



Transport Accident
Investigation
Commission

Watchlist 2024

Technologies to track and to locate

What is the problem?

The operators of aircraft, ships and boats, and rail vehicles underuse currently available tracking and locating technologies.

Such technologies can reduce the risk of collisions, improve survival chances after an accident occurs, help ensure a lost vehicle and its occupants are found, and help us to learn what went wrong in order to improve safety.

What is the solution?

New Zealand's transport sector regulators should encourage and, where reasonable, require the operators of air, rail, and maritime vehicles to use available tracking and location technologies.

Across the aviation, rail, and maritime transport modes, tracking and locating technologies offer ways to improve people's chances of avoiding or surviving an accident or incident and ensuring they can be found. Transport Accident Investigation Commission inquiries in all three modes have suggested opportunities exist for New Zealanders to get greater benefit from the life-saving technologies available to them. We encourage transport regulators to improve awareness of the significant safety advantages of using the most technologically advanced tracking and locating devices, and to regulate for this in some circumstances.

How do tracking and locating devices aid safety?

Operators of fleets of all kinds use tracking technologies for many purposes including managing their fleets efficiently and providing better customer service. These technologies can also enhance transport safety; and locating devices can help survivability after an accident.

Aviation	Searchers for overdue aircraft can use information from flight tracking devices, emergency locator transmitters (ELTs), or personal locator beacons (PLBs) to be directed immediately to the general area of its last known location. If there are survivors, that can prove life-saving. ¹
Rail	Rail operators monitor and control trains in several ways to avoid collisions and enforce speed restrictions. A 'positive train control' system integrates these various technologies to monitor the location and movement of a train and stop it if necessary. ²
Maritime	Tracking and locating technologies such as Emergency Position Indicating Radio Beacons (EPIRBs) or Automatic Identification System (AIS) can help alert authorities to accidents at sea. Where vessels are fitted with these technologies, authorities can start the search for survivors earlier, potentially saving lives. ^{3,8}

What recommendations have we made?

We have made recommendations to:

- the Civil Aviation Authority to
 - encourage the use of flight tracking devices, especially for use in aircraft operating in remote areas⁴
 - continue to support the international work to improve crash survivability of Emergency Locator Transmitters so they work as intended, and include GPS information in the data transmitted by such devices⁵
- Waka Kotahi, NZ Transport Agency, to continue progress towards achieving positive train control⁶
- KiwiRail to ensure all rail vehicles travelling on the controlled rail network are electronically visible to train control⁷
- Maritime NZ to require commercial vessels to be fitted with automatic identification system (AIS) or equivalent when carrying passengers outside inshore limits.⁸

Why is the Commission concerned?

Although positive steps have been taken to encourage the use of technologies to track and to locate, the safety issue was again highlighted in our inquiry into a 2022 accident in which five people died, and which resulted in the recommendation to Maritime NZ.⁸

References to reports and recommendations

- ¹ AO-2011-003 *In-flight break-up ZK-HMU, Robinson R22, near Mount Aspiring, 27 April 2011*
[AO-2011-003 | TAIC](#)
AO-2013-003: *Robinson R66, ZK-IHU Mast bump and in-flight break-up, Kaweka Range, 9 March 2013*
[AO-2013-003 | TAIC](#)
AO-2014-006: *Robinson R44 II, ZK-HBQ, mast-bump and in-flight break-up, Kahurangi National Park, 7 October 2014*
[AO-2014-006 | TAIC](#)
AO-2019-003: *Diamond DA42 aeroplane ZK EAP, Controlled flight into terrain, Kaimanawa Range, near Taupō, 23 March 2019*
[AO-2019-003 | TAIC](#)
AO-2019-005: *BK117-C1, ZK-IMX Controlled Flight into Terrain (Water), Auckland Islands, 22 April 2019*
[AO-2019-005 | TAIC](#)
- ² RO-2007-108: *Express freight Train 720, track warrant overrun at Seddon, Main North Line, 12 May 2007*
[RO-2007-108 | TAIC](#)
- ³ MO-2006-204: *Fishing vessel "Kotuku", capsized, Foveaux Strait, 13 May 2006*
[MO-2006-204 | TAIC](#)
MO-2012-201: *Fishing vessel "Easy Rider", capsize and foundering, Foveaux Strait, 15 March 2012*
[MO-2012-201 | TAIC](#)
- ⁴ AO-2011-003: *In-flight break-up ZK-HMU, Robinson R22, near Mount Aspiring, 27 April 2011*
[AO-2011-003 | TAIC](#)
Safety recommendation: 005/14
- ⁵ AO-2011-003: *In-flight break-up ZK-HMU, Robinson R22, near Mount Aspiring, 27 April 2011*
[AO-2011-003 | TAIC](#)
Safety recommendation: 006/14
This recommendation was again referred to in AO-2013-010: *Aérospatiale AS350B2 'Squirrel', ZK-IMJ, collision with parked helicopter near Mount Tyndall, Otago, 28 October 2013*
[AO-2013-010 | TAIC](#)
- ⁶ RO-2007-108: *Express freight Train 720, track warrant overrun at Seddon, Main North Line, 12 May 2007*
[RO-2007-108 | TAIC](#)
Safety recommendation 005/09
- ⁷ RO-2011-102: *Track occupation irregularity leading to near head-on collision, Staircase-Craigieburn, 13 April 2011*
[RO-2011-102 | TAIC](#)
Safety recommendation 016/13
- ⁸ MO-2022-201: *Charter fishing vessel Enchanter, Capsize, North Cape, New Zealand, 20 March 2022*
[MO-2022-201 | TAIC](#)
Safety recommendation 020/23

This safety concern was first published as a Watchlist item in 2015.

Te Kōmihana Tirotiro Aituā Waka

Transport Accident Investigation Commission

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The Transport Accident Investigation Commission is an independent Crown entity established to determine the circumstances and causes of accidents and incidents with a view to avoiding similar occurrences in the future rather than to ascribe blame to any person.