

Safety Bulletin

Preventing unbraked runaways of permanently coupled wagons with shared braking platforms

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Safety Bulletins identify areas of concern, share information and identify positive steps to enhance safety

The ONRSR is concerned that some rail operators may not be identifying or effectively managing the risks associated with permanently coupled pairs of freight wagons with shared braking systems. There have been occurrences of mechanical failures among these wagon types which resulted in the wagons uncoupling. As only one wagon has brake gear, a coupler assembly failure can lead to an unbraked runaway. This issue requires further examination by rail operators.

Pairs of wagons which are coupled together with a solid drawbar assembly are a common form of rolling stock among freight operators in Australia.

Based on regulatory intelligence, the ONRSR understands that:

- The weakest structural link in the drawbar assembly may not always be the solid drawbar itself.

- Train partings caused by component failures often relate to a failure of the yoke, which can be due to casting defects, inadequate fracture toughness properties or a single gross overload event, to name a few. Yoke pin failures, although rare, have also resulted in train partings.
- Two wagons permanently coupled together with shared brake equipment can be marshalled as the trailing vehicles in a train consist.

The risk of an unbraked wagon runaway requires further examination by rail operators to assure themselves that the risk is eliminated or minimised so far as is reasonably practicable (SFAIRP).

Runaway wagons are considered a rare event but when they do occur they can have devastating consequences.

Rail REPCON report

The Australian Transport Safety Bureau (ATSB) received a confidential report regarding the information contained in an operator's brake

certificates for permanently coupled wagons. The report was made via the ATSB's voluntary and confidential reporting scheme, known as REPCON, which enables someone from the rail industry or a member of the public to report a safety concern.

The ATSB publishes de-identified versions of reports on its website along with a response from the operator/s and the regulator.

Given the content of the [REPCON report](#), the ONRSR took further action.

Requests for information from industry

To examine how Australian rail operators are assessing and managing the risks of these types of wagons, the ONRSR requested information from 10 major freight operators. After receiving responses, the ONRSR requested further information about occurrences and a SFAIRP demonstration for the risk of unbraked wagon runaways.

When raising the issue with operators, information received revealed the following key points:

- In addressing the issue, the most widespread practices included wagon rotation, inspecting and monitoring components, completing original equipment manufacturer recommended maintenance and correcting track deficiencies.
- In some cases operators had already assessed the risks of parting of permanently

coupled wagons and unbraked wagon runaways.

- Some operators have investigated the feasibility to marshal a single wagon at the end of the consist.
- In other cases, the potential for the drawbar assembly to fail or for the rear wagon to separate from the train consist was seen as highly unlikely and there were no additional controls identified to mitigate a parting.
- Some of the control measures considered and/or implemented include redesigning retaining pins, installing check valve breakaway couplings in the control pipe pressure hoses and the use of bogie mounted spring actuated parking brakes to prevent a runaway wagon.

Next steps

Unbraked runaways of permanently coupled wagons due to a drawbar coupler assembly failure are a safety issue for our rail network. All runaway incidents continue to be of concern and the ONRSR will be specifically looking at whether rail operators are appropriately managing the risk(s) discussed within this bulletin.

Rail operators who operate permanently coupled wagons with shared braking systems need to explore the following questions:

- How the design of the drawbar coupler assembly and all associated components

mitigate the risk of an unbraked runaway in the event of a failure between wagons with a shared braking arrangement.

- The basis on which inspection and maintenance regimes of drawbar coupler assemblies and associated individual components on permanently coupled wagons, have been determined to be managing the risk of train parting.
- How the design of the braking system incorporates additional controls to mitigate a separation between permanently coupled wagons which share a common braking system platform.

With drawbar assembly-related issues identified as a potential precursor that could result in runways, the ONRSR expects all reasonably practicable measures to be taken to reduce the direct safety risk of runaways.

Depending on their operating environments, rail transport operators may need to review and revise current risk registers in order to manage to a SFAIRP level the risk associated with a solid drawbar assembly between wagons sharing a common braking system.

The ONRSR expects operators to reassess the existing risk(s) associated with permanently coupled wagons with shared braking platforms, while identifying and determining if further mitigation measures are warranted. It may not be reasonably practicable to rule out control measures merely on the basis of a risk analysis

that indicates a low likelihood of occurrence, particularly, if there is a high degree of uncertainty in the analysis.

The ONRSR also expects due consideration to be given to the procurement of all new rolling stock housing the identified mitigation measures.

For further information contact the ONRSR on (08) 8406 1500 or operations@onrsr.com.au.

An example of a fractured yoke on a solid drawbar assembly is pictured below.



Resources

[ATSB Rail REPCON](#)