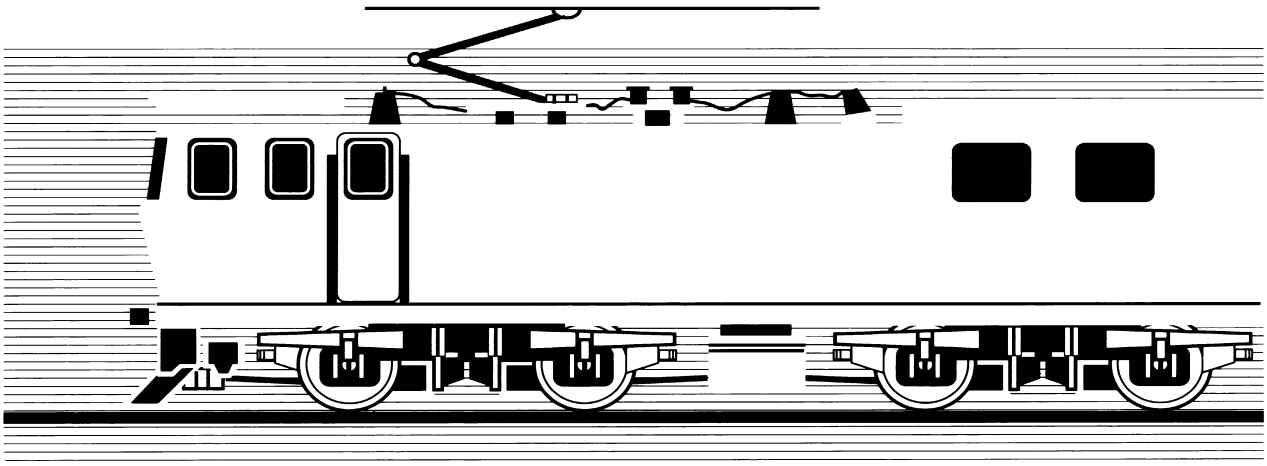
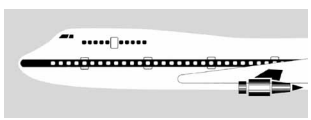
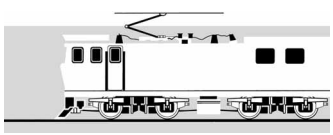


RAILWAY OCCURRENCE REPORT

04-121 Locomotive DBR1199, derailment, Auckland 24 August 2004


TRANSPORT ACCIDENT INVESTIGATION COMMISSION
NEW ZEALAND

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.

Report 04-121

locomotive DBR1199

derailment

Auckland

24 August 2004

Abstract

On Friday 24 August 2004 at about 1530, locomotive DBR1199 derailed while hauling a set of empty passenger cars into Britomart Station in Auckland. The passenger cars and second locomotive were not derailed.

The derailment occurred when a tyre, which had worked loose from a wheel on DBR1199, struck the frog[1] in a set of facing points and derailed all wheels of the trailing bogie.

The safety issue identified was the susceptibility of tyred wheels to loosen due to excessive heat.

In view of the safety actions recommended to Toll NZ Consolidated Limited by Alstom New Zealand Transport Services as a result of its internal investigation into this incident, and the subsequent actions taken by Toll NZ Consolidated Limited, no safety recommendations have been made.

[1] A V-shaped section of rail where 2 running rails cross.

Contents

Figures

Abbreviations

Alstom	Alstom New Zealand Transport Services
Connex	Connex Auckland Limited
FMI	Field Modification Instruction
km/h	kilometres per hour
m	metre(s)
SIN	Significant Information Notice
Toll Rail	Toll NZ Consolidated Limited
UTC	coordinated universal time

Data Summary

Train type and number:	locomotive DBR1199
Date and time:	24 August 2004 at about 1530[2]
Location:	Auckland
Persons on board:	crew: 2
Injuries	nil
Damage:	locomotive wheel set condemned, and 70 m of track damaged
Operator:	Connex Auckland Limited (Connex)
Investigator-in-charge:	D L Bevin

[2] All times in this report are New Zealand Standard Time (UTC+12) and are expressed in the 24-hour mode.

1 Factual Information

1.1 Narrative

1.1.1 On Friday 24 August 2004 Train 4228 was a locomotive-hauled empty passenger carriage service being repositioned to Britomart Station in Auckland prior to running a scheduled Connex Auckland Limited[3] (Connex) passenger service.

1.1.2 Train 4228 consisted of 5 SX passenger cars with a DBR class locomotive attached at each end, and was crewed by a locomotive engineer and train manager. The train commenced its journey at Westfield and had travelled into Auckland via the North Island Main Trunk.

1.1.3 As DBR1199, the leading locomotive, crossed No 76 points leading to Britomart Station, all wheels on the trailing bogie derailed. The train travelled about 70 m before coming to a stop.

1.2 Site details

1.2.1 No 76 points were permanently secured in the direction of Britomart Station, away from a section of redundant track (see Figure 1).

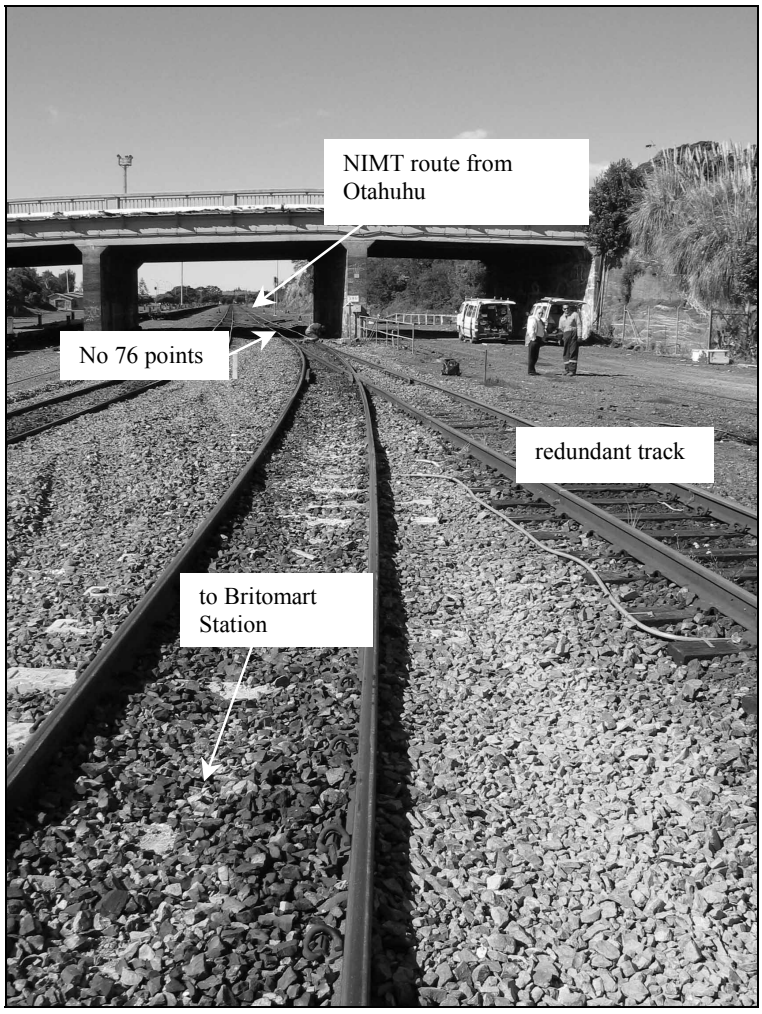


Figure 1
No 76 points at Auckland

[3] Connex was the operator of suburban train services in Auckland for the Auckland Regional Transport Authority from August 2004.

1.2.2 The frog at No 76 points showed signs of impact damage and the diverging redundant rail had wheel marks on the railhead for a short distance (see Figure 2).

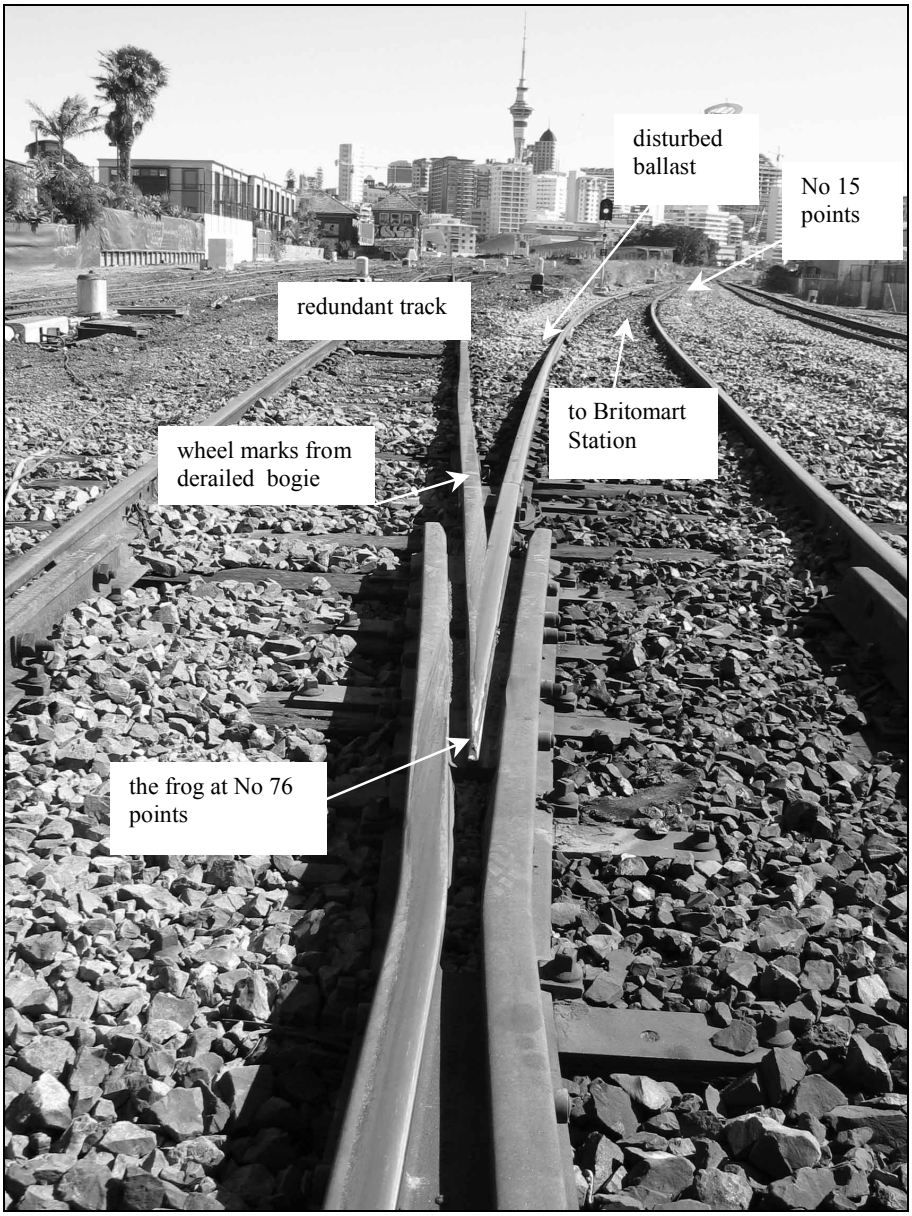


Figure 2
The frog and diverging routes at No 76 points

1.2.3 The track between No 76 points and No 15 points, a distance of about 100 m, showed evidence of disturbed ballast and concrete sleeper damage (see Figure 3). There was also bruising on the treated pinus radiata sleepers at No 15 points (see Figure 4).

1.2.4 A permanent 40 km/h speed restriction was in effect over No 76 points and on the approach track to Britomart Station.

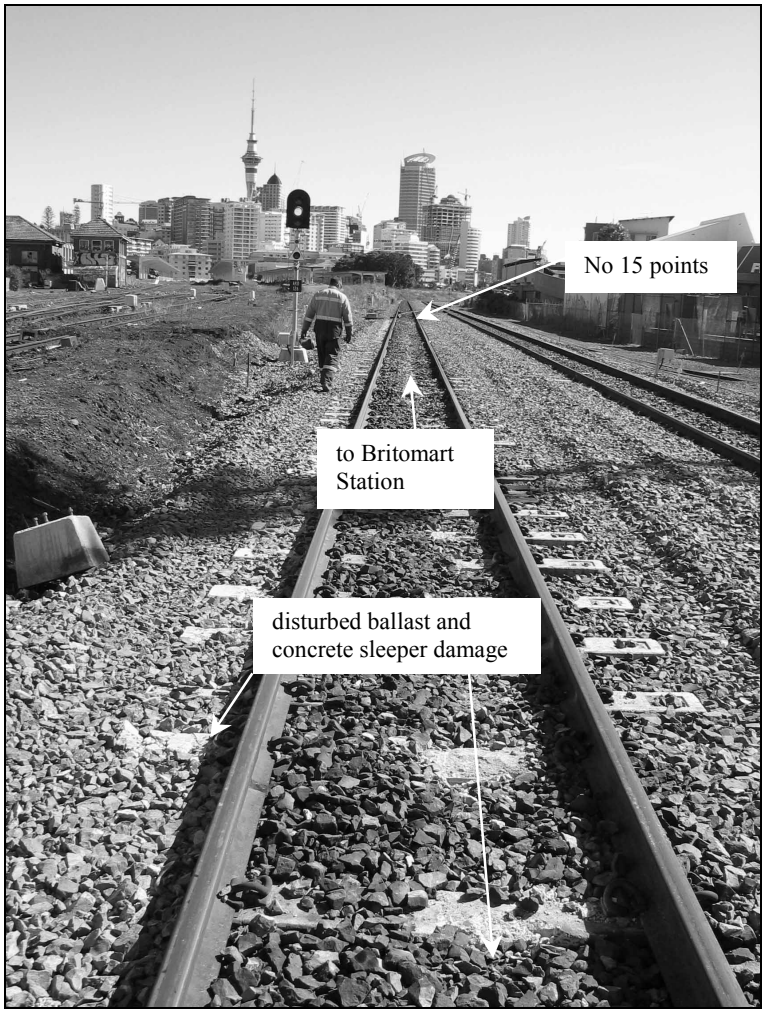


Figure 3
Track damage towards No 15 points

Figure 4
Sleeper damage at No 15 points

1.3 Locomotive event recorder

1.3.1 Locomotive event recorder data was not analysed as there was no indication of train handling being a contributing factor to the incident.

1.4 The locomotive engineer

1.4.1 The locomotive engineer had about 22 years' experience as a driver, the last 5 as a diesel multiple unit and railcar driver.

1.4.2 On the day of the derailment he had started his shift at 1230 at Westfield and had gone to his train at about 1300. At about 1330 the train manager joined him in the cab and the train departed for Auckland via Otahuhu. While departing Otahuhu, he had felt an unusual jolt in the locomotive but thought it had probably run over a stone.

1.4.3 As Train 4228 approached No 76 points at Auckland, the locomotive engineer said he slowed the speed to 40 km/h in accordance with the permanent speed restriction. As the locomotive negotiated the points, he felt the trailing end rear up and he knew it had derailed so he applied the emergency brake. He said he thought he had travelled about 80 m by the time he stopped the train.

1.4.4 The locomotive engineer said that the train consist, with a DBR locomotive attached to each end of the rake of 5 SX cars, caused surging and could lead to what he described as a rough ride. He said that because the SX passenger trains were short and light, he had to use a different braking technique when driving them, compared with that for freight trains.

1.4.5 When applying the brakes on freight trains, only the train brake[4] was used, and the locomotive brakes were bled off, using the independent brake[5], to stop the train running in on the locomotive. However, short trains like the passenger trains required all the available braking and, as they didn't run in, the braking technique differed in that the train brake was allowed to operate through the locomotive, to increase the braking capability. He was sure that the constant heavy braking required would generate a lot of heat on the locomotive tyres.

1.5 Locomotive DBR1199

1.5.1 DBR1199 was owned by Toll NZ Consolidated Limited (Toll Rail) and leased to Auckland Regional Transport Authority. It was crewed by Toll Rail personnel and operated under contract to Connex. It was serviced and maintained by Alstom New Zealand Transport Services[6] (Alstom) under contract to Toll Rail.

1.5.2 The wheelset involved in the derailment was fitted to DBR1199 in November 2001. However, Toll Rail's records did not show if it was new at that time, and it was not possible to determine where the tyre and wheel had come from, although Toll Rail suggested it was likely to have been a partly worn wheelset.

1.5.3 Toll Rail advised that the locomotive had been mothballed between October 2002 and April 2003 because of locomotive fleet rationalisation, and that DBR1199 was in a poorer condition than other mothballing prospects. The locomotive was re-commissioned in April 2003 to haul the SX cars purchased by the Auckland Regional Council and it was sent to Toll Hillside to be prepared to re-enter service.

[4] The train brake operated throughout the train.
[5] The independent brake worked only on the locomotive.
[6] Contracted to undertake the inspection and maintenance of rolling stock to standards set by Toll Rail.

1.5.4 The last maintenance check on DBR1199 prior to it being mothballed was a C Check[7], undertaken at Alstom Wellington on 26 April 2002. Wheel measurements carried out during this check identified the fourth wheel on the A[8] side of the locomotive (wheelset 4A and later to cause the derailment) as having a tyre thickness of 33 mm. Wheelset Manual M6000 (the manual) defined 32 mm as the minimum tyre thickness at which a tyre was condemned.

1.5.5 Maintenance and repair work was carried out on DBR1199 at Toll Hillside to bring the locomotive back to service standard. However, no further wheel checks or measurements were carried out.

1.5.6 The last maintenance check on DBR1199 before it entered service for Connex in Auckland had been an A Check[9] undertaken at Alstom Westfield on 23 July 2003. An A Check did not include a requirement for a wheel measurement or inspection. Maintenance checks on the locomotive after it commenced service for Connex included an A Check on 18 October 2003, a B Check[10] on 17 February 2004 and another A Check on 30 July 2004.

1.5.7 The next check requiring a wheel measurement after the C Check at Alstom Wellington on 26 April 2002 was the B Check completed at Alstom Westfield on 17 February 2004, at which time a tyre thickness of 43 mm was recorded for wheel 4A. This measurement was later found to be incorrect.

1.5.8 Following the derailment the thickness of the loose tyre was measured and found to be 32 mm.

1.6 Tyred wheels

1.6.1 Tyred[11] wheels have been traditionally used on the New Zealand railway system. However, for economic reasons and because of the known potential for tyred wheels to come loose in service they are currently being phased out in favour of solid, one-piece wheels.

1.6.2 The method of fitting and retaining tyres involved shrink-fitting from a high temperature. The tyres were heated to a high temperature, placed on the wheel disc and, as the temperature cooled and the tyre contracted, a shrink-fit on the wheel resulted. A Gibson retaining ring was placed in position and the tyre lip was then rolled until the retaining ring was tightly gripped to retain the tyre in its correct position (see Figure 5).

1.6.3 The loosening of a tyre on the wheel disc was a known phenomenon. In this event, the Gibson retaining ring could only restrain a loose tyre for a short period. If a tyre became overheated, perhaps due to repeated heavy braking action, the shrink-fit on the wheel disc was reduced. The outer lip of the tyre and the Gibson retaining ring were intended to retain the tyre in place until it cooled and regained its shrink-fit.

1.6.4 If overheating continued, for example through dragging brakes or repeated heavy brake applications, the tyre could turn on the wheel disc and wear away the interface so that when the tyre cooled down it could still be loose. This would increase the wear between the original interface surfaces and also gradually erode the Gibson retaining ring. If the Gibson retaining ring failed, there would be nothing to stop the tyre from moving to the outside of the wheel disc (see Figure 6).

---

[7] Undertaken every 72 000 km.
[8] Wheelset numbering is made up of the axle position from the front of the locomotive and a letter "A" (locomotive assistant's side) or "B" (locomotive engineer's side).
[9] Undertaken every 18 000 km.
[10] Undertaken every 36 000 km.
[11] Solid wheels incorporate the disc, tread and flange as a single machined part. A tyred wheel comprises the disc, which is also pressed on to the axle, but the tread and flange are part of a separate tyre, which is shrunk on to the disc. On locomotive wheels a retainer [Gibson Ring] is present on the inside edge of the tyre (definition courtesy of Alstom).

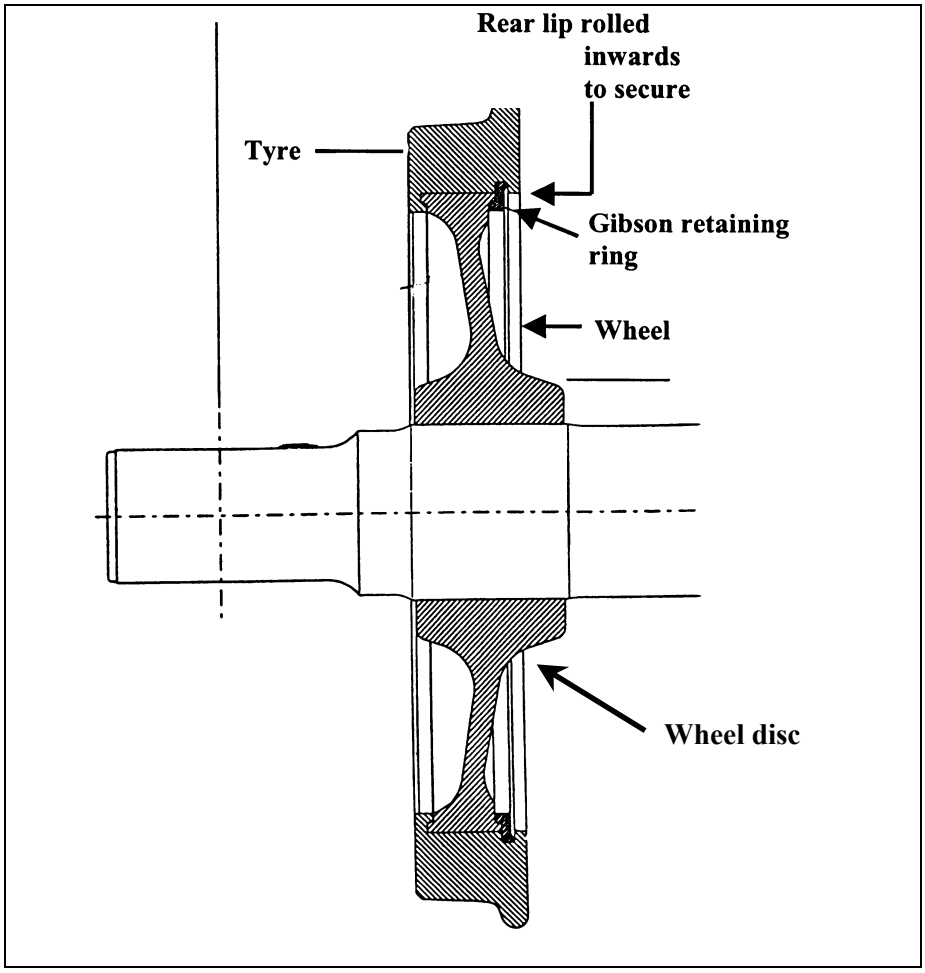


Figure 5
Diagram showing tyred wheel assembly

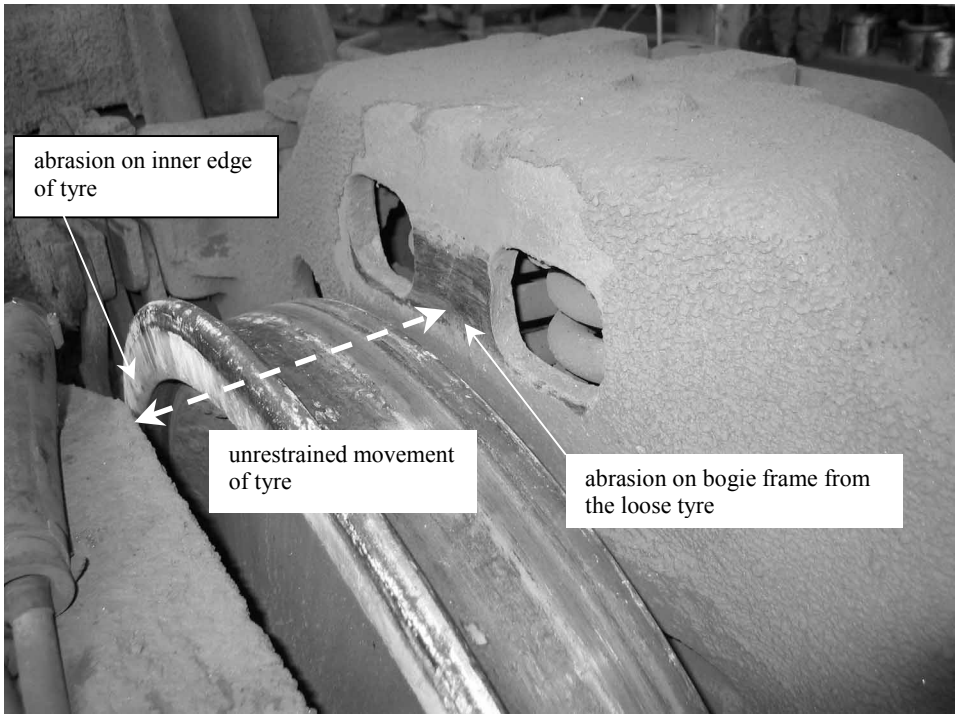


Figure 6
Wheelset 4A and bogie frame showing signs of wear from loose tyre

1.6.4 Figure 7 shows the abrasions on the front face of the rim caused by the tyre rubbing against the bogie frame.

1.6.5 Wheelset 4A was measured following the derailment and was found to have a tyre thickness of 32 mm, which was the condemning limit defined by the manual.

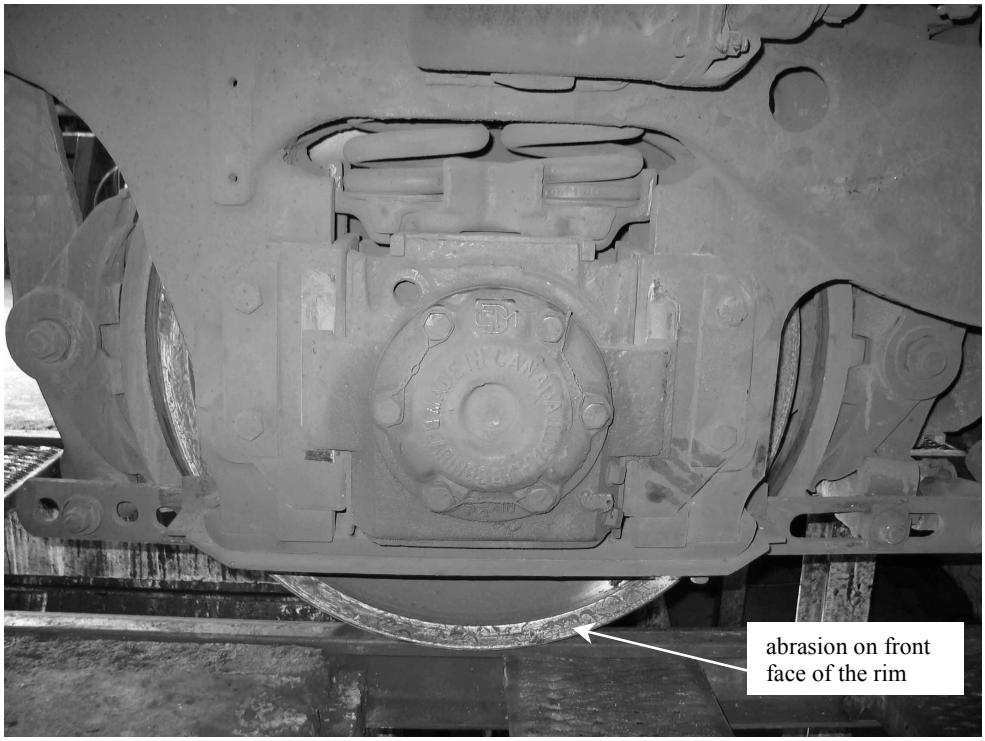


Figure 7
Abrasion on the front face of the rim

1.7 Tyred wheel policy

1.7.1 On 13 September 2004 Toll Rail advised its then policy regarding the replacement of tyred wheelsets on passenger train locomotives. Wheelsets were to remain in service until they reached the condemning limit, which the Wheelset Manual M6000 determined as a tyre thickness of 32 mm, or until the wheelsets were condemned because of another defect.

1.7.2 At that time there were 15 tyred wheelsets with tyre thicknesses of less than 35 mm amongst 8 passenger locomotives in Auckland. These locomotives were programmed for a change to solid wheel discs as soon as new wheelsets became available.

1.7.3 Additionally there were a further 2 DBR class locomotives rostered for passenger train services in Auckland that were scheduled to have the wheelsets replaced, although they were above condemning limit at 13 September 2004.

1.7.4 There were 26 tyred wheelsets amongst 5 DC class locomotives rostered for passenger services between Wellington and Masterton. Two of these wheelsets had tyre thicknesses below 35 mm while the rest were 35 mm and above.

1.7.5 On 27 September 2004, Toll Rail advised that a new policy had been adopted to lift the condemning limit for tyred wheelsets from 32 mm to 35 mm for all locomotives. It also advised that 2 of the DC class locomotives rostered for passenger service between Wellington and Masterton had had bogie changes.

1.8 Significant Information Notice ML-024

1.8.1 On 10 May 2002, a wheel on a freight wagon fractured, causing a main line derailment. On 24 June 2002 Significant Information Notice (SIN) ML-024 was generated as a result of this incident and identified, among other causes, the overheating of the tyre and the stamping of the batch identification as having contributed to the derailment.

1.8.2 SIN ML-024 required additional checks to be done on wheelsets. Wheels were to be checked for the presence of stamped batch identification or inspection branding on the outside of the wheel rim. This inspection was to be done when Alstom maintenance staff undertook either scheduled maintenance or repairs. The results of the inspections were to be entered on a wheel stamping inspection form and faxed daily to the Alstom reliability engineer.

1.8.3 Once a wheelset had been inspected and recorded, it did not need re-inspection unless it was deemed as category 3. Category 3 wheelsets on locomotives required an inspection before each trip and during servicing. A wheelset was classed as category 3 when:

- there was stamping on the outer edge of the wheel rim
- the stamping touched or was cut by the chamfer (or rolled edge if it was present)
- the stamp was greater than 3 mm deep
- the wheel was free of cracks.

1.8.4 SINs were reviewed or expired automatically on a specified date. SIN ML-024 was issued on 24 June 2002 with an expiry date of 31 July 2002. Toll Rail advised that the purpose of SIN ML-024 was as an information gathering exercise only. It had expected all information would be gathered before 31 July 2002 so, when the SIN expired on that date, no further action was taken. However, all relevant data had not been collected by the time the SIN expired.

1.8.5 Toll Rail advised that the inspections required by SIN ML-024 were intended to identify any cracks emanating from the deep stamping, not a possible loose tyre.

1.8.6 In June 2002 an inspection under SIN ML-024 was completed on DBR1199. This inspection identified the number 4A wheelset of DBR1199 as a category 3 wheelset, and therefore requiring a daily inspection. However, there was no requirement for such information to be transferred from SIN ML-024 to MAXIMO[12] and no specific arrangements had been made to ensure the required daily checks were carried out. As a result there was no procedure for the planning and notification of daily inspections, nor was there a requirement for maintenance staff to consult MAXIMO.

1.8.7 Wheelset 4A was inspected following the derailment and it was found that it still met the category 3 criteria.

1.9 Axle details

1.9.1 At wheelset assembly, axle ends were to be cold stamped with a unique wheelset serial number, followed by “A” on one side and “B” on the other. This number was used to access wheelset assembly data from wheelset registers.

1.9.2 Wheelset serial numbers were allocated as follows:

Hutt Workshops:	0 - 30000
Hillside Workshops:	30000 - 80000

[12] Trade name for software used by Alstom to track the maintenance history of a wagon or locomotive.

1.9.3 Records were entered into the Wheel Press Registers, which were kept for 7 years. The Registers contained the following information:

- axle number
- wheelset number and type
- wheel type (new or used)
- tonnage A-side wheel
- tonnage B-side wheel
- tonnage (gear)
- date
- nominal wheel seat
- inspector
- pass or misfit.

1.9.4 Toll Rail advised that the details of the axle stamping for wheelset 4A were not recorded during its internal investigation into this incident. However, the details were read but it had not been possible to match them with records of wheel manufacture. The year of manufacture of the axle could not be determined, but Toll Rail thought that it was probably manufactured at Hutt workshops.

1.10 A similar occurrence not investigated by the Commission

1.10.1 On Friday 27 December 2002, Train 354, a Murupara to Mt Maunganui express freight service, was approaching Kawerau when the locomotive engineer became aware of an unusual noise from beneath his locomotive, DC4571. He stopped the train to investigate and discovered that the tyre fitted to wheelset 3B had loosened and was striking the bogie frame.

1.10.2 An internal investigation into the incident conducted by Alstom found that wheelset 3B on DC4571 had worked loose, probably as a result of overheating being exacerbated by low tyre thickness. The wheelset had been identified as a category 3 in Tranz Rail[13] SIN ML-024 and required an inspection before each trip or during servicing in compliance with category 3 wheelset documented procedures. However, SIN ML-024 had expired on 31 July 2002 and had not been reissued so was not in effect on 27 December 2002.

1.10.3 Wheelset 3B had been scheduled for a bogie change in November 2002, but the bogies intended for DC4571 were installed in another locomotive and the bogie change for DC4571 was rescheduled to February 2003.

1.10.4 The report noted that on 17 September 2002 the tyre thickness of wheelset 3B had been measured as 31 mm, which exceeded the tabled condemning limit. A non-conformance authority[14], in accordance with the manual for the locomotive to continue running beyond that date had not been issued and pre-trip inspections of wheelset 3B had not been carried out but were not required as SIN ML-024 had already expired.

1.10.5 A possible source of the overheating of the tyre was that the handbrake had been partially or wholly applied. The handbrake could be applied to the No 3 wheelset only.

1.10.6 Recommendations arising from that investigation were made by Alstom to Tranz Rail, and were repeated in the Alstom report to Toll Rail on the incident in Auckland, which is the subject of this investigation.

[13] The operator prior to Toll Rail.
[14] Authority for continued operation of vehicles beyond specified general wear limits could be granted where restrictions or a special inspection regime could be applied to maintain safety margins.

2 Analysis

2.1 Following the derailment the Gibson retaining ring was missing. Without the retaining ring, the tyre was able to move laterally, but the bogie frame prevented the loose tyre breaking free of the axle.

2.2 As the trailing bogie of DBR1199 traversed No 76 points, the rail divergence at the frog and displacement of the wheel flange were sufficient to cause the loose tyre on wheelset 4A to take a diverging route from the rest of the train, pulling the wheel at the opposite end of the axle in the same direction until both wheels derailed. Track damage indicated that as DBR1199 continued towards No 15 points, the right-hand derailed wheel on axle 4 was travelling on the concrete sleepers between the rails on the up main line while the left-hand wheel (wheelset 4B), with the defective tyre, was travelling in the ballast on the left-hand side of the rails, beyond the edge of the sleepers.

2.3 It was not possible to determine accurately how long the tyre had been loose on DBR1199, but the unusual sound that the locomotive engineer heard while the train departed Otahuhu was probably the loose tyre rubbing against the bogie frame, rather than the locomotive running over a stone as he had originally suspected.

2.4 The repetitive heavy braking required to bring the short, light and fast passenger trains to a stop probably caused overheating of the wheels. The short distances between the stops at suburban stations would not have allowed time for the wheels to cool between brake applications. The worn and loose tyre probably created additional overheating. The effect of the overheating, together with the reduced tyre thickness, meant that the clamping effect of the shrink-fitting had reduced.

2.5 In June 2002 wheelset 4A had also been identified as a category 3 wheelset during a SIN ML-024 inspection. Category 3 required a daily inspection of the wheelset before the locomotive entered service. These defects were identified 6 months and 4 months respectively before the locomotive was mothballed, yet no wheel measurement or inspection was done before the locomotive re-entered service in April 2003. In April 2002 wheelset 4A had been identified as having a tyre thickness of 33 mm.

2.6 The inspection requirement arising from a category 3 status was not documented. However, although the information had been forwarded to the Alstom reliability engineer as required, the information was not distributed or readily accessible to maintenance staff required to act on it.

2.7 Locomotives with wheelsets meeting category 3 status were not recorded as “bad-ordered” in the maintenance history computerised tracking program, with the result that when SIN ML-024 expired there was no record of the condition of the wheelset or the required daily inspection.

2.8 In both this and the other known case, pre-trip inspections of the category 3 wheelsets had not been carried out, probably because there was no procedure in place to alert maintenance staff to the status of the wheelsets or inspection requirements. This issue was included in recommendations addressed to Toll Rail in Alstom’s internal report on the incident so no further safety recommendation covering this issue has been made.

2.9 DBR1199 was mothballed for 18 months, and then returned to service without requirement to undergo a mandatory defined test or check process (including a wheel measurement) to confirm its mechanical integrity. This allowed the locomotive to re-enter service in a mechanically suspect condition. Had such tests or checks been in place, the tyre condition might have been identified at that time, especially had it been known that the last correct measurement, undertaken in August 2002, had revealed a tyre thickness only 1 mm above the condemning limit. This issue was included in recommendations addressed to Toll Rail in Alstom’s internal report on the incident so no further safety recommendation covering this issue has been made.

2.10 The continued use of tyred wheels with their known potential for failure brings with it the ongoing possibility of future derailments from this cause. However, Toll Rail's actions in lifting the condemning limit for tyre thickness from 32 mm to 35 mm, together with the ongoing programme of bogie replacements focusing on locomotives with tyred wheelsets, will work towards reducing this possibility and in view of these safety actions no further safety recommendation covering this issue has been made.

3. Findings

Findings are listed in order of development and not in order of priority.

2.11 The derailment was caused by a loose tyre on wheelset 4A of DBR1199 moving laterally on the wheel disc and striking the frog of No 76 points.

2.12 The tyre was able to move laterally because excessive heat had probably, as a result of repetitive heavy braking over time, loosened the shrink-fit of the tyre on the wheel disc, resulting in the wearing away and subsequent collapse of the Gibson retaining ring.

2.13 The tyre thickness on wheelset 4A being at its condemning limit probably accentuated the effect of the overheating.

2.14 With a tyre thickness of 32 mm wheelset 4A was not manual compliant and should have been condemned.

2.15 The tyre of the derailed wheel was probably loose when DBR1199 entered service on the day of the derailment.

2.16 The required daily inspections of the wheelsets on DBR1199 probably had not been done since SIN ML-024 had expired on 31 July 2002.

2.17 The original fitting of the tyre was unlikely to be a factor in this derailment.

2.18 Inspection procedures could be expected to find visual evidence of a loose tyre during B and C Checks if such a condition existed, but not necessarily during A Checks.

2.19 The intervals between B and C Checks on locomotives were such that loose tyres could go undetected between first loosening and Gibson retaining ring failure.

2.20 The length of time SIN ML-024 was in effect was unrealistically short to achieve a full inspection of the entire wagon fleet, but was probably adequate for the locomotive and passenger fleets.

2.21 There was no documented process for the inspection and checks of mothballed or stored locomotives before their return to service.

2.22 Train 4228 was operated correctly and the actions of the locomotive engineer did not contribute to the derailment.

4. Safety Actions

2.23 On 27 September 2004 Toll Rail advised that a new policy had been adopted to lift the condemning limit for tyred wheelsets from 32 mm to 35 mm for all locomotives. Two of the DC class locomotives rostered for passenger service between Wellington and Masterton had completed bogie changes.

2.24 On 13 June 2005 Toll Rail advised in part:

> Since this incident, Toll Rail has been actively removing from locomotive service all tyres with a thickness of less than 35 mm (Code M2000 specifies a minimum of 32 mm). Fifteen such wheelsets were identified in September 2004.
>
> It has also ordered replacement wheelsets for DBR1254, even though these are well above 35 mm thickness.
>
> Bogie overhauls, with full wheel replacement, have been carried out on DC4064, 4409, 4041 and 4110, and DBR1199 and 1267.

2.25 As a result of its own investigation into this incident, Alstom made several recommendations to Toll Rail which included:

> 10.1 Toll Rail reviews its minimum tyre thickness policy as this dimension has been reduced over the years. (This was recommended in a report into a similar incident involving DC 4561 on 27 December, 2002)
>
> 10.2 Tyred wheelsets are eliminated from the mainline locomotive fleet at the earliest opportunity. (This was recommended in a report detailing a similar incident involving DC 4561 on 27 December, 2002)
>
> 10.3 An inspection to cover the safety critical aspects of mechanical operation for Locomotives that have been mothballed is carried out. A mandatory "B" check plus a Standard brake test must be carried out prior to return to service. This should be specified in the relevant code.
>
> 10.4 If a locomotive has a defect requiring inspection every trip, this should (be) identified by a document posted in the locomotive cab and by work orders placed on Maximo. The SIN, LSR, USN, FMI[15]etc should specify this requirement.
>
> 10.5 SINs remain current until all inspection's/remedial work required by the SIN is completed.

2.26 On 27 June 2005 Toll Rail advised in part:

> 10.1 Toll Rail has reviewed its minimum tyre thickness policy and revised this upwards to 35mm for locomotives. The wagon limit is unchanged at 32 mm.
>
> 10.2 It is Toll Rail's policy to replace tyred wheelsets with standard wheelsets when they go through the workshop for overhaul. This will eventually eliminate tyred wheelsets from the mainline locomotive fleet.
>
> 10.3 The next revision of mechanical code M2000 (due out in the next few months) will include the requirement that prior to "parked" vehicles returning to service they must have an appropriate maintenance check carried out, including wheel readings and brake code test.
>
> 10.4 Agreed. This will be carried out as required.
>
> 10.5 Agreed. We are currently reviewing the entire SIN process and before expiry every SIN will be reviewed and re-issued if necessary.

[15] Field Modification Instruction – an instruction authorised by Toll Rail to modify wagons in the field or in depots.

Approved on 21 July 2005 for publication

Hon W P Jeffries
Chief Commissioner

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04-123	Electric multiple unit traction motor fires, Wellington Suburban Network, 7 May 2004 – 30 September 2004
04-121	Locomotive DBR1199, derailment, Auckland, 24 August 2004
04-120	Express freight Train 726, collision with runaway locomotive, Pines, 18 August 2004
04-119	Diesel multiple unit passenger Train 3358, signal passed at Stop and wrong line running irregularity, between Tamaki & Auckland, 28 July 2004.
04-118	Express freight Train 725, track occupation irregularity leading to a near collision, Tormore-Scargill, 20 July 2004
04-112	Diesel multiple unit passenger Train 2146, fire in auxiliary engine, Boston road, 16 April 2004
04-111	Express freight Train 736, track occupation irregularity involving a near collision, Christchurch, 14 April 2004
04-110	Shunt L9, run away wagon, Owen's Siding Onehunga, 5 April 2004
03-114	Express freight Train 220, derailment, Shannon, 21 November 2003
04-113	Express freight Train 220, and empty truck and trailer, collision, farm access level crossing, 162.56 km between Maewa and Rangitawa, 27 April 2004
03-113	Diesel multiple unit, passenger Train 3366, passed conditional stop board without authority, Glen Innes, 30 October 2003
04-109	Passenger express Train 804, Tranz Alpine, stalled and slid back, Otira Tunnel, 28 March 2004
04-107	Express freight Train 237, derailment, near Kopaki, 24 March 2004
04-102	Motor trolley, derailment, Lepperton, 25 January 2004

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