



Australian Government

Australian Transport Safety Bureau



Office of  
Transport Safety  
Investigations

# Safety Advisory Notice

To Rollingstock Operators

Number: RO-2020-022-SAN-002

## Unknown functions in locomotive braking systems

An ongoing investigation, conducted by NSW's Office of Transport Safety Investigations on behalf of the Australian Transport Safety Bureau, highlights risks associated with misunderstood functionality of locomotive braking systems. Locomotive drivers require a clear understanding of the braking systems on all the locomotives they are operating.

### What happened

On 15 December 2020 a loaded grain train derailed whilst descending the 1 in 30 grade rail line between Robertson and Unanderra, NSW.

### Why did it happen

During the descent, the train driver lost control of the train. As the train continued to increase speed, the driver did not apply the emergency brake, believing an emergency application of the air brake would disengage the dynamic brake.

The ATSB identified that the locomotives involved had an electronic braking system that allowed the dynamic brake to remain active while the emergency brake was applied. This feature was unknown to the operator and the train driver. Had the driver been fully aware of the braking functionality, it is likely they would have applied the emergency brake which may have slowed the runaway train and lowered the risk of derailment.

The ATSB identified similar functional changes on locomotive braking systems more broadly across industry that were also unknown to Rollingstock Operators.

Importantly, dynamic brake functionality is not consistent across all locomotives with electronic braking systems. While some locomotives will disengage the dynamic brake when an emergency brake application is made, in other locomotives the dynamic brake remains functional.

### Safety advisory notice

**RO-2020-022-SAN-002:** The ATSB advises that all Rollingstock Operators (RSO) should review specifications and test locomotives under their control to understand how the braking systems are configured. RSOs must communicate this knowledge through their organisation's procedures and training material to ensure train crew knowledge and competence in operating various locomotive braking systems.

### Ensure understanding of locomotive specifications and operation

Rollingstock Operators must have a complete understanding of the operation of their locomotives. Identifying safety critical information from technical specifications and testing locomotive operations must be completed and used to inform the organisation's procedural and training material.

Read more about this ATSB investigation:

[https://www.atsb.gov.au/publications/investigation\\_reports/2020/rair/ro-2020-022/](https://www.atsb.gov.au/publications/investigation_reports/2020/rair/ro-2020-022/)



Runaway locomotives (Source: ATSB)