

Inquiry R0-2013-102: Passenger train travelled with doors open,
Wingate - Taita, 28 March 2013

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. Accordingly it is inappropriate that reports should be used to assign fault or blame or determine liability, since neither the investigation nor the reporting process has been undertaken for that purpose.

The Commission may make recommendations to improve transport safety. The cost of implementing any recommendation must always be balanced against its benefits. Such analysis is a matter for the regulator and the industry.

These reports may be reprinted in whole or in part without charge, providing acknowledgement is made to the Transport Accident Investigation Commission.



Final Report

Rail inquiry RO-2013-102
Passenger train travelled with doors open Wingate - Taita
28 March 2013

Approved for publication: June 2014

Transport Accident Investigation Commission

About the Transport Accident Investigation Commission

The Transport Accident Investigation Commission (Commission) is a standing commission of inquiry and an independent Crown entity responsible for inquiring into maritime, aviation and rail accidents and incidents for New Zealand, and co-ordinating and co-operating with other accident investigation organisations overseas. The principal purpose of its inquiries is to determine the circumstances and causes of occurrences with a view to avoiding similar occurrences in the future. Its purpose is not to ascribe blame to any person or agency or to pursue (or to assist an agency to pursue) criminal, civil or regulatory action against a person or agency. The Commission carries out its purpose by informing members of the transport sector and the public, both domestically and internationally, of the lessons that can be learnt from transport accidents and incidents.

Commissioners

Chief Commissioner	John Marshall, QC
Deputy Chief Commissioner	Helen Cull, QC

Key Commission personnel

Chief Executive	Lois Hutchinson
Chief Investigator of Accidents	Captain Tim Burfoot
General Counsel	Cathryn Bridge
Investigator in Charge	Vernon Hoey

Email inquiries@taic.org.nz

Web www.taic.org.nz

Telephone + 64 4 473 3112 (24 hours) or 0800 188 926

Fax + 64 4 499 1510

Address Level 16, 80 The Terrace, PO Box 10 323, Wellington 6143, New Zealand

Important notes

Nature of the final report

This final report has not been prepared for the purpose of supporting any criminal, civil or regulatory action against any person or agency. The Transport Accident Investigation Commission Act 1990 makes this final report inadmissible as evidence in any proceedings with the exception of a Coroner's inquest.

Ownership of report

This report remains the intellectual property of the Transport Accident Investigation Commission.

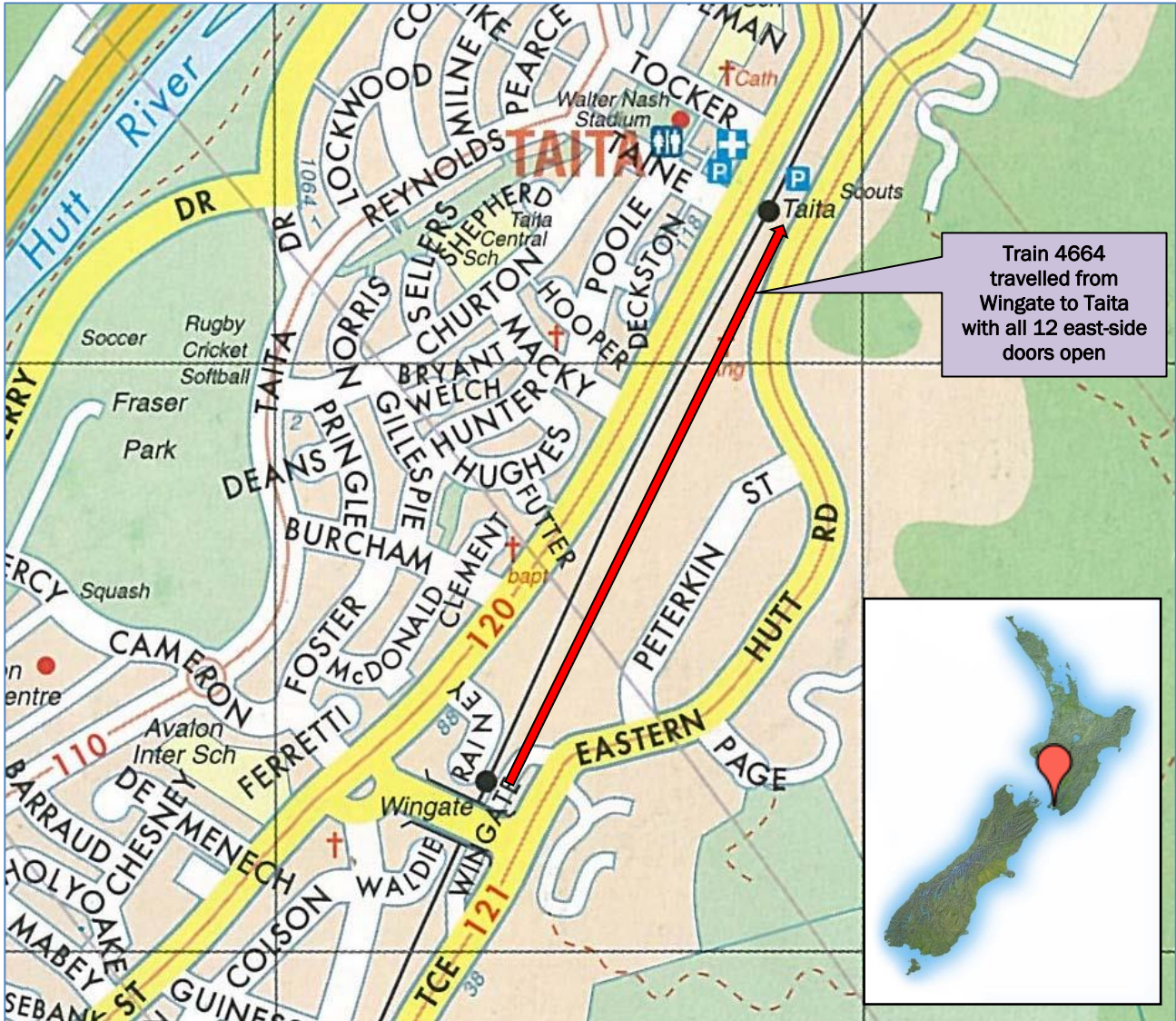
This report may be reprinted in whole or in part without charge, provided that acknowledgement is made to the Transport Accident Investigation Commission.

Citations and referencing

Information derived from interviews during the Commission's inquiry into the occurrence is not cited in this final report. Documents that would normally be accessible to industry participants only and not discoverable under the Official Information Act 1980 have been referenced as footnotes only. Other documents referred to during the Commission's inquiry that are publicly available are cited.

Photographs, diagrams, pictures

Unless otherwise specified, photographs, diagrams and pictures included in this final report are provided by, and owned by, the Commission.



Source: Avis Wellington Street Directory and maps of .net

Location of incident

Contents

- Figures i
- Glossary ii
- Data summary iii
- 1. Executive summary1
- 2. Conduct of the inquiry.....2
- 3. Factual information3
 - 3.1. Narrative3
 - 3.2. The passenger fleet operating details.....5
 - 3.3. Personnel5
- 4. Analysis.....6
 - 4.1. Introduction.....6
 - 4.2. Door-alert system7
 - 4.3. Communication8
- 5. Findings9
- 6. Safety actions..... 10
 - General 10
 - Safety actions addressing safety issues identified during an inquiry 10
 - Safety actions addressing other safety issues 11
- 7. Recommendations..... 12
 - General 12
- 8. Key safety lessons..... 13
- 9. References 14

Figures

Figure 1 The “all-doors-closed” and “start indicator” warning light arrangements in the driver’s cab.....3

Glossary

Commission	Transport Accident Investigation Commission
Ganz Mavag	the Hungarian manufacturer of the old electric multiple units
Matangi	the brand name of the new electric multiple units manufactured by Hyundai-Rotem of South Korea
right-away	the manual process of starting a passenger train from a station
set	a term that describes an electric motor vehicle and electric trailer vehicle (Ganz Mavag or Matangi) in a permanently coupled two-car multiple unit
Tranz Metro	the business unit of KiwiRail Limited tasked with operating the Wellington metropolitan rail system under contract with the Greater Wellington Regional Council

Data summary

Vehicle particulars:

Train type and number	Train 4664 consisting of electric motor (EM) and electric trailer (ET) cars EM1246, ET3246, EM1102, ET3102, EM1315 and ET3315. The train was 115.5 metres long and weighed 129.18 tonnes
Manufacturer	Ganz Mavag in Hungary
Entry to service	1982/1983
Train owner	Greater Wellington Rail Limited, a business unit of the Greater Wellington Regional Council
Train operator	Tranz Metro, a business unit of KiwiRail Limited
Maximum train speed	95 kilometres per hour
Designed passenger capacity	444 seated in a six-car set 888 fully laden (seated and standing) in a six-car set

Incident details:

Date and time	28 March 2013 at 1742
Location	Wingate-Taita, Hutt Valley
Maximum line speed	90 kilometres per hour
Persons involved	a train crew comprising a trainee driver (trainee) driving the train, a training driver (minder driver), a train manager and an assistant train manager
Injuries	nil
Damage	nil

1. Executive summary

- 1.1. On 28 March 2013, a Tranz Metro¹ six-car Ganz Mavag² electric multiple unit train was running an evening peak-hour passenger service from Wellington to Taita. The train was being driven by a trainee driver (trainee) undergoing on-the-job training. His performance was being monitored by a “minder driver”³, who was sitting across from and outside the driver’s cab.
- 1.2. The train stopped at its penultimate stop, Wingate station, where a number of passengers disembarked. The train manager and her assistant were standing on the platform overseeing the passenger operations. When the passengers were clear of the train the assistant was about to re-board the fourth “car”. At the same time the train manager was reaching through the doorway on the third car, preparing to close the passenger doors, when the train began to move forward. Both stepped back from the train and were left standing on the platform as the train departed.
- 1.3. Normally the train manager would have pressed a “right-away”⁴ button on the door control box once all the passenger doors had closed, which would have simultaneously sounded a buzzer and illuminated a light on the driver’s control panel. This would have been the driver’s signal that the train had been cleared to depart.
- 1.4. The trainee thought he had heard the buzzer, so he applied power and the train departed for the last stop at Taita station with 12 passengers on board. He did not notice that the separate “all-doors-closed” light was not illuminated on his control panel. The short journey to Taita was made with all 12 passenger doors along one side of the train open and with no passenger staff on board. No-one was injured. There was no damage to the train.
- 1.5. A safety issue arising from this inquiry was the design of the door-status light system. The light was normally extinguished when the doors were open, even while the train was moving. The Transport Accident Investigation Commission (Commission) accepted a submission from the Greater Wellington Regional Council, which said that it did not intend to modify the door-status light system on the Ganz Mavag sets⁵, because they are due to be withdrawn from service within two years.
- 1.6. The train manager was not carrying a portable radio of the kind that Tranz Metro had placed on board all its trains to enable train managers to converse with drivers in emergency situations. The train manager could have alerted the trainee to the incident had Tranz Metro allowed her to carry the radio. The Commission has made a recommendation in the past about train managers being provided with radios to allow effective communication in the event of an emergency. This recommendation is discussed in the context of this incident.
- 1.7. Key **safety lessons** arising from this incident included:
 - driver indication systems in rail vehicles should be designed logically to provide the intended warnings for the drivers in a clear and unambiguous way
 - there should always be a method provided for train managers to contact train drivers directly in cases of emergency, and those methods should be fully utilised.

¹ Tranz Metro is the business unit of KiwiRail Limited tasked with operating the Wellington metropolitan rail system under contract from the Greater Wellington Regional Council.

² Ganz Mavag was the Hungarian manufacturer of the old electric multiple units.

³ Minder driver is the KiwiRail term for an instructor or trainer driver.

⁴ The manual process of starting a passenger train from a station.

⁵ Set is a term that describes an electric motor vehicle and electric trailer vehicle (Ganz Mavag or Matangi) in a permanently coupled two-car multiple unit.

2. Conduct of the inquiry

- 2.1. On 28 March 2013, the NZ Transport Agency notified the Commission of the incident under section 13(4) of the Railways Act 2005. The Commission opened an inquiry under section 13(1) of the Transport Accident Investigation Commission Act 1990, to determine the circumstances and causes of the incident, and appointed an investigator in charge.
- 2.2. On 29 March 2013 the investigator interviewed the trainee, the minder driver, the train manager and the assistant train manager, and made a site visit to Wingate and Taita stations.
- 2.3. On 30 March 2013 the investigator examined the set from Train 4664 in Tranz Metro's passenger vehicle maintenance depot in Wellington, and observed a door operation test.
- 2.4. The Commission obtained data from the train event recorder on the lead vehicle (EM1246) and station-mounted closed-circuit-television footage showing the train stopping at some of the stations between Petone and Taita.
- 2.5. On 28 June 2013 and again on 8 October 2013, the investigator interviewed KiwiRail's Passenger Group Organisational Development and Training Manager.
- 2.6. The Commission also obtained and reviewed a number of records and documents from Tranz Metro, including:
 - documentation relating to a change made to the right-away buzzer⁶ tone in the driver's cab during 2006
 - recent mechanical examinations of the six vehicles that made up the set
 - the on-board train crew's right-away procedures
 - training records, rosters and hours of work for the trainee
 - training and personal records, rosters and hours of work for the minder driver
 - newly developed training manuals for Tranz Metro staff.
- 2.7. On 26 February 2014 the Commission approved a draft final report for distribution to interested persons for comment.
- 2.8. On 15 April 2014 the Commission considered submissions received from interested persons and made changes to the draft final report where appropriate. Following those deliberations more information was sought from KiwiRail about its policy on the use of portable radios by train managers on its Wellington metropolitan passenger trains. On 23 May 2014 KiwiRail provided a further submission on the use of portable radios by train managers.
- 2.9. On 29 May 2014 senior managers from KiwiRail Passenger Group and Tranz Metro appeared before the Commissioners to talk to KiwiRail's further submission. Following that meeting further changes were made to the draft final report.
- 2.10. On 18 June 2014 the Commission approved the final report for publication.

⁶ The right-away lamp illuminates and a buzzer sounds for as long as the train manager pushes the button at the door control box.

3. Factual information

3.1. Narrative

- 3.1.1. On 28 March 2013 the trainee began his shift at 1135. He was undergoing on-the-job training under the supervision of a minder driver. He had been scheduled to drive the newer Matangi⁷ sets that day, but his minder driver thought he needed more time driving the older Ganz Mavag sets, so he had arranged a change in train driving assignments.
- 3.1.2. The minder driver oversaw the trainee driving return trips from Wellington to Melling and Wellington to Upper Hutt. On arrival in Wellington they took over the running of a six-car Ganz Mavag set scheduled to run to Taita (Train 4664).
- 3.1.3. A train manager and an assistant train manager assigned to the train were responsible for fare collection and train dispatching duties from stations. The train departed Wellington on time at 1713 with the four crew members and 329 passengers on board. The train manager operated in the lead three cars and the assistant in the rear three cars, which was normal practice.
- 3.1.4. The train event recorder showed that the train arrived at Wingate station five minutes late at 1741:40.
- 3.1.5. At 1742:03 the train manager pressed the door-open button at the local door control box in the third car to allow passengers to disembark. An “all-doors-closed” light on the driver’s control panel extinguished to show that the doors had opened (the light was normally illuminated when all the doors were closed – see Figure 1).

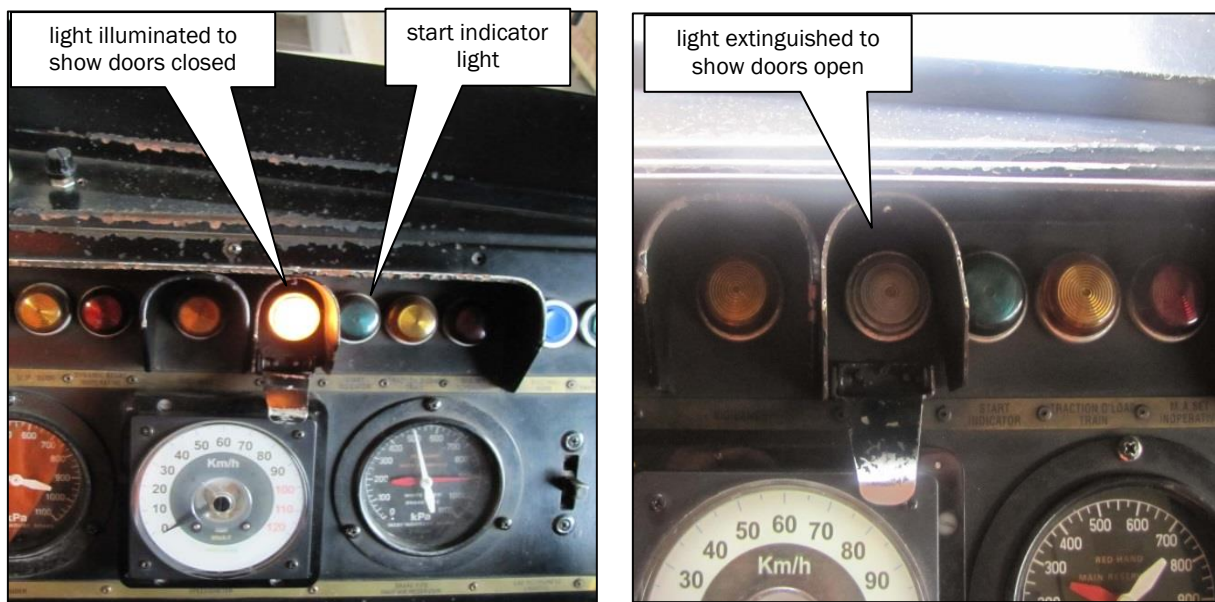


Figure 1
The “all-doors-closed” and “start indicator” warning light arrangements in the driver’s cab

- 3.1.6. The assistant train manager stepped out onto the platform from the fourth car and the train manager did the same from the third car. They exchanged the visual all-clear signal once the passengers on the platform were clear of the train.

⁷ Matangi is the brand name of the new electric multiple units.

- 3.1.7. At that point the assistant would normally have stepped back on the train and the train manager would, while still standing on the platform, have reached in to the door control box and used a key to close all the passenger doors except hers. They had started to perform this procedure when the train began to move forward. Both of them stepped back from the train and it departed the station with all the 12 passenger doors along that side still open, leaving them standing on the platform.
- 3.1.8. The trainee thought he had heard the right-away buzzer in the driver's cab. He looked up and saw that the signal ahead of his train was green. He then called "door light buzzer green signal"⁸ and applied power to the train.
- 3.1.9. The minder driver was at this time seated across from and outside the driver's cab. The door separating his cubicle and the driver's cab from the main passenger compartment was closed. From there the minder driver had a good view ahead but he could not see the lights and dials on the trainee's control panel and in particular the all-doors-closed light. He said that he thought he had heard the right-away buzzer sound.
- 3.1.10. The trainee and minder driver said that they were concentrating on the signal aspects that would direct the train to a side track at Taita. This was the second time the trainee had driven a service scheduled to terminate and be side-tracked at Taita.
- 3.1.11. The trainee did not notice that the all-doors-closed light was not illuminated. The minder driver said that it was his practice to ask the trainee regularly about the indication of the light, but he did not do this at Wingate or during the journey to Taita.
- 3.1.12. The activation of the right-away buzzer is one of the parameters recorded on the train event recorder. It would normally only sound for as long as the train manager depressed the button at the door control box. The recorded data showed that the train left Wingate at 1742:13 without the right-away buzzer being activated.
- 3.1.13. The train reached a maximum speed of 45 kilometres per hour during the 1.1-kilometre journey to Taita station, where it arrived at 1744:12. Being the last stop, there were only 12 passengers remaining on board. Nobody activated the emergency train stop during the journey. The 12 passengers disembarked of their own accord when the train stopped at Taita.
- 3.1.14. Tranz Metro had provided one portable radio for each Ganz Mavag set and two portable radios for each Matangi set (one in each car). The radios were meant for use during emergency situations and worked on the same short-range local radio frequency (channel one) on which the train drivers' radios were capable of transmitting and receiving. On a Ganz Mavag set the portable radio was installed on a charging unit near the driver's cab, which meant it was still on board when the train departed Wingate, leaving the crew standing on the platform.
- 3.1.15. Tranz Metro had supplied the train manager and assistant train manager with company mobile telephones, but not the train driver. After they had been left on the platform at Wingate, and after discussing the situation with the train manager, the assistant train manager telephoned a supervisor in Wellington. By the time he made that call the train had arrived at Taita. The train driver realised that the two crew members were not on board after the passengers had disembarked at Taita. He then used his personal mobile phone to advise the same supervisor in Wellington of the situation.
- 3.1.16. The minder driver and trainee underwent post-incident drug and alcohol testing in accordance with KiwiRail procedures. The test results were negative for all performance-impairing substances.

⁸ This was an agreed training procedure for the benefit of the minder driver, designed to reinforce the importance of checking that right-away had been received and that the path ahead of the train was clear to proceed before moving the train.

3.2. The passenger fleet operating details

- 3.2.1. Tranz Metro operated a fleet of 26 Ganz Mavag two-car electric multiple unit sets and 48 newer-generation Matangi two-car electric multiple unit sets at the time of the incident. Tranz Metro said the older Ganz Mavag sets were operating about 25% of its services, mostly to provide additional capacity during the weekday morning and evening peak-hour operations.
- 3.2.2. KiwiRail's safety system contained supplements to the Rail Operating Code that explained the duties and responsibilities of train drivers and train managers for passenger door operations on the Ganz Mavag and Matangi sets.
- 3.2.3. The train manager was responsible for ensuring that all doorways were clear and that all passengers were clear of the train before closing the doors. Once the passenger doors were closed, the train manager would push the right-away button on the door control box to signal to the driver that the train was clear to depart. Pushing the button would simultaneously illuminate a blue light and sound a buzzer on the driver's control panel, provided all the operational doors had closed. An interlocking system prevented the right-away light and buzzer activating in the driver's cab if any of the doors were still open.
- 3.2.4. The NZ Transport Agency advised that there had been seven reported incidents of Ganz Mavag sets rolling short distances at stations with passenger doors open in the 29-month period up to June 2013. The trains were stopped in all cases before they left the stations after members of the train crew had intervened.
- 3.2.5. Tranz Metro identified the cause of these incidents as improper braking techniques by the drivers while the trains were stationary at terminal stations. Special additional training in the correct practice for securing trains while the drivers changed ends was completed by Tranz Metro during the period of this investigation.
- 3.2.6. It was calculated that throughout the service life of the Ganz Mavag sets, the fleet had conducted about 15 million stops at stations such as Wingate.
- 3.2.7. The Greater Wellington Regional Council said that the Ganz Mavag fleet would be retired from service during 2016 following an agreement to purchase a second batch of Matangi sets.

3.3. Personnel

- 3.4. The trainee had been employed by KiwiRail for five months. His on-the-job training log book showed that the minder drivers were recording positive feedback on his performance.
- 3.5. The minder driver's licence to operate was current and his most recent formal assessment had been completed on 13 March 2013, about two weeks before the incident. He had been a train driver with Tranz Metro for six and a half years, and had been a minder driver for three weeks.
- 3.6. The train manager and the train manager's assistant both held current certifications for their positions and their licences to operate were current.

4. Analysis

4.1. Introduction

- 4.1.1. A train travelling between stations with the passenger doors open and no passenger crew on board can be a serious safety issue. The risk of a passenger falling out of a doorway on this occasion was relatively low because there were only 12 passengers on the train, who could be seated. However, it would have been different if the train had been fully loaded with passengers standing in the vicinity of the door recesses.
- 4.1.2. The post-incident test on the passenger door and alarm system showed that it was operating normally. Both the trainee and the minder driver said that they thought they had heard the right-away buzzer, but the event recorder showed that the right-away button was never depressed by the train manager and that the doors were still open when the train departed. The right-away buzzer could not have sounded, nor could the all-doors-closed light have illuminated in the driver's cab.
- 4.1.3. The premature departure of the train from the station could be explained as a simple lapse in concentration by the trainee and minder driver. The train was running five minutes late and the trainee had a green signal ahead of his train. The train had been stopped for about 10 seconds when he first applied power to move away from the station. With so few passengers on board, 10 seconds would not have been much less than the average time for the train to be stopped. The fact that he did not notice that the all-doors-closed light in front of him was not illuminated could be attributed to inexperience.
- 4.1.4. Tranz Metro's right-away procedures were similar for both the Ganz Mavag and the newer Matangi sets. The main difference between the two types was that the Matangi sets had additional interlocks that prevented drivers powering up the trains with any operational⁹ passenger doors still open. This incident would not have occurred had an interlock been fitted to the Ganz Mavag sets.
- 4.1.5. The absence of the interlock on the Ganz Mavag sets placed a greater reliance on driver performance and the design of the door-alert system to prevent a premature train departure. There is a potential safety issue with the ergonomics of the driver door-alert system on the Ganz Mavag sets, which is discussed in more detail below.
- 4.1.6. The trainee had practised the departure procedure many times before, with no recorded issues during his limited train-driving experience. The minder driver's oversight of the trainee, in being outside the driving cab when the train departed, was appropriate for the stage of the trainee's training programme. Nevertheless, Tranz Metro implemented a number of safety initiatives to improve the training programme. The detail of these safety initiatives is included in the "Safety actions" section of this report.
- 4.1.7. One other safety issue arose, and that was that once the train manager and assistant train manager were left on the platform, they had no radio by which they could make immediate contact with the trainee to stop the train. This matter is also discussed in the following sections.

⁹ An individual door can be isolated in the event of a malfunction. In such a case the train would be able to depart but the driver would be alerted on their traffic monitoring screen. There are special procedures for this eventuality.

4.2. Door-alert system

- 4.2.1. There is a convention, in almost all disciplines, where the colour red means “danger” or “stop” and green means “go” or “safe”. If the design of the passenger door-alert system had followed this convention, there would have been two lights for indicating the status of the doors. One would have been red and would have illuminated when the doors were open, and the other would have been green to indicate the doors had closed, or that it was safe to proceed. In this case the safe condition was represented by an illuminated white light and the unsafe condition by the light not being illuminated. In other words there was no light to draw a driver’s attention to an unsafe condition.
- 4.2.2. The concept of an illuminated white light to signal all passenger doors as closed was historical, originating from the very first design of electric multiple unit sets, built by English Electric of Great Britain and introduced to Wellington in the late 1940s.
- 4.2.3. The concept was replicated on the Ganz Mavag sets when they were introduced to the fleet in 1982 to achieve consistency for drivers operating between the Ganz Mavag and English Electric sets, up to as recently as 2012 when the last English Electric set was decommissioned. The concept was again replicated on the Matangi sets because of the parallel operation of the Ganz Mavag and Matangi sets between 2011 and 2016, when the Ganz Mavag sets are due to be decommissioned.
- 4.2.4. The concept of a single white light was considered to be failsafe. That is, if the bulb in the light was not working a driver would assume that the passenger doors were still open. Tranz Metro had an established procedure for checking if that were the case. However, a driver would first have to notice that the light was not illuminated. In this case the trainee failed to notice this.
- 4.2.5. The design of the door-status system on the new electric multiple unit sets undergoing testing on the Auckland metropolitan system is the same as that used on the Wellington sets.
- 4.2.6. However, there is an interlock on the new Auckland sets, as well as the Matangi sets, that will prevent a train being powered up unless all the operational passenger doors are closed. Additionally, and as in the Matangi sets, the driver has an electronic screen showing the status of every door on the train. The risk of these new sets in Auckland and Wellington departing stations with the doors open is therefore low.
- 4.2.7. There is some safety benefit in having a standard passenger door-alert system across different sets operating on the same network, but that system should alert the drivers to the door status in a clear and unambiguous way. Statistics show that it is rare for drivers of Ganz Mavag sets to misinterpret or fail to recognise door-status lights. Nevertheless, this incident shows that it can happen.
- 4.2.8. The Greater Wellington Regional Council confirmed that it plans to withdraw all the Ganz Mavag sets from operations by April 2016. Therefore the costs and time required to modify the sets are not likely to be warranted because the progressive withdrawal of the sets will result in an acceptable level of diminishing residual risk.
- 4.2.9. Modifying the all-door-closed light on the Matangi sets is also not likely to be warranted, because these sets have an additional interlock that prevents the driver powering their train while any operational door is open.

4.3. Communication

- 4.3.1. When the train manager and assistant train manager were left standing on the station platform, the train manager did not have a radio with her.
- 4.3.2. The Commission raised the issue of communication between train managers and train drivers in a report¹⁰ published in August 2008, which included a recommendation to the NZ Transport Agency that train managers be provided with portable radios that had the same local channel frequency as the train drivers' cab radios. This would have left them free to roam the trains as required, and always have the capability to converse with the drivers in cases of emergency or for other special operational requirements.
- 4.3.3. The recommendation was subsequently closed on 24 September 2013 on the understanding that radios had been purchased for all metropolitan trains in the Auckland and Wellington areas. In Auckland the radios were issued by the operator to the train manager on every train.
- 4.3.4. In Wellington, Tranz Metro installed portable radios in both the Ganz Mavag and Matangi sets. However, Tranz Metro's policy was for these radios to not be carried by the train managers. Tranz Metro preferred to have the radios permanently installed on their charging units near to the drivers' cabs, to be used only in the event of an emergency. Instead Tranz Metro issued the train managers with mobile telephones pre-programmed with the train control number to enable them to converse directly with train control in the event of an emergency¹¹. Train control would then contact the drivers.
- 4.3.5. The main reason Tranz Metro gave for adopting this policy was concern that giving train managers portable radios could result in unnecessary radio "chatter", a potential source of distraction for its drivers.
- 4.3.6. Relying on mobile telephones for critical communications had its limitations. For example, reception was not guaranteed when trains were in tunnels, and train drivers were not issued with company mobile phones, so train managers could only contact them through train control if, owing to the nature of an emergency, they could not access radios. This could limit a train crew's ability to manage effectively an emergency on board their own train, by having to communicate with each other via the train controller.
- 4.3.7. Trains departing without passenger crew on board and with all doors open are not likely to occur frequently, but the Commission's recommendation was aimed at train crews being able to communicate quickly and effectively in any emergency situation. It is important that train drivers and train managers are able to contact train control, either by radio or by mobile phone. Providing portable radios fixed in each two-car set and mobile phones to train managers will in almost every case enable that to happen.
- 4.3.8. However, it is equally important that train managers and train drivers are able to communicate directly with one another in emergencies. The fixing of portable radios in each two-car set will in most situations enable that to happen. However, there will be a residual risk that in the event of some emergency situations, train managers might not be able to access the fixed portable radios. That risk will need to be considered in relation to Tranz Metro's concern over the potential for train driver distraction caused through unnecessary radio chatter, and how that might be managed.

¹⁰ Commission report 06-110: Uncontrolled movement of a passenger train from Britomart to Quay Park Junction, Auckland, Recommendation 016/08.

¹¹ In this case the train control number had not been pre-programmed into the telephones, but it has been programmed into all mobile telephones since this incident.

5. Findings

- 5.1. The trainee powered up his train to depart Wingate station without having received the required right-away signal from the train manager.
- 5.2. The extinguished passenger door-status light on the driver's control panel failed to alert the trainee sufficiently that the doors were open when the train departed Wingate station. A door-status light in line with the more conventional system of separate green and red lights to indicate safe and unsafe conditions respectively would have been more appropriate.
- 5.3. Portable radios installed on trains to enable crews to converse with the drivers during emergency situations would be more effective if they were carried by the train managers. In this case a portable radio could have been used to stop the train.

6. Safety actions

General

- 6.1. The Commission classifies safety actions by two types:
- (a) safety actions taken by the regulator or an operator to address safety issues identified by the Commission during an inquiry that would otherwise result in the Commission issuing a recommendation
 - (b) safety actions taken by the regulator or an operator to address other safety issues that would not normally result in the Commission issuing a recommendation.

Safety actions addressing safety issues identified during an inquiry

- 6.2. On 8 October 2013 KiwiRail's Passenger Group Organisational Development and Training Manager advised the Commission that the following safety actions had been underway at the time of the incident. KiwiRail advised a further update to its safety actions on 23 June 2014:
- an in-depth review of the Passenger Group (which included Tranz Metro) training policies and procedures, including on-the-job training practices, was conducted. This followed an audit into the training documentation of Tranz Metro's 108 train drivers showing that not all the documentation had been completed to the current required standards
 - recently recruited training consultants have undertaken professional development programmes and have attended courses such as: train the trainers, coaching, service excellence, leadership and training in adult training principles
 - three new operational team leader positions have been created and filled with train drivers having appropriate experience
 - KiwiRail's Passenger Group is undertaking a review of the current processes used to recruit, train, support and supervise the minder drivers (tutors). It is expected that the review will focus on consistency of competency and quality assurance processes, and a new tutor specification was brought into use during May 2014
 - a new specification for the selection and training of Passenger Group tutors has been developed and has been introduced. Included is the requirement for all tutors to have completed the new programme or complete a one-day "top-up" workshop
 - the training provided for tutors who provide on-the-job training for trainee drivers and the training manuals have been reviewed and enhanced. The training workshop and the training manuals now align with New Zealand Qualifications Framework unit standards. Attainment of tutor status now also requires tutors to provide evidence of actual on-the-job tutoring being completed to a required standard
 - a quality control process has been introduced that monitors trainees' on-the-job training progress every two weeks. The process involves professional conversations between the trainee, the minder driver and the training consultant who oversaw the initial theory training. This process is repeated throughout the on-the-job training period until the trainee achieves mastery
 - on-the-job training log books now record actual time on Ganz Mavag sets with an aim of 20% driving experience to be regularly maintained
 - new training documents titled Train Manager Manual (copy supplied) and Passenger Operator Manual have been introduced
 - a review of the driver training has started. Each section of the training process is being reviewed. Training manuals for train drivers is under development as part of the wider review of train driver training, and a final draft of the training manual and an on-the-job training book is currently progressing through the review stages at the time of publishing this report
 - all levels of training are now competency based and incorporate demonstration practices rather than the more traditional "chalk and talk" training method

- a review of the train driver mastery test has been completed and a new mastery test has been developed, peer reviewed, piloted, evaluated and approved for use.

Safety actions addressing other safety issues

6.3. No other safety actions addressing other safety issues have been taken.

7. Recommendations

General

- 7.1. The Commission may issue or give notice of recommendations to any person or organisation that it considers the most appropriate to address the identified safety issues, depending on whether these safety issues are applicable to a single operator only or to the wider transport sector. In this case, no new recommendations have been made.

8. Key safety lessons

- 8.1. Driver indication systems in rail vehicles should be designed logically to provide the intended warnings for the drivers in a clear and unambiguous way.
- 8.2. There should always be a method provided for train managers to contact train drivers directly in cases of emergency, and those methods should be fully utilised.

9. References

KiwiRail's Rail Operating Code supplement CSR 3.2, duties of Tranz Metro train managers, guards, passenger operators and ticket assistants Wellington suburban area, dated September 2001.

KiwiRail's Rail Operating Code supplement 4.14 operating instructions for EM and ET electric multiple units, dated September 1995.

KiwiRail's Tranz Metro and Tranz Scenic On-the-Job Coaching participant workbook, dated January 2012.

KiwiRail's Tranz Metro locomotive engineer driving instruction manual, dated July 2003.

KiwiRail's Tranz Metro On the Job Training log book for locomotive engineers multiple units dated September 2009.

KiwiRail's Tranz Metro operating procedures Tranz Metro Wellington, dated December 2011.

KiwiRail's Tranz Metro train manager manual (new), dated May 2013.

KiwiRail's Tranz Metro trainee induction/familiarisation log book, dated March 2012.

NZ Transport Agency report of its ordinary rail assessment of KiwiRail Limited between 30 April 2012 and 22 May 2012.

Transport Accident Investigation Commission report 06-110: Passenger Train 4045, uncontrolled movement between Britomart and Quay Park Junction, 9 October 2006.



**Recent railway occurrence reports published by
the Transport Accident Investigation Commission
(most recent at top of list)**

12-101	Load shift on Train 926D struck stationary, Train 845, Main South line, Rolleston, 6 April 2012
11-105	Freight Train 228 wrong-routed, into closed section of track Wiri Junction, South Auckland, 12 November 2011
RO-2013-108	Near collision between 2 metro passenger trains, Wellington, 9 September 2013
11-106	Hi-rail vehicle nearly struck by passenger train, Crown Road level crossing near Paerata, North Island Main Trunk, 28 November 2011
11-102	Track occupation irregularity, leading to near head-on collision, Staircase-Craigieburn, 13 April 2011
RO-2013-104	Urgent Recommendations: Derailment of metro passenger Train 8219, Wellington, 20 May 2013
11-103	Track workers nearly struck by passenger train, near Paekakariki, North Island Main Trunk, 25 August 2011
10-101	wrong route setting, high-speed transit through turnout, near miss and SPAD (signal passed at danger), Tamaki, 13 August 2010
11-104	Freight Train 261 collision with bus, Beach Road level crossing, Paekakariki, 31 October 2011
10-102	collision between 2 metro passenger trains, after one struck a landslide and derailed between Plimmerton and Pukerua Bay, North Island Main Trunk, 30 September 2010
07-102	(incorporating inquiry 07-111) freight train mainline derailments, various locations on the national network, from 6 March 2007 to 1 October 2009
11-101	Wrong line running irregularity, leading to a potential head-on collision, Papakura - Wiri, 14 January 2011
08-102	Metro passenger train derailment, Sylvia Park, 14 April 2008 (incorporating inquiries 08-104 and 08-107) Diesel motor fires on board metro passenger trains, 3 June 2008 and 25 July 2008
08-111	Express freight Train 524, derailment, near Puketutu, North Island Main Trunk, 3 October 2008
08-112	Safe working irregularity resulting in a collision and derailment at Cass Station on the Midland line, 8 November 2008
09-102	Passenger fatality after falling between platform and passenger Train 8125, Newmarket West station, 1 July 2009

Price \$12.00

ISSN 1178-4164 (Print)
ISSN 1179-9102 (Online)