



No. 95-123

Collision Between Hi-Rail Vehicles

Maxwell

18 December 1995

Abstract

At 1210 hours on Monday 18 December 1995, a Hi-Rail vehicle and a light inspection vehicle collided head-on on a curve near Maxwell, on the Marton - New Plymouth Line. The driver of one of the vehicles sustained rib fractures in the collision, and the two occupants of the other vehicle were uninjured. The cause of the accident was the unauthorised presence of one of the vehicles on that section of line. No specific safety issues were identified as a result of this investigation.

Transport Accident Investigation Commission

Rail Accident Report No 95-123

Vehicles involved: LIV¹ 2044 (Suzuki)
HRV² 11102 (Isuzu utility)

Date and time: 18 December 1995, 1210 hours

Location: 66.050 km Marton - New Plymouth Line,
near Maxwell

Type of occurrence: Collision between Hi-Rail vehicles

Persons on board: LIV: 1
HRV: 2

Injuries: LIV: 1 Serious
HRV: 2 Nil

Information sources: Transport Accident Investigation
Commission field investigation

Investigator in Charge: A J Buckingham

¹ Light inspection vehicle (itself a Hi-Rail vehicle, but referred to as LIV for clarity)

² Hi-Rail vehicle

1. Factual Information

1.1 On Monday 18 December 1995, the maintenance activities planned on Tranz Rail's Marton-New Plymouth Line included:

- The movement of a ballast tamping machine from Waverley to Wanganui, working en route;
- A line patrol from Marton to Waverley, by the Ganger of the Wanganui Track Gang in LIV 2044;
- Rail de-stressing at the 60.6 km, located between Kai Iwi and Maxwell, which would involve the on-track use of HRV 11102, an Isuzu twin-cab utility vehicle.

All sections of the line referred to are in Track Warrant Control territory. (See Figure 1 for a diagrammatic layout of the relevant points.)

1.2 The ballast tamper was issued with a Track Warrant to work between Waverley (89.9 km) and Wanganui (41.3 km) from 0600 to 1340 hours, and departed Waverley at 0740 hours. The next scheduled train through the area was 554, a Wanganui - New Plymouth freight, due out of East Town (Wanganui) at 1350 hours.

1.3 The Train Control radio repeater serving the area was shut down at 0830 hours for maintenance and was restored to service at 1600 hours.

1.4 At about 0800 hours, the Senior Track Maintainer who was second-in-charge (2IC) of the Wanganui Track Gang telephoned (because he was aware of the planned shutdown of the radio repeater) Wellington Train Control to obtain track clearance for the planned de-stressing. He was given clearance between 64.5 km (Maxwell Station Road level crossing) and Wanganui from 0920 to 1330 hours, and was aware of the presence of the tamper on the line. He was also aware of the Ganger's patrol, which was a normal Monday event, and one which he sometimes performed himself.

1.5 The 2IC drove by road to the Maxwell Station Road crossing and met the de-stressing gang, who had driven down from Stratford. They placed protection (detonators and a flagman) at that point to alert the tamper crew to their presence on the line, "on-tracked" the Isuzu HRV and drove to approximately 63.5 km, where there was some discarded rail. It was intended to cut a section of this rail and use it as a "filler" in the de-stressing operation.

1.6 About this time, the tamper arrived at the 63.5 km, and both the tamper and the HRV backtracked to the Maxwell Station Road crossing, where the HRV was "off-tracked" to allow the tamper to pass. The tamper continued towards Wanganui, passing the destressing site, to work in the Kai Iwi area.

1.7 Once the tamper had passed, the 2IC "on-tracked" the HRV, returned to the 63.5 km, uplifted the required piece of rail and took it to the 60.6 km. It was found that the rail was suitable for only one side (the "high leg"³) of the line, and that another segment was required for the low leg.

1.8 Together with a member of the de-stressing gang, the 2IC drove to a farm crossing at 60 km, "off-tracked" and drove by road to the former Nukumarū Station yard at 72 km, where he knew there was some additional lengths of discarded rail. On arrival at Nukumarū, he found that the rail there was also unsuitable for the required purpose.

³ The outside rail on a curve is commonly referred to as the "high leg".

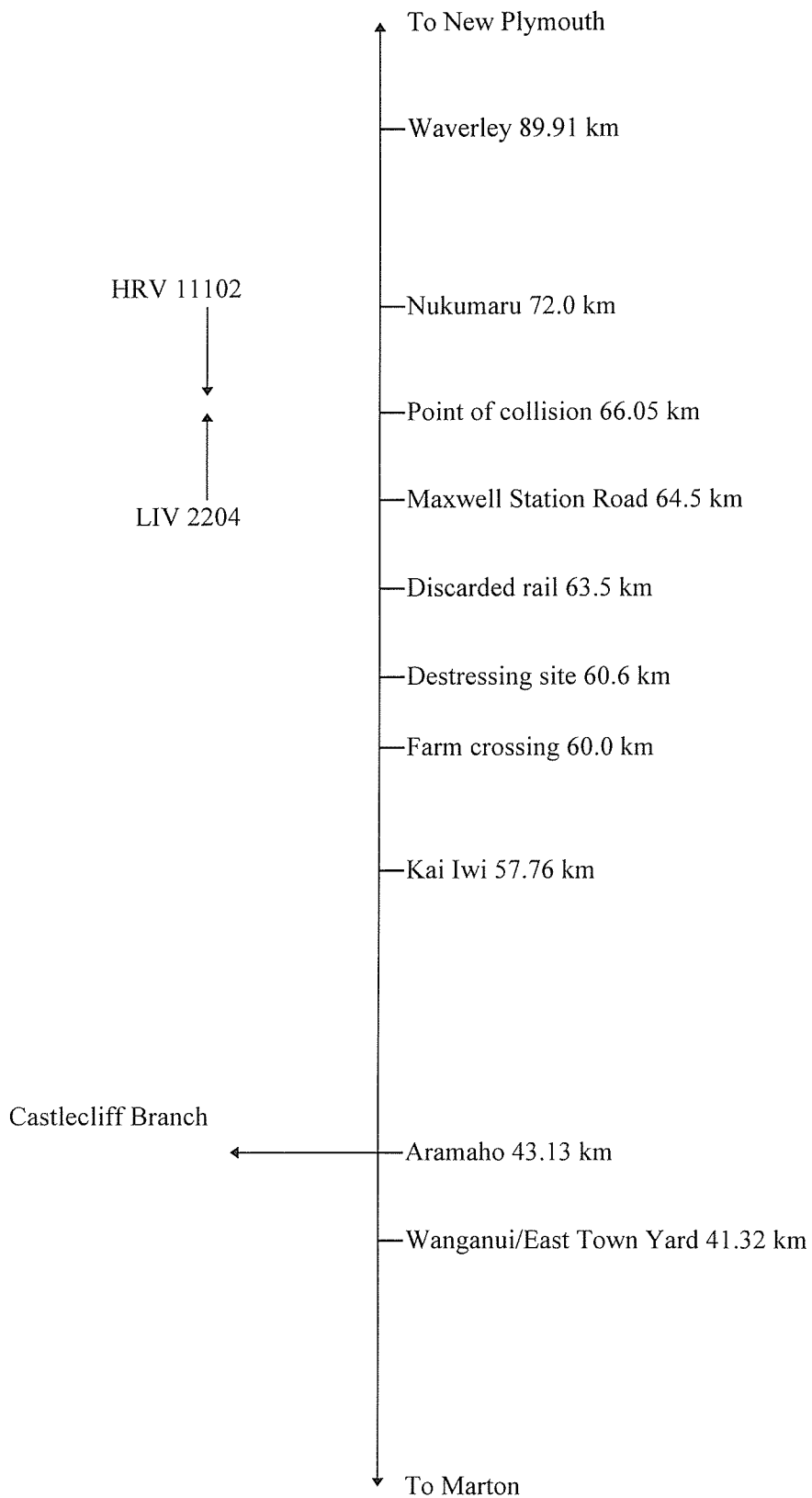


Figure 1
Relative positions on Marton - New Plymouth Line
(not to scale)

- 1.9 At Nukumarū, the 2IC realised that he was outside his cleared area, but decided that he would “on-track” and drive back to the de-stressing site, looking for discarded rail en route. With the radio repeater out of action, he was unable to contact Train Control by radio. The only cellular telephone on issue to the gang was with the Ganger in the LIV.
- 1.10 Based on past experience, the 2IC assumed that the Ganger in the LIV would be well past Nukumarū by this time, and as he believed there would be no other traffic between Nukumarū and his authorised area, he decided that it would be safe for him to “on-track” and proceed, without having obtained the Train Control clearance required by the company’s current Engineering Rules.
- 1.11 However, the Ganger had “off-tracked” at Wanganui, with the intention of driving to Maxwell before “on-tracking” again. He knew that the tamper and the de-stressing gang were in that section, and would have to be detoured around. En route to Maxwell, he stopped at Kai Iwi to discuss progress with the tamper crew, then drove in via a farm track to the de-stressing site at 60.6 km. He had some administrative matters to clear with the de-stressing gang, and on completion, he continued his road journey to Maxwell Station Road crossing (64.5 km). He obtained clearance by cellular telephone from Train Control at about 1200 hours to continue his patrol to Waverley and “on-tracked” his vehicle.
- 1.12 The LIV and the HRV collided head-on in a curve at 66.050 km. The 2IC saw the LIV before the Ganger saw him, and was able to reduce speed to about 15 km/h before the vehicles collided. The 2IC’s estimate of his vehicle’s speed, prior to his sighting the LIV, was 30 km/h. The Ganger thought that his LIV’s speed was about 30 km/h at the point of collision, from about 50 km/h at the time he saw the other vehicle.
- 1.13 Both vehicles were substantially damaged, with the lighter Suzuki sustaining crush damage to the front end. The Ganger was thrown forwards onto the steering wheel, “winding” him initially, but he soon recovered and was able to walk back to the road crossing shortly afterward. In the meantime, the 2IC telephoned Train Control using the Ganger’s cellphone and reported the collision.
- 1.14 The Ganger, who had residual chest pain, was taken to Wanganui Hospital for examination, where it was found that he had suffered rib fractures. He was also treated for a knee laceration, and hospitalised for two nights.

2. Analysis

- 2.1 The crucial factor in this accident was the decision of the 2IC to enter the section of line between Nukumarū and Maxwell without first obtaining clearance from Train Control. He assumed, based on past experience with patrolling the line, that the section would be clear, but the Ganger’s other commitments resulted in his running slightly later than anticipated by his 2IC.
- 2.2 With the radio repeater out of service for maintenance, and the gang’s only cellular telephone in the Ganger’s vehicle, the 2IC did not have a ready means of contacting Train Control. The option of calling the Ganger directly on Channel 1 was not available to him, as the Ganger’s vehicle radio did not have a channel scanner, and the use of Channel 1 would have had to be prearranged.

2.3 By the time the 2IC was ready to leave Nukumarū, his first priority was to locate some suitable rail for the de-stressing work, as the work would be delayed until some could be found. The possibility that a discarded piece of rail could be found alongside the line between Nukumarū and Maxwell influenced the 2IC's decision to "on-track" his vehicle without the necessary Train Control clearance.

3. Findings

- 3.1 The tamper and the de-stressing gang were authorised by Train Control to occupy the section between Wanganui and Maxwell.
- 3.2 HRV 11102, as part of the de-stressing operation, was also authorised to work in the Wanganui - Maxwell section.
- 3.3 The Ganger, in LIV 2044, was authorised to patrol the Maxwell - Waverley section.
- 3.4 The 2IC "on-tracked" his vehicle at Nukumarū without the Train Control authorisation required by the current Engineering Rules.
- 3.5 The 2IC assumed incorrectly that the Ganger would be clear of the Maxwell - Nukumarū section at the time he placed his vehicle on the line.
- 3.6 Other factors contributing to the 2IC's decision to enter the section were the temporary lack of ready communication with Train Control, and the possibility of there being a usable length of discarded rail beside the line.
- 3.7 The collision was the result of the 2IC's unauthorised presence on an already-occupied section of line.

17 April 1996

M F Dunphy
Chief Commissioner

Glossary of Railway Terms

ASP	Audio Shunting Procedures.
Catch on	To attach vehicles by dropping the hook.
Consist	The locomotive(s) and vehicles making up a train.
Couple	To connect brake hoses ready for use.
Cut off	To lift the hook between vehicles.
Kicking	To separate wagon(s) by accelerating the movement a short distance in the direction that is being operated with the hook lifted.
Leading en	The front end of a locomotive or vehicle in direction of travel.
Loose shunting	Kicking or slipping.
Operator	New Zealand Rail Limited, now known as Tranz Rail Limited.
Propelling	Pushing a rake of vehicles.
Rake	A group of vehicles.
Run about	The action of detaching a locomotive from its train and reattaching it at the opposite end.
Slipping	Separating wagon(s) by pulling them, lifting the hook and accelerating the locomotive forward. After the locomotive clears, points are reversed and the following wagon(s) proceed to another road.
Uncouple	To disconnect brake hoses.

