do**

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Records of communications between NZTA and WS since January 2019

(A) Communications regarding the 2019 update of the technical bulletin [Driveshaft parking brake failures in commercial and industrial vehicles | WorkSafe](#)

From: Dave Schumacher [<mailto:Dave.Schumacher@nzta.govt.nz>]
Sent: Thursday, 22 August 2019 4:44 p.m.
To: Mark Walker <Mark.Walker2@worksafe.govt.nz>
Cc: Stuart Wright <Stuart.Wright@worksafe.govt.nz>; Danielle Henry <Danielle.Henry@worksafe.govt.nz>
Subject: RE: Parking brake review

Thanks Mark,

And as we discussed previously, on the WorkSafe [bulletin](#), to further inform and educate the public, our recommendation would be to update the wording based on our findings—something along the lines of this:

Use and maintenance-related failures

- Parking without fully engaging the parking brake (hand lever may require around 60 kg of force when vehicle is fully laden).
- Parking brake (eg brake mechanism, cable stretch, or lever, etc.) out of adjustment or excessively worn.
- 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).

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, including the lever travel and cable stretch is accounted for.
- Ensure that all drivers of vehicles are trained in and understand the limitations of driveshaft parking brakes, are physically capable of fully engaging them, and what they need to do to prevent damage to the brake and the situations where wheel chocks must be used.

Please let me know if you have any other questions or comments.

Cheers,
Dave

Dave Schumacher
Principal Engineer – Vehicle Standards
s 9(2)(a)
dave.schumacher@nzta.govt.nz

From: Sophie Thompson <Sophie.Thompson@worksafe.govt.nz>
Sent: Wednesday, 11 September 2019 9:43 AM
To: Dave Schumacher <Dave.Schumacher@nzta.govt.nz>; Mark Walker <Mark.Walker2@worksafe.govt.nz>
Subject: Slightly edited new wording!

Good morning gentlemen

I've made a couple of small changes to Dave's proposed additions to the Driveshaft Brake Bulletin, just to keep it in line with WorkSafe style. IF one or both of you can confirm with me that I've not lost the intent of the changes with my editing, and that you're happy with it, I'll get it done.

Many thanks
Sophie

PROPOSED NEW WORDING

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).

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- Ensure that all drivers of vehicles are trained in and understand the limitations of driveshaft parking brakes and what they need to do to prevent damage to the brake, including when wheel chocks must be used.
- Ensure users are physically capable of fully engaging the brake fully.

Ngā mihi

Sophie Thompson

Senior Advisor
Guidance and Education Development

From: Mark Walker <Mark.Walker2@worksafe.govt.nz>
Sent: Wednesday, September 11, 2019 9:46 AM
To: Sophie Thompson <Sophie.Thompson@worksafe.govt.nz>; Dave.Schumacher@nzta.govt.nz
<Dave.Schumacher@nzta.govt.nz>
Cc: Robert Birse <Robert.Birse@worksafe.govt.nz>
Subject: RE: Slightly edited new wording! [UNCLASSIFIED]

I'm 100% happy with that on behalf of technical Sophie. Thanks.

Ngā mihi,

Mark Walker
Technical Specialist – Engineering
Engineering, Plant & Equipment
Technical Services

From: Dave Schumacher [<mailto:Dave.Schumacher@nzta.govt.nz>]
Sent: Wednesday, 11 September 2019 10:05 a.m.
To: Sophie Thompson <Sophie.Thompson@worksafe.govt.nz>; Mark Walker <Mark.Walker2@worksafe.govt.nz>
Subject: RE: Slightly edited new wording!

Hi Sophie,

Thanks for sending that through. I have two small comments (in line below); first I'd suggest either removing the part about damaging the brake or add it to a new bullet point; and second, the word fully is in the last sentence twice.

Next, our team is also working to mandate an 'Operator statement of compliance with the maintenance requirements for parking brake assemblies.' The title is a bit of a mouthful but it would address your sentence 'This should also include ensuring the operating mechanism is adjusted correctly, and that lever travel and cable stretch is accounted for.' Our document (draft still) isn't going to be **required** until a vehicle reaches 10 years of age, but it may be something worth referencing somehow, as there's no reason it can't be used for newer vehicles also.

Please let me know if you have any questions or comments on my feedback.

Cheers,
Dave

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).
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- Ensure users are physically capable of fully engaging the brake fully.

Dave Schumacher
Principal Engineer – Vehicle Standards
S 9(2)(a)
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Operator SoC with
maintenance require

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From: Sophie Thompson <Sophie.Thompson@worksafe.govt.nz>

Sent: Wednesday, September 11, 2019 10:22

To: Dave Schumacher

Subject: RE: Slightly edited new wording!

Awesdome, I can get those changes made, thanks!

To clarify, your document will require maintenance after 10 years of age? When is this likely to come into force? Does it apply to all vehicles? How will it be publicised?

Just lots of questions that immediately occur to me as I try to figure out how we can connect/should separate our respective work!

Ta

Sophie

From: Dave Schumacher <Dave.Schumacher@nzta.govt.nz>

Sent: Wednesday, September 11, 2019 11:10 AM

To: Sophie Thompson <Sophie.Thompson@worksafe.govt.nz>

Subject: Re: Slightly edited new wording!

Hi Sophie,

All very good questions and ones we're working through as well! Perhaps best to leave it out for now and if need be, update your document in a few months?

Cheers,

Dave

Dave Schumacher

Principal Engineer – Vehicle Standards

From: Sophie Thompson

Sent: Wednesday, September 11, 2019 11:12 AM

To: Dave Schumacher <Dave.Schumacher@nzta.govt.nz>

Subject: RE: Slightly edited new wording!

I think that's probably for the best. I know there are questions being asked at different levels and in different areas of both WorkSafe and NZTA about how and when we should collaborate, and it's all a bit above my pay grade, so let's just get this one piece done and wait a bit. 😊

From: Mark Walker <Mark.Walker2@worksafe.govt.nz>
Sent: Thursday, September 26, 2019 7:50:13 AM
To: Dave Schumacher <Dave.Schumacher@nzta.govt.nz>
Subject: New Bulletin - DRAFT

Hi Dave,

This is final version which I'm hoping to get issued this week. Any final thoughts?

Cheers,
Mark

Ngā mihi,

Mark Walker
Technical Specialist – Engineering
Engineering, Plant & Equipment
Technical Services

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WSNZ_3122
Driveshaft Parking B

From: Dave Schumacher [<mailto:Dave.Schumacher@nzta.govt.nz>]
Sent: Thursday, 26 September 2019 8:15 a.m.
To: Mark Walker <Mark.Walker2@worksafe.govt.nz>
Subject: Re: New Bulletin - DRAFT

Hi Mark,

Thanks for sharing that. I have one small comment about a paragraph on training users. I think what we really want to say, first and foremost is that drivers need to be trained to prevent roll aways (deaths, injuries, property damage, etc) and secondary is preventing damage to the brake itself.

What do you reckon about something like this:

Ensure that all drivers of vehicles are trained in and understand the limitations of driveshaft parking brakes and what they need to do to prevent [roll aways], including when wheel chocks must be used; or damage to the brake.

Cheers,
Dave

Dave Schumacher

Principal Engineer – Vehicle Standards

s 9(2)(a)

dave.schumacher@nzta.govt.nz

September 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.**

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.

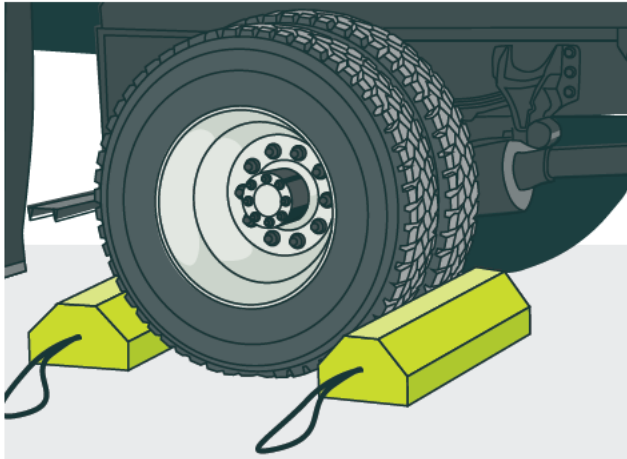


FIGURE 1:
Wheel chock

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 of vehicles are trained in and understand the limitations of driveshaft parking brakes and what they need to do to prevent damage to the brake, 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

(B) Communications regarding the NZTA parking brake review

From: Dave Schumacher [<mailto:Dave.Schumacher@nzta.govt.nz>]

Sent: Thursday, 22 August 2019 3:23 p.m.

To: Hayden Mander <Hayden.Mander@worksafe.govt.nz>

Cc: Mark Walker <Mark.Walker2@worksafe.govt.nz>

Subject: Parking brake review

Hi Hayden,

I hope you're doing well. We've just finalised a report summarising our recent review of parking brakes (including Cardan shaft parking brakes). s 9(2)(a) has requested a copy and we would like to ensure that releasing it will not "prejudice the maintenance of the law, including the prevention, investigation, and detection of offences, and the right to a fair trial."

Could you please review the attached document and let me know if you have any concerns about us releasing it? I hate putting pressure on you, but s 9(2)(a) has been quite insistent on getting a copy of it so we'd very much appreciate a thorough yet timely review. Please let me know if you'll need a copy of the test reports in making your decision.

Thanks in advance and please feel free to contact me with any questions or comments.

Cheers,
Dave

Dave Schumacher
Principal Engineer – Vehicle Standards
s 9(2)(a)
dave.schumacher@nzta.govt.nz



parking brake
review 21 August 20

From: Mark Walker <Mark.Walker2@worksafe.govt.nz>

Sent: Thursday, 22 August 2019 3:31 PM

To: Dave Schumacher <Dave.Schumacher@nzta.govt.nz>

Cc: Danielle Henry <Danielle.Henry@worksafe.govt.nz>; Stuart Wright <Stuart.Wright@worksafe.govt.nz>

Subject: RE: Parking brake review

Hi Dave,

Thanks for the report.

I've just found out that Hayden is on leave. I've spoken to Danielle Henry who is covering his role and she'll take a look at the report (I'll forward it shortly) and provide feedback in his absence.

Ngā mihi,

Mark Walker
Technical Specialist – Engineering
Engineering, Plant & Equipment
Technical Services

WorkSafe New Zealand

To Michael Aitken – Senior Manager, Operational Policy, Planning & Intelligence

Cc Brian Sara, Robyn Fisher

From Dave Schumacher - Principal Engineer, Vehicle Standards

Date 21 August 2019

Subject Review of Truck Parking Brake Performance & Requirements

Purpose

1. To provide an update on Transport Agency-led reviews of the performance requirements and testing of truck parking brakes, and our planned response based on the findings. While references are made to testing and a report from 2018, this update primarily focuses on the July 2019 testing.

Executive Summary

2. Following two recent fatalities that involved vehicles rolling away after the parking brake had been applied, the Agency conducted two reviews of truck parking brake performance. The reviews included vehicles with Cardan shaft parking brakes and wheel-mounted parking brakes and tested them according to current in-service inspection requirements and on an 18% slope (a requirement of the Heavy Vehicle Brakes Rule).
3. An expectation of the reviews was to understand if the Agency has been taking the correct approach with regards to in-service inspection and testing of parking brakes. Not included in the scope of the reviews is whether specific types of parking brakes are fit for purpose for all of the uses to which their operators may subject them.
4. All vehicles that were presented in both a well-maintained condition and CoF compliant passed the tests on the first attempt. The one vehicle in the July 2019 testing that didn't pass on the first attempt appeared to have been well-maintained but required the replacement of its parking brake cable and once replaced, passed the tests.
5. The Agency is satisfied that vehicles that are both in a well-maintained condition and within safe tolerance of their state of manufacture comply with the requirements of NZ land transport legislation.
6. Notwithstanding, the review identified two key issues specific to cable-actuated parking brakes:
 - a. With a required effort of up to 61 kgf on a hand lever, the force to fully engage cable-actuated, Cardan shaft parking brakes on vehicles in their fully-laden states when parked on an 18% slope may be greater than an uninitiated driver would expect.
 - b. The in-service requirements for cable-actuated, Cardan shaft parking brakes could be improved with a specific requirement to identify a parking brake cable stretched beyond safe tolerance of its state of manufacture.
7. Based on the work to date, I recommend the Agency take the following measures:
 - a. To raise public awareness, the Agency design and distribute an adhesive label to be placed in a conspicuous position in the cab of vehicles equipped with Cardan shaft parking brakes. The label will advise the driver that the vehicle is fitted with a Cardan shaft parking brake and will warn of the following:
 - i. The need to apply the parking brake with enough force (up to 61 kgf) to hold the vehicle at its laden weight.

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- ii. The need to place chocks on the downhill side of wheels to prevent roll-away in certain situations (following advice from WorkSafe).
- b. The Agency doesn't have the authority to mandate the label's presence in a vehicle, but I will propose including it in an Omnibus Amendment to the Heavy Vehicle Brakes Rule for consideration.
- c. Because it's possible for a vehicle to pass an in-service inspection with a stretched parking brake cable, the in-service inspection requirements will be reviewed and updated to ensure vehicles with excessive cable stretch don't pass inspections. The Agency will investigate options, which may include a requirement to have an independent third-party inspection or inspectors using new equipment, such as handheld force gauges to measure hand lever effort.
- d. The Agency will work with the Motor Industry Association (MIA) and Vehicle Importers Association (VIA) with the aim that they work to ensure their members are informing purchasers of the need to use sufficient force and of the known limitations of Cardan shaft parking brakes.
- e. The Agency will review advice to operators of vehicles regarding the need to maintain their brakes in a well-maintained condition and in safe tolerance of their state of manufacture, with a specific focus on identifying and replacing stretched cables.

Background

8. Recently two vehicles equipped with driveshaft parking brakes (commonly referred to as Cardan shaft parking brakes) have been involved in fatal crashes. One fatality occurred in Queenstown in April 2017 involving an Isuzu liquid vacuum truck and the most recent fatality occurred in Auckland in January 2018 involving an off-road JCB 'mobile machine' working on a Ryman construction site.
9. The fatality in 2017 resulted in a 2018 Coroner's Findings including a recommendation that a "review of the requirements and testing of parking brakes is required" and that "a recommendation in relation to those issues may also raise public awareness of the safety issues." The Coroner clarified that the recommended review applies to all parking brakes, not limited to Cardan shaft parking brakes.
10. The fatality in 2018 resulted in the Agency commissioning an independent organisation (Tohora Enterprises) to review the performance of Cardan shaft parking brakes, with the father of the man fatally injured assisting. This testing, which didn't identify specific safety concerns, was summarised in a report finalised in April 2019.
11. The testing method used in the 2018 tests was not sufficiently robust as it used an increased slope beyond 18% as a substitute for testing at laden weight and only tested Cardan shaft parking brakes. Subsequently, the Agency commissioned another independent organisation (Transport Specifications Limited 'TSL') to conduct a second review in July 2019. The second review included Cardan shaft parking brakes and wheel-mounted parking brakes (as a baseline) and tested at both unladen and laden conditions.

Overview of Parking Brakes

12. Parking brakes use force to keep surfaces in frictional contact with each other to hold a vehicle stationary. There are two main types of parking brakes used on heavy vehicles; wheel-mounted and Cardan shaft-mounted. The activation is mechanical, either through a heavy-duty spring or through a lever that acts through a cable or rod.
13. Except for completely sealed units (which is rare for road-going vehicles), parking brakes are susceptible to contamination that can degrade their performance. If a high-friction surface is compromised, such as through contamination with oil, water, etc., the parking brake's ability to hold a vehicle stationary will also be compromised.

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14. Braking systems in general require regular adjustment and maintenance. Parking brakes that use friction surfaces shared with service brakes, such as the case with wheel-mounted brakes, require adjustment and will not function effectively if the service brakes are not within adjustment.
15. In addition to adjustment to the friction surfaces, cable-actuated parking brakes require manual adjustment to take up any slack where the cable has stretched over time. Most Cardan shaft parking brakes are cable-actuated.
16. An advantage of Cardan shaft parking brakes is that the friction surfaces aren't intended to be used while the vehicle is in motion so while the cable must be adjusted, the friction surfaces are far less likely to come out of adjustment through normal use.
17. The braking force required to hold a vehicle stationary on a slope is proportional to the vehicle's weight. As the vehicle's load increases, so does the required braking force.
18. Cable-actuated parking brakes require input from the driver in all circumstances. If not engaged with enough force, proportional to the vehicle's load, they won't hold a vehicle stationary.
19. A significant advantage of spring-operated, wheel-mounted parking brakes is that they don't require a significant amount of activation effort. Air-braked vehicles use compressed air to hold a spring from applying the brake but as soon as the operator releases the control valve, air is released, and the spring fully engages the parking brake. Spring-operated parking brakes are 'digital' in that they're either on or off and don't require the operator to determine how much force to apply.

Considerations	Wheel-mounted	Cardan shaft
User effort	Minimal (~ 8 kgf)	Up to 61 kgf via hand lever
Adjustment	Service brake friction surfaces	Cable & friction surfaces
Wear	Equal to service brake wear	Minimal
Reliance on maintenance of service brake	Fully reliant	Independent

Known Limitations of Cardan Shaft Parking Brakes

20. Most vehicles incorporate a differential on their driven wheels that allows them to turn at different speeds so that the vehicle can negotiate a corner without causing the tyre on the inside of the turn to bind or hop. A downside of an *open* (not locked or limited-slip) differential is that if a vehicle is positioned with one tyre on a slippery surface and the other on a 'normal' surface, the maximum power that can be applied to the tyre on the 'normal' surface can only be as much as the maximum power that can be applied to the slipping tyre. Thus, the most slippery surface (not the engine's power) dictates the total possible power that can be applied and when the total possible power is too low, one wheel will slip and the vehicle cannot drive away.
21. In very much the same way that engine power transfers through a differential, vehicles with Cardan shaft parking brakes transfer braking through a differential. If a vehicle is parked with one tyre on a slippery surface and the other on a 'normal' surface, the maximum braking that can be applied to the tyre on the 'normal' surface can only be as much as the maximum braking that can be applied through the slipping tyre. Thus, the most slippery surface (not the brake's capability) dictates the total possible braking that can be applied and when the total possible braking is too low, a parked vehicle cannot stay stationary.
22. In situations where one tyre can slide or slip (or when one is elevated, such as is the case when changing a tyre), a Cardan shaft parking brake may not be able to hold the vehicle stationary if the vehicle has an open differential. A WorkSafe technical bulletin¹ requires operators to ensure all drivers are trained in the limitations of Cardan shaft parking brakes and when chocks must be used.

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Legislation

23. New Zealand's land transport legislationⁱⁱ requires most imported vehicles entering service to meet an approved international safety standard for their brakes. Once in service, these vehicles are required to demonstrate continued compliance with the approved standard, which is demonstrated through in service inspection (WoF/CoF).
24. The Heavy Vehicle Brakes Rule requires vehicles to be fitted with three types of brakesⁱⁱⁱ; a service brake, an emergency brake, and a parking brake. In respect of the limitations specific to Cardan shaft parking brakes, the general safety requirements for brakes are based on a hard, dry surface that is free of loose material, and that is level^{iv} except when the parking brake is applied on a slope. There is no requirement that braking performance be met on surfaces that are soft, wet, or where loose material is present. The legislation recognises there are external factors that shouldn't be taken as defining the braking performance of a vehicle.
25. The requirement for a parking brake is that it must, at any load condition up to the gross vehicle mass or gross combination mass, as applicable, be capable of stopping the vehicle within a distance of 18 m from a speed of 30 km/h or holding the vehicle stationary on a slope of 18% whether facing uphill or downhill^v.
26. The approved international standards mandate the effort to engage a parking brake be no greater than approximately 61 kgf for hand-operated and 71 kgf for foot-operated controls.^{vi}

In-service testing of parking brakes (CoF)

27. In-service testing of vehicles' parking brakes is performed by Agency-appointed vehicle inspectors according to the *Heavy vehicle brake testing: CoF and entry certification brake test protocol and procedure*^{vii}. Wheel-mounted parking brakes are tested on roller brake machines in a manner similar to testing their service brakes, loaded to a minimum of 60% of their maximum legal weight.
28. Vehicles with Cardan shaft parking brakes are tested using a 'stall test' (in an intermediate gear, an attempt is made to move the vehicle forward taking care not to overload the transmission) as a proxy for the requirements of the Heavy Vehicle Brakes Rule for two reasons. Firstly, engaging a Cardan shaft parking brake while a vehicle is in motion carries a high risk of damage to the brake or other driveline components. Secondly, testing stations don't have ramps with an 18% slope on which they could test vehicles. The *Heavy vehicle brake testing: CoF and entry certification brake test protocol and procedure* states that if there's doubt, the Cardan shaft parking brake should be tested on a slope.

Tohora Review

29. In July 2018, Tohora Enterprises was commissioned by the Agency to conduct testing of vehicles equipped with Cardan shaft parking brakes. The scope of the testing was determined by Tohora and the father of the man in the January 2018 fatality and was signed off by senior management. The testing was intended to be similar to international standards and was meant to be performed with vehicles at both their unladen and laden states.
30. The Tohora testing included six trucks as well as the JCB mobile machine involved in the 2018 fatality. The six trucks had been certified for entry into, and operation in service whereas the JCB, being a mobile machine, is excepted from many requirements of land transport legislation. Of the six trucks tested, one was found to be CoF non-compliant because it couldn't pass a stall test. Its results were included as a record but not considered.
31. Almost all vehicles were tested unladen only and instead of testing in laden states, an unsuccessful attempt was made to use increased slope as a proxy for increased weight. The report from Tohora made the following conclusions:
 - a. The stall test seems compatible with the slope test specified in the standards the vehicles are complied to and the requirements of Land Transport Rule: Heavy-vehicle Brakes 2006, when vehicles are presented unladen.

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- b. Mechanical parking brakes, including Cardan Shaft brakes, require force by the driver to apply. This force increases as the brake is applied and resistance is encountered. With the test vehicles this required force went past the normal capability of the driver to apply with one hand.
 - c. Where the test vehicle passed the stall test it also passed the static test both uphill and downhill although it must be noted that in some cases greater than normal force was required.
 - d. No reasonable testing at CoF, including the compliance testing carried out by OEM to achieve standards compliance, can replicate the real world situations, such as parking on a slope and being loaded/unloaded or being parked on a slope with the wheels of the parking braked axle being on different surfaces leading to loss of adhesion of one wheel and slippage of the others, known limitations of Cardan Shaft braking systems.
32. Notwithstanding the shortcomings of testing by Tohora, it was the Agency's view that none of the testing performed nor conclusions made in the report indicated that vehicles equipped with Cardan shaft parking brakes present a risk to safety when used within their operating and certification limits. However, the Agency wasn't completely satisfied that only testing unladen vehicles had satisfactorily addressed the question.

Methodology of July 2019 Review

33. Following the Tohora review, the Agency commissioned Transport Specifications Limited 'TSL' to conduct a second review in July 2019. The second review included Cardan shaft parking brakes and wheel-mounted parking brakes (as a baseline) and tested at both unladen and laden conditions.
34. The aim of the testing was to reflect testing required under approved international standards as well as the requirements of the Heavy Vehicle Brakes Rule. A 'Pass' meant that the vehicle held stationary for 5 minutes when the parking brake was engaged within the maximum amount of force permitted in the approved international standards. A 'Fail' meant one of two scenarios; that the vehicle failed to hold stationary for 5 minutes, or that the force to engage the parking brake exceeded what is permitted in the approved international standards.
35. TSL conducted parking brake testing on three vehicles equipped with cable-actuated, Cardan shaft parking brakes and three vehicles equipped with spring-operated, wheel-mounted parking brakes. The vehicles tested had GVWs ranging between 10,000 kg and 15,000 kg, included flat-deck trucks, curtain-side trucks, and a flat deck truck equipped with a crane. These trucks are representative of medium duty trucks in use in NZ. In general, the lower end of the GVM range utilises both types of parking brakes whereas trucks with higher GVWs almost exclusively utilise spring-operated, wheel-mounted parking brakes.
36. The testing followed 'pre-CoF' vehicle condition assessments performed by VTNZ. These tests are intended to be equivalent to a CoF and alert vehicle operators to any potential issues prior to the actual CoF. As part of the testing, typical in-service brake testing was performed.
37. Testing was carried out on roads with slopes as close as practical to 18%. Trucks were tested unladen and laden ($\geq 90\%$ GVM) and oriented to face uphill and downhill—4 scenarios per truck.

Results of July 2019 Review

38. For vehicles with spring-operated, wheel-mounted parking brakes, all properly-adjusted, well-maintained vehicles passed the in-service testing and in-field testing. For these vehicles, the in-service testing is equivalent to the requirements of the Heavy Vehicle Brakes Rule.
39. Of the vehicles equipped with cable-actuated, Cardan shaft parking brakes, all properly-adjusted, well-maintained vehicles passed the in-service testing (stall testing) and in-field testing. For these vehicles, the in-service testing is equivalent to the requirements of the Heavy Vehicle Brakes Rule.

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40. However, one vehicle, a 1995 Isuzu flat deck with a crane, passed in an unladen state but failed to hold in a laden state. The maximum amount of force could not be applied to the lever because its lever ran out of travel. An inspection of the vehicle found its parking brake was adjusted to within manufacturer's specifications but the cable was adjusted to its limit. The cable had stretched over time such that no further adjustment was possible. The result was that the in-cab lever couldn't generate enough travel to exert sufficient force on the parking brake's drum. The owner of the third vehicle replaced and adjusted the cable and testing was re-visited on 11-July. With a new cable installed, the third vehicle passed the tests without issue.
41. The three vehicles with cable-actuated, Cardan shaft parking brakes required on average 27 kgf unladen and 40 kgf laden be applied to the hand lever to hold the vehicles stationary on the 18% slope. In all cases the force was within the limits (61 kgf) of approved international standards. The test data for vehicles equipped with cable-actuated, Cardan shaft parking brakes is shown in table 1. The full data is included in Annex 1.

Make	Isuzu	Mitsubishi	Isuzu
Model	Forward	Fighter	Forward
Configuration	Curtain Side	Flat deck	Flat deck w/crane
GVM (kg)	12,600	10,000	15,000
Unladen Test			
Mass as tested (kg)	5,855	4,225	7,025
Hand lever force (kgf)	Forward	25.1	20.2
	Rearward	33.6	24.9
Average lever force (kgf)	28.6	29.4	22.6
Laden Test			
Mass as tested (kg)	11,545	9,120	13,515
Hand lever force (kgf)	Forward	25.2	51.7*
	Rearward	53.7	49.1*
Average lever force (kgf)	29.4	39.4	50.4*

*data is post repair to cable

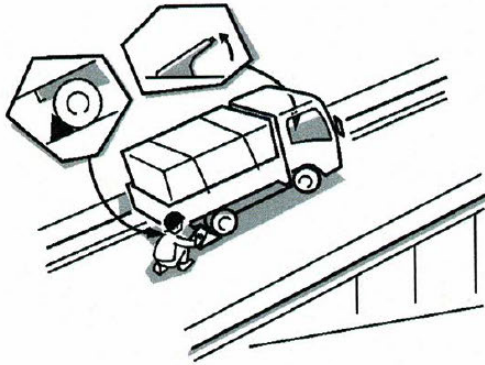
Table 1 - Test data for vehicles equipped with cable-actuated, Cardan shaft parking brakes

Discussion

42. Based on results from the Tonora review and the TSL review, nothing has come to light that stands out as raising fundamental concern for vehicles' parking brakes that are well-maintained and within safe tolerance of their state of manufacture.
43. Vehicles that were presented in a well-maintained condition and in safe tolerance of their state of manufacture had parking brakes that were functioning within the requirements of the Heavy Vehicle Brakes Rule and approved international standards.
44. Vehicles have safe operating limits established by their manufacturers and international regulations. Operating fully laden vehicles on an 18% slope could be considered as taking them close to their limits—not only in respect of stopping but in their ability to drive off again.
45. It's obvious that manufacturers recognise the operating limitations of parking brakes on slopes and both Isuzu and Fuso (refer to Figure 1 and Figure 2) have provided instructions in their operation manuals such as:
- a. avoid parking on slopes, and
 - b. apply chocks to the wheels, and
 - c. set the parking brake fully.

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Parking Safely on a Slope



⚠ CAUTION

- Avoid parking your vehicle on a slope as much as possible and choose a level and flat place. If it is unavoidable to park your vehicle on a slope, be sure to set the parking brake fully, make sure that the vehicle does not move, and block the wheels with chocks for added safety. Also, leave the vehicle in gear to further ensure that it will not move.
- Leave the steering wheel turned such that the vehicle will be stopped by an obstruction (for example, the curb) in the unlikely event that it moves.

Figure 1 - Excerpt from Isuzu operators manual



Parking

⚠ WARNING

- Park the vehicle on the flattest available surface. Avoid parking on slopes. When you cannot avoid parking on a slope, apply chocks to the wheels. You can further improve safety by leaving the steering wheel turned so the vehicle will roll toward an obstacle (for example, a curbstone) in the unlikely event of movement.
- Be sure to apply the parking brake fully.
- On an automatic transmission vehicle, never park the vehicle without applying the parking brake. Do not rely only on setting the range selector lever in the "P" position. If you cannot avoid parking on a slope, be sure to apply the parking brake securely and apply chocks to the wheels. Depending on the condition of the vehicle, the automatic transmission's parking mechanism ("P" position) may be damaged and released, possibly leading to a serious accident.

Figure 2 - Excerpt from Fuso operators manual

46. Cable-actuated, Cardan shaft parking brakes aren't without their idiosyncrasies and drivers and operators should be aware of them. Among these is that regular maintenance is required and as the July testing demonstrated, cable stretch can be overlooked.

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47. Vehicles with cable-actuated, Cardan shaft parking brakes require a high amount of force from the driver's arm (up to 61 kgf) to hold the vehicle stationary on an 18% slope. This amount of force may be higher than a driver unfamiliar with the vehicle would expect—almost certainly higher than the driver of a passenger car would expect. Not all drivers will be able to exert 61 kgf and it's likely an employer would consider this when pairing a vehicle with a driver.
48. That the parking brake cable on the vehicle that failed its laden test wasn't identified as an issue during its in-service inspection raises questions about the effectiveness of in-service inspections. The vehicle is from 1995 and has passed through owners in Japan in New Zealand. Whether or not the current owner and their technicians were aware that the cable could stretch outside of its operating limits hasn't been questioned.
49. At the time of writing this memo, there have been some reported rollaway events involving Nissan parking brakes^{viii}, which are unrelated but do share similarities. Investigations are ongoing but the vehicles appear to have rolled away because their parking brakes' operating mechanisms weren't regularly maintained, allowing them to wear over time or have a build-up of foreign materials in their mechanisms.
50. One of the likely recommendations stemming from the work on the Nissan parking brake incidents is that operators may be required to provide proof of maintenance and continued compliance, which will likely require the parking brake's operating mechanism to be overhauled. It would be timely to similarly incorporate a check for cable-actuated parking brakes if the recommendation goes forth.
51. For the July 2019 review, there were significant delays in getting vehicles inspected by the testing station and this is representative of the state of the rest of the country. Due to many factors, including time, in-service vehicle inspections are necessarily cursory and tools aren't required. Very few testing centres have access to 18% slopes where they could verify the performance of parking brakes according to the rule. Adding ramps with an 18% slope would be a significant undertaking. A parking brake cable can be physically checked but requires tools to do so. A check could be on the tension in the cable or on the effort applied to the handle. Being vehicle specific and technical in nature, measuring tension is the least best option. Measuring handle effort is doable but requires a well-considered plan for implementation. In general, it may be best to confirm the condition of parking brake cables outside of the realm of in-service inspection.
52. In-service vehicle inspections aren't intended to, and will never be able to, replace the need for operators to regularly maintain their vehicles. Other regulatory regimes, such as CAA and Maritime, require highly technical assessments that leave airplanes and ships out of service for significantly longer than heavy vehicles are out of service. A regulatory regime such as those CAA and Maritime have wouldn't be palatable for operators of the heavy vehicle fleet.
53. Being in attendance at the July 2019 testing highlighted the amount of time it would take to test vehicles in a laden state strictly according to the Heavy Vehicle Brakes Rule. It's not practical to test every vehicle in unladen and laden conditions. To a large extent, the in-service inspection regime is seen as largely fit-for-purpose and does benefit from a continuous improvement model with regular amendments to inspection requirements.
54. For the avoidance of doubt, the approved international standards refer to lever force in terms of newtons (N), decanewtons (daN) or pounds. Therefore to relate it to something that most people are familiar with – a kilogram (which is a mass, not force) -- the term 'kilogram force' (kgf) has been used throughout. A kgf is simply a newton divided by gravity (9.806 m/s²) and therefore when international legislation requires a maximum force of 600 N, it's equal to 61.187 kgf.

Conclusions

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55. Once verified to be within safe tolerance of their state of manufacture, all vehicles tested had parking brakes that were functioning within the range of the Heavy Vehicle Brakes Rule and approved international standards.
56. For all vehicles with spring-operated, wheel-mounted parking brakes, the in-service testing was equivalent to the requirements of the Heavy Vehicle Brakes Rule (all conditions of loading on an 18% slope).
57. For vehicles with cable-actuated, Cardan shaft parking brakes, when adjusted properly and without excessive cable stretch, the in-service 'stall test' was equivalent to the requirements of the Heavy Vehicle Brakes Rule (all conditions of loading on an 18% slope).
58. With a required effort up to 61 kgf on a hand lever, the force to fully engage cable-actuated, Cardan shaft parking brakes on vehicles in their fully-laden state when parked on an 18% slope may be greater than an uninitiated driver would expect.
59. Although the third vehicle passed its 'stall test' with a stretched cable, it failed while laden on a slope. Therefore, a limitation of the 'stall test' is that it alone can't be used to adequately determine whether the vehicle will hold on a slope.

Recommendations and Next Steps

60. Despite advice from manufacturers, parking on slopes is often unavoidable. The Agency should inform and educate operators and drivers of vehicles with cable-actuated Cardan shaft parking brakes so that they are aware of several key points. To do this, the Agency is planning to design, produce, distribute and mandate a warning label to be placed in a conspicuous position in the cab of vehicles equipped with Cardan shaft parking brakes.
61. The warning label will highlight:
 - a. the need to apply the parking brake with enough force to hold the vehicle in its loaded weight, not just the unladen weight, and
 - b. given the known limitations of Cardan shaft parking brakes, the use of chocks--which is in line with a WorkSafe bulletin¹ above and advised by manufacturers (refer to operational manual excerpts in Figures 1 & 2).
62. The Agency will test various versions with the target audience to ensure the messaging is appropriate. While it won't become a requirement of in-service inspections until supported by legislation, it will be highly recommended that any vehicle equipped with a Cardan shaft parking brake be fitted with such a label.

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Figure 3 – Sample of proposed label

63. As the July evaluation identified, it's possible for a vehicle to pass an in-service inspection with a stretched parking brake cable, the in-service inspection requirements should be reviewed so that vehicle inspectors review cables to ensure there isn't slack preventing the parking brake from being fully applied.
64. To that end, the Agency will investigate options for improvement with vehicle inspectors and inspection organisations. This may require an independent assessment once a vehicle reaches an age of 10 years (for example) or this may include the vehicle inspector ensuring that 61 kgf can be applied and held by the lever's ratchet mechanism, through the use of a handheld force gauge. Vehicle inspecting organisations have invested in roller brake machines to test service brakes and the investment in a handheld force gauge isn't significant in comparison.
65. The amount of force required to hold a vehicle stationary is linear with regards to its weight. If a parking brake is only applied with enough force to hold the vehicle stationary at its unladen weight, it may roll away when loaded to its maximum weight. This is something that manufacturers and vehicle suppliers should highlight more clearly in their owners' manuals. It's possible that the risk of not setting the parking brake fully is something not fully appreciated by drivers.
66. The Agency will work with the Motor Industry Association (MIA) and Vehicle Importers Association (VIA) with the aim that they engage with manufacturers and importers to ensure they're informing purchasers of the potential issues with Cardan shaft parking brakes and that purchasers are making informed purchasing decisions. Safety information is often included in operation manuals (refer to operational manual excerpts in Figures 2 & 3) but it could be easily overlooked (or not included in English if the vehicle is a used Japanese import).
67. Because MIA and VIA only have input on new-to-market vehicles, the Agency will review advice to operators of vehicles regarding the need to maintain their brakes in a well-maintained condition and within safe tolerance of their state of manufacture, with a specific focus on identifying and replacing stretched cables.

Appendix 1: Tohora Review

Appendix 2: TSL Review

ⁱ <https://worksafe.govt.nz/about-us/news-and-media/driveshaft-parking-brake-failures-in-commercial-and-industrial-vehicles/>

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ⁱⁱ <https://www.nzta.govt.nz/assets/resources/rules/docs/heavy-vehicle-brakes-2006-as-at-1-june-2019.pdf>, 2.5(1) Subject to 2.5(5), a vehicle or its brake must comply, if required in section 6 or section 7, with the version of an approved vehicle standard

ⁱⁱⁱ <https://www.nzta.govt.nz/assets/resources/rules/docs/heavy-vehicle-brakes-2006-as-at-1-june-2019.pdf>, 2.2(1) A vehicle, other than one in 2.2(2), must have a service brake, a parking brake and an emergency brake, except a semi-trailer first registered before 1 November 1990 that must have a service brake only.

^{iv} <https://www.nzta.govt.nz/assets/resources/rules/docs/heavy-vehicle-brakes-2006-as-at-1-june-2019.pdf>, 2.2(8) When a vehicle's brake is applied on a hard, dry, level surface that is free of loose material, and without assistance from the compression of the vehicle's engine or other auxiliary braking device

^v <https://www.nzta.govt.nz/assets/resources/rules/docs/heavy-vehicle-brakes-2006-as-at-1-june-2019.pdf>, 2.3(11) The parking brake of a vehicle, other than a semi-trailer, must, at any load condition up to the gross vehicle mass or gross combination mass, as applicable, be capable of: (a) stopping the vehicle within a distance of 18 m from a speed of 30 km/h; or (b) holding the vehicle stationary on a slope of 18% whether facing uphill or downhill.

^{vi} *Australian Design Rule 35/05 Commercial Vehicle Brake Systems*. Section 7.11.2.2 - the force required to actuate the parking brake does not exceed 685 N in the case of a foot-operated parking brake, and does not exceed 590 N applied at the centre of the handgrip;

Technical Standard for Brake Systems of Trucks and Buses (Japan) – JASO C428:2001 Road vehicles – Parking brake test procedure. Section 4.8, Inclined test track and operating force: 600 N hand operation, 700 N pedal operation;

FMVSS 105. Section 7.7.1.3 (b) - in the case of a vehicle with a GVWR greater than 4,536 kilograms (10,000 pounds) not more than 150 pounds [667 N] for a foot-operated system, and not more than 125 pounds [556 N] for a hand-operated system;

UN/ECE Regulation No. 13, Heavy vehicle braking - Section 2.3: 2.3.3. If the control is manual, the force applied to it shall not exceed 60 daN. 2.3.4. If it is a foot control, the force exerted on the control shall not exceed 70 daN.

^{vii} https://vehicleinspection.nzta.govt.nz/__data/assets/pdf_file/0009/58392/HV-brake-test-protocol.pdf

^{viii} <https://www.nzta.govt.nz/vehicles/vehicle-safety-alerts/#safety-alert-nissan-truck-park-brake-control>

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From: Mark Walker <Mark.Walker2@worksafe.govt.nz>
Sent: Thursday, 22 August 2019 3:32 PM
To: Danielle Henry <Danielle.Henry@worksafe.govt.nz>
Cc: Stuart Wright <Stuart.Wright@worksafe.govt.nz>; Hayden Mander <Hayden.Mander@worksafe.govt.nz>; Dave Schumacher <Dave.Schumacher@nzta.govt.nz>
Subject: FW: Parking brake review

Hi Danielle,

Thanks for your time on the phone. Here's the report as discussed. Feel free to contact me if you have any questions.

Dave's contact details at the NZTA are also below.

Ngā mihi,

Mark Walker
Technical Specialist – Engineering
Engineering, Plant & Equipment
Technical Services

From: Mark Walker <Mark.Walker2@worksafe.govt.nz>
Sent: Monday, 26 August 2019 10:45 AM
To: Dave Schumacher <Dave.Schumacher@nzta.govt.nz>
Cc: Stuart Wright <Stuart.Wright@worksafe.govt.nz>; Danielle Henry <Danielle.Henry@worksafe.govt.nz>
Subject: RE: Parking brake review

Hi Dave,

Just confirming that Stuart and I don't have anything to add regarding the report so we're just waiting for feedback from Danielle on behalf of Hayden.

As far as a revised bulletin is concerned, I'll talk to Stuart later and see what can be done. Again, we would need to make sure we didn't prejudice and current investigations but we can begin the discussion at least.

Ngā mihi,

Mark Walker
Technical Specialist – Engineering
Engineering, Plant & Equipment
Technical Services

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From: Dave Schumacher <Dave.Schumacher@nzta.govt.nz>
Sent: Monday, 26 August 2019 12:40 pm
To: Mark Walker
Cc: Stuart Wright; Danielle Henry
Subject: RE: Parking brake review

Hi Mark,
Thanks for your feedback. I look forward to hearing from Danielle. Notwithstanding the current investigations, updating your bulletin would be very useful to help spread the message about the effort required to fully engage as well as regular maintenance. I understand a lack of maintenance was a contributor to the fatal accident on Wellington's Ngauranga Gorge.

Cheers,
Dave

Dave Schumacher
Principal Engineer – Vehicle Standards
s 9(2)(a)
dave.schumacher@nzta.govt.nz

From: Dave Schumacher [<mailto:Dave.Schumacher@nzta.govt.nz>]
Sent: Friday, 30 August 2019 12:39 p.m.
To: Danielle Henry <Danielle.Henry@worksafe.govt.nz>
Cc: Hayden Mander <Hayden.Mander@worksafe.govt.nz>; Mark Walker <Mark.Walker2@worksafe.govt.nz>
Subject: RE: Parking brake review

Hi Danielle,
I hope your week is going well. I just wanted to touch base with you to see if you've had a chance to review the memo yet? Do you have any concerns with us releasing it?
Cheers,
Dave

Dave Schumacher
Principal Engineer – Vehicle Standards
s 9(2)(a)
dave.schumacher@nzta.govt.nz

From: Danielle Henry <Danielle.Henry@worksafe.govt.nz>
Sent: Friday, 30 August 2019 2:24 PM
To: Dave Schumacher <Dave.Schumacher@nzta.govt.nz>
Cc: Hayden Mander <Hayden.Mander@worksafe.govt.nz>; Mark Walker <Mark.Walker2@worksafe.govt.nz>
Subject: RE: Parking brake review

Hi Dave

I have consulted with our Investigation teams and Legal as to whether the report would impact on any of our current cases, and as far as I am aware there is no barrier with NZTA releasing the report. Thank you for giving us time to review the report and make the necessary enquiries.

Ngā mihi

Danielle Henry

Investigations Manager
Specialist Interventions

(D) Communications with NZTA regarding strategy

Notes from Russell Young, Inspectorate

2/1/19 Received phone call from Don Hutchinson, Senior Engineer at NZTA. He advised that NZTA & UD Nissan had met & a decision was reached to have all affected trucks fitted with replacement park brake controls by July 2020. (approx 1200 units).
Interim measures advised

- 1) Further alert issued (done)
- 2) Vehicle (COF) agents to include check of park brake maintenance (confirmation) during assessment. Those not maintained will fail COF.

Mr. Hutchinson will send details of action when finalised.

6/08/2019 Discussion with Don Hutchinson, Principal Engineer, Heavy Vehicles at NZTA.
Informed me that NZTA re-issued the alert relating to the park brake issues on the UD Nissan trucks in response to notifications from a CVU (Now EVSI) ^{driver} concerned about park-brake failures & consequently, runaway vehicles in the South Island. Re-issued in May 2017.
In response to this Don reviewed all files that related to the matter including police files & ascertained that the causation of the failures was not accurately established. Don's research led him to the conclusion that it was a maintenance issue. Police agreed with his

findings

Don advised that NZTA commissioned a heavy vehicle specialist (Doug Dlatto) around 2016 his role is as a certifier when replacement parts such as an alternative park brake assembly is fitted, he will assess its suitability etc.

Don advised that he went to Nissan Trucks (Now UD Trucks) spoke with them and with Service agencies, reviewed the fatal event (back in 2011) & concluded that it came down to maintenance (or lack of it).

The 'alert' generated goes up on the NZTA website and the MTA, RTF & Truck Trailer ASI websites. The latter three disseminated the information to their members. The information was spread as wide as possible around the industry.

Don advised re the action NZTA intends to take 'going forward' he will send me an email prior to it 'going public'.

27/08/2019

Spoke with Don Hutchinson at NZTA - he advised that they were in the process of finalising the 'check sheet' for the park-brake inspection/maintenance. The sheet is to be completed by a mechanic/technician following inspection of the park-brake mechanism & is to be filled in & signed off prior to the vehicle receiving a CoF. No CoF will be issued until the confirmation of park-brake inspection & passed as in safe working order.

From: Russell Young <Russell.Young@worksafe.govt.nz>
Sent: Tuesday, 17 December 2019 9:37 AM
To: Don Hutchinson <Don.Hutchinson@nzta.govt.nz>
Subject: Nissan Diesel park brake issues. [UNCLASSIFIED]

Good morning Don,

We last spoke on 27 August when you advised that NZTA were in the process of finalising a strategy for 'dealing' with the Nissan Diesel (Sanwa Seiki) park brake issues. Could you update me on the matter please.

Regards
Russell Young

Russell Young

**Health and Safety Inspector – Investigations
Specialist Interventions**

From: Don Hutchinson <Don.Hutchinson@nzta.govt.nz>
Sent: Wednesday, 18 December 2019 9:03 am
To: Russell Young
Subject: RE: Nissan Diesel park brake issues. [UNCLASSIFIED]
Attachments: Inspection news 3 pre-release copy

Hi Russell

I've attached our news release on this, but please note it is embargoed until 11.00 am today so your follow up timing with me was perfect. It is the first item on right side of page 1.

Note my manager Brian Sara who was guiding this area has now left the Agency.

I can send through the specific VIRM details that holds copy of the new park brake service form if you require more detail.

Regards

Don

Don Hutchinson
Principal Engineer – Heavy Vehicles
Vehicle Standards Team
Regulatory Services Te Roopu Waeture

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From: Russell Young <Russell.Young@worksafe.govt.nz>
Sent: Wednesday, 18 December 2019 2:26 PM
To: Don Hutchinson <Don.Hutchinson@nzta.govt.nz>
Subject: RE: Nissan Diesel park brake issues. [UNCLASSIFIED]

Good afternoon Don,

Thank you for sending this through. I do have a few queries in relation to the process – I won't bother you with them until the New Year.

Regards & all the best for the festive season,
Russell Young

Russell Young

**Health and Safety Inspector – Investigations
Specialist Interventions**

From: Don Hutchinson <Don.Hutchinson@nzta.govt.nz>
Sent: Wednesday, 18 December 2019 2:33 pm
To: Russell Young
Subject: RE: Nissan Diesel park brake issues. [UNCLASSIFIED]

Thanks Russell

We should have more Comms available on this matter in the New Year, we don't want to lose traction.

You too have a good break over the festive season.

Regards

Don

Don Hutchinson
Principal Engineer - Heavy Vehicles
Vehicle Standards Team
Regulatory Services Te Roopu Waetupa

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From: Don Hutchinson <Don.Hutchinson@nzta.govt.nz>
Sent: Thursday, 27 February 2020 3:15 pm
To: Russell Young
Cc: Davey Uprichard
Subject: RE: Nissan diesels [UNCLASSIFIED]
Attachments: FW: New compliance requirements for parking brake come in on 27 February - technical bulletin added

Thanks Russell

I've attached the new CoF requirements with embedded links to the technical bulletin and form etc.

We plan to let it run for 6 months and then look to review for any issues and refinements.

I'll be in touch after 23 March to arrange to meet, enjoy your leave.

Regards

Don

Don Hutchinson
Principal Engineer – Heavy Vehicles
Vehicle Standards Team
Regulatory Services Te Roopu Waeture

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From: Vehicles <vehicles@nzta.govt.nz>
Sent: Friday, 21 February 2020 3:22 pm
To: Regulatory Services - Safer Vehicles - Provider Comp (All Staff); Regulatory - SI - OPP&I - Op Stds & Guidelines - Vehicles Team
Cc: Matt Smith
Subject: FW: New compliance requirements for parking brake come in on 27 February - technical bulletin added

Hi all,

The email below just went out about a VIRM change regarding the new compliance requirements for parking brake come in on 27 February.

Ngā mihi
Toby

Toby Bishop/ Publishing Advisor - Technical
Channels and Standards

s 9(2)(a)

E toby.bishop@nzta.govt.nz / W nzta.govt.nz

From: Vehicles <vehicles@nzta.govt.nz>
Sent: Friday, 21 February 2020 3:19 PM
To: Vehicles <vehicles@nzta.govt.nz>
Subject: New compliance requirements for parking brake come in on 27 February - technical bulletin added

Good afternoon,

New compliance requirements for parking brake come in on 27 February 2020. [Technical bulletin \(CoF\) 9: Parking brake inspection and 4085D requirements](#) has been introduced to give guidance to vehicle inspectors on the background behind the changes and when it is appropriate to request the presentation of the [4085D Operator statement of compliance with parking brake assemblies](#) form.

This change to the VIRM has resulted from several runaway vehicles that have led to a fatal or serious injury crash after the park brake was applied.

A park brake application valve beside the driver's seat on many trucks, buses and motorhomes has been identified as the issue, as the valve wears out internally through dust and moisture getting in over time and causes operational problems.

If the lack of maintenance on the parking brake assembly is the only item preventing the vehicle from being issued a CoF, the vehicle inspector can issue a 28-day permit to allow the operator to have the parking brake maintenance carried out and the form completed.

A vehicle must still pass a parking brake performance test, such as a roller brake test or stall test, as part of the regular CoF inspection. If it fails the performance test, the owner must address further issues with the parking brakes and also have a 4085D form completed to provide proof of maintenance.

Affected VIRM pages

[Heavy vehicles 8-1: Service brake, parking brake and heavy vehicle emergency brake](#)
[TB \(CoF\) 9 Parking brake inspection and 4085D requirements](#)

Ngā mihi

Vehicle Standards

Te Roopu Waeture (Regulatory Services Group) – Operational Standards and Guidelines

E vehicles@nzta.govt.nz / W nzta.govt.nz

Palmerston North Office

Private Bag 11777, Palmerston North 4442, New Zealand



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