

2013 MAJOR ACCIDENT INVESTIGATION REPORT



National Truck Accident
Research Centre



National Transport Insurance

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1.0 Introduction

The National Truck Accident Research Centre (NTARC) was founded by Australia's principal heavy vehicle insurer, National Transport Insurance (NTI) in 2003. The NTARC publishes a biennial Major Accident Investigation Report (MAIR) detailing the causation factors of heavy vehicle crash incidents for the 'hire and reward' road transport sector. The crash incidents investigated and discussed in this report relate only to claims made to NTI which holds significant operator coverage in Australia.

This report, the fifth in the current series, is a study of an Australian representative sample of serious heavy truck crashes that occurred during 2011.

The collected incident data and the discussion provide a detailed description of a significant compilation of insurer information. The NTARC reviews material describing the crash incident, the incident/site, the motive equipment involved and the immediate recollections of the driver. Further, there is a supporting, statistical analysis that considers time period, vehicle configuration, road network classification, freight on board, age and experience of the driver and the duration of the journey in question.

The object of this research is not to apportion guilt but ultimately to use crash related information to establish support programs and technologies that offer risk based solutions to reduce the number of trucks involved in serious crashes. In each crash incident, a determination of the predominant cause and the relative contribution of various factors are made through the judgement and experience of our experts.

This series of MAIR studies commenced in 2003 with a research report produced in partnership with the Australian Transport Safety Bureau (ATSB). Since that time NTARC has continued to review major losses and periodically reports its findings. To ensure consistency, all reports in the catalogue of research studies, examine losses where the quantum of the claim exceeds a nominal value of \$50,000 (AUS).

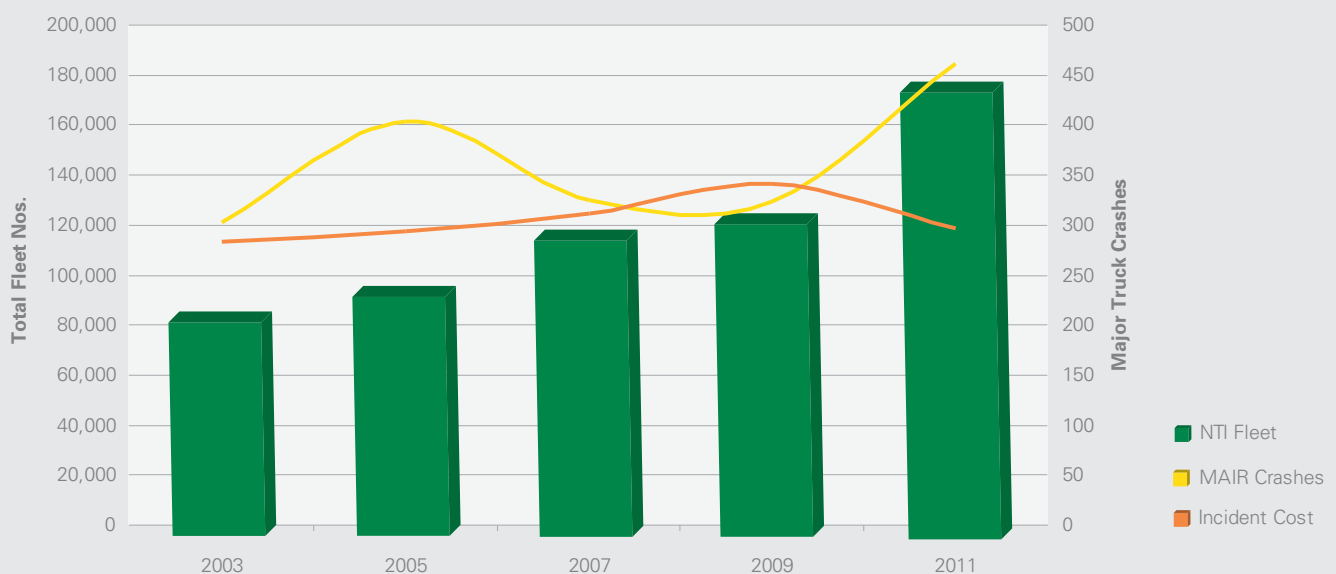
“The object of this research is not to apportion guilt but ultimately to use crash related information to establish support programs and technologies...”

This study which researched 461 crash incidents, accounted for \$54.7m in claims payments in 2011. Whilst the number of large losses had increased by 42% since the 2009 report into major truck crashes, it is noted that the NTI commercial vehicle portfolio expanded substantially during this time from 120,500 to 172,000 units. Such unit numbers are comprised of powered, trailing and ancillary equipment.

And so it is, with a 43% growth in fleet numbers, increased major crash incidents were directly proportional to growth in the NTI insured fleet. As such, in theory, incident behaviour didn't get any worse, or better for that matter.

Further, it is worth noting at this stage that since the first of this series of studies was conducted in 2003, the nominal \$50,000 threshold has not been increased to an Equivalent Present Value (EPV).

Total Fleet Growth vs. Major Crashes

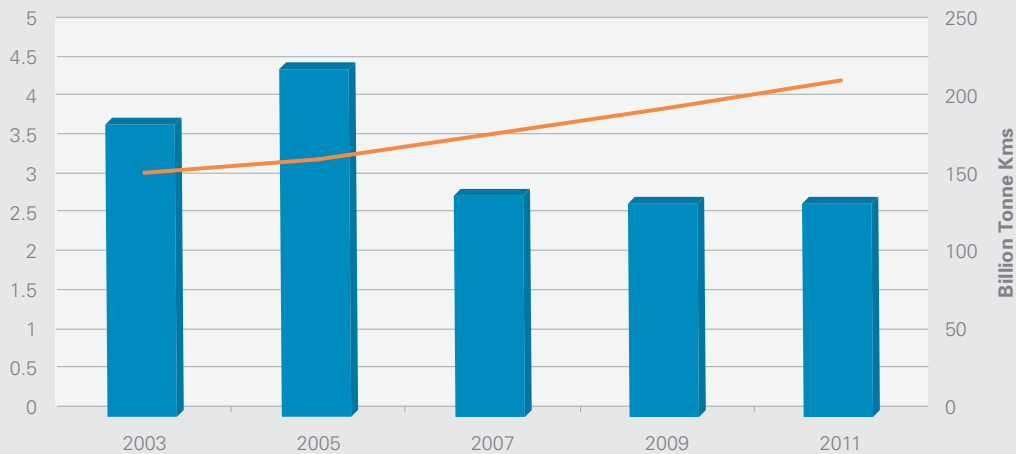


“...the major crash rate per ‘000s units has improved by 42.7% since 2003.”

Consequently it could be argued that the current rate of 2.7 major crash incidents per ‘000s units, demonstrates a continuing improvement in crash rates. For example, if we were to inflate the nominal \$50,000 (AUS) threshold of 2003 by the gazetted annual domestic inflation rate to 2011, we could argue that the major crash rate per ‘000s units has improved by 42.7% since 2003. From a road safety major incident perspective, an unprecedented result.

Also when we consider the average overall cost per major crash incident, the analysis confirms the \$118,600 sum; in this annual data set is a reduction of 13% from that established in the immediate past report. Essentially, we note that there are more incidents over \$50,000 although in many cases, only marginally more.

Major Crash Incidents (per ‘000) v Growth in Freight Task



To emphasise the impact of this result, we note that during the period of this series of research studies, the Australia Road Freight task (*Bureau of Infrastructure, Transport & Regional Economics 2011, Truck productivity: sources, trends and future prospects, Report 123, Canberra, ACT.*) (excluding LCV's) has maintained significant growth from 150 to 209 billion tonne kilometres carried.

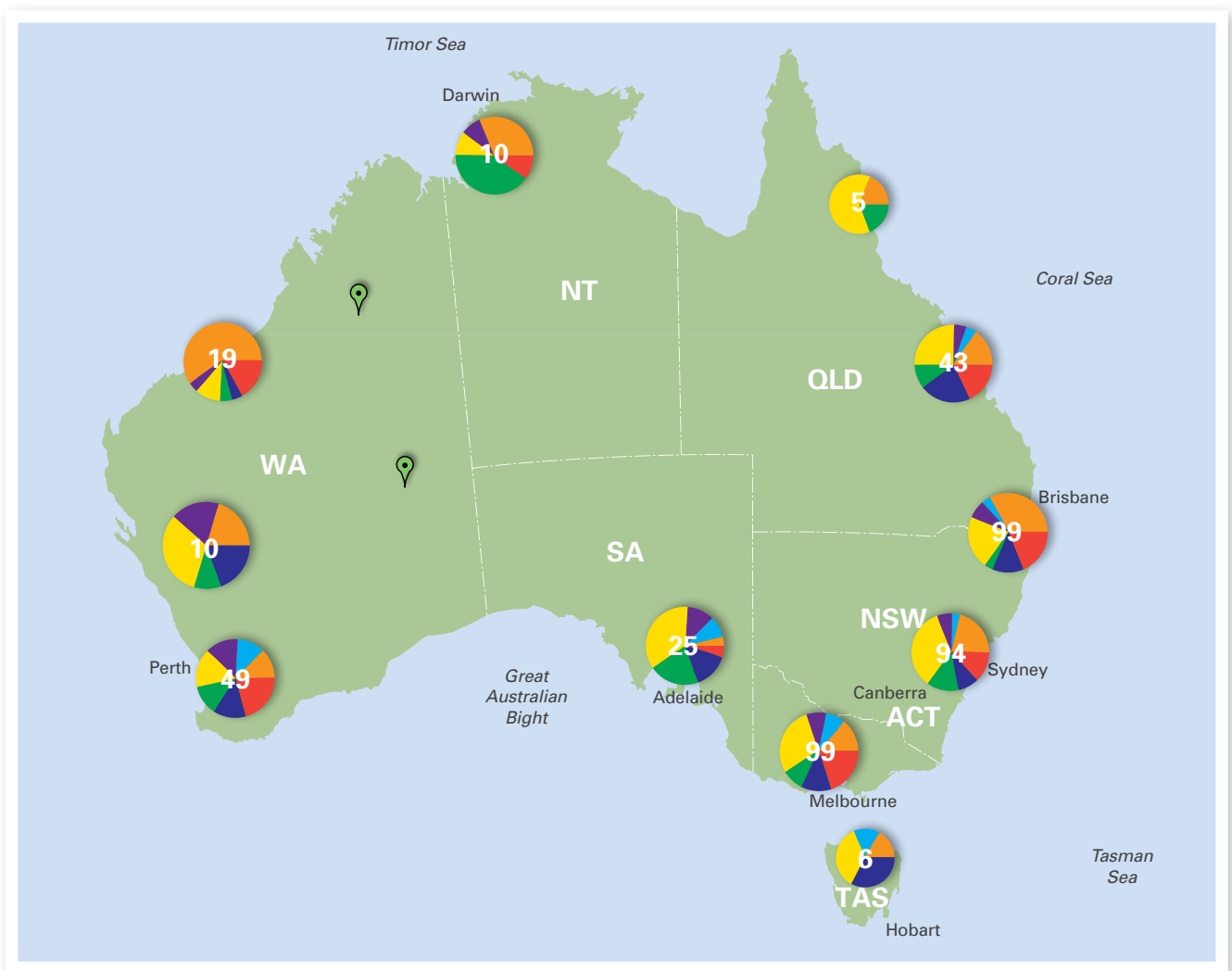
The report next notes its summary of findings, then moves to the specific findings of major crash incidents reported during 2011. It concentrates on heavy vehicle accidents in the 'hire and reward' freight sector where such commercial equipment, has a payload exceeding five tonnes.

2.0 Summary of Findings

- This report, the fifth in the current series, is a study of an Australian representative sample of serious heavy truck crashes that occurred during 2011.
- This series of MAIR studies commenced in 2003 with a research report produced in partnership with the Australian Transport Safety Bureau (ATSB). Since that time NTARC has continued to review major losses and periodically reports its findings. To ensure consistency, all reports in the catalogue of research studies, examine losses where the quantum of the claim exceeds a nominal value of \$50,000 (AUS).
- This study which researched 461 crash incidents, accounted for \$54.7m in claims payments in 2011.
- The report found that if researchers were to inflate the nominal \$50,000 (AUS) threshold of 2003 by the gazetted annual domestic inflation rate to 2011, the crash rate per '000s units has improved by 42.7% since 2003. From a road safety major incident perspective, this is an unprecedented result.
- Inappropriate speed accounted for 25.4% of major crash incidents in the 2011 research when compared to 31.8% in 2009.
- What has become apparent in this study of major crash incidents are those incidents attributed to non impact fires. With 12.1% of the 461 reported losses accounting for just over \$9m, the average fire loss was \$170,129.
- When investigating only multi vehicle fatal incidents, it was established that in every 2011 NTI insured vehicle fatal incident, the driver of the lighter vehicle or the third party, was at fault. This was a highly significant outcome from the 2011 data. In 2009, the truck was at fault in 18% of NTI insured incidents involving a fatality.
- The previously concerning rate of crash incidents on Queensland's Bruce Highway has seen little or no improvement. Western Australia's Great Northern Highway continues to be a growing concern to heavy vehicle insurance underwriters as the frequency of major truck crashes increases.



3.0 Scene of Accident: GPS Mapping

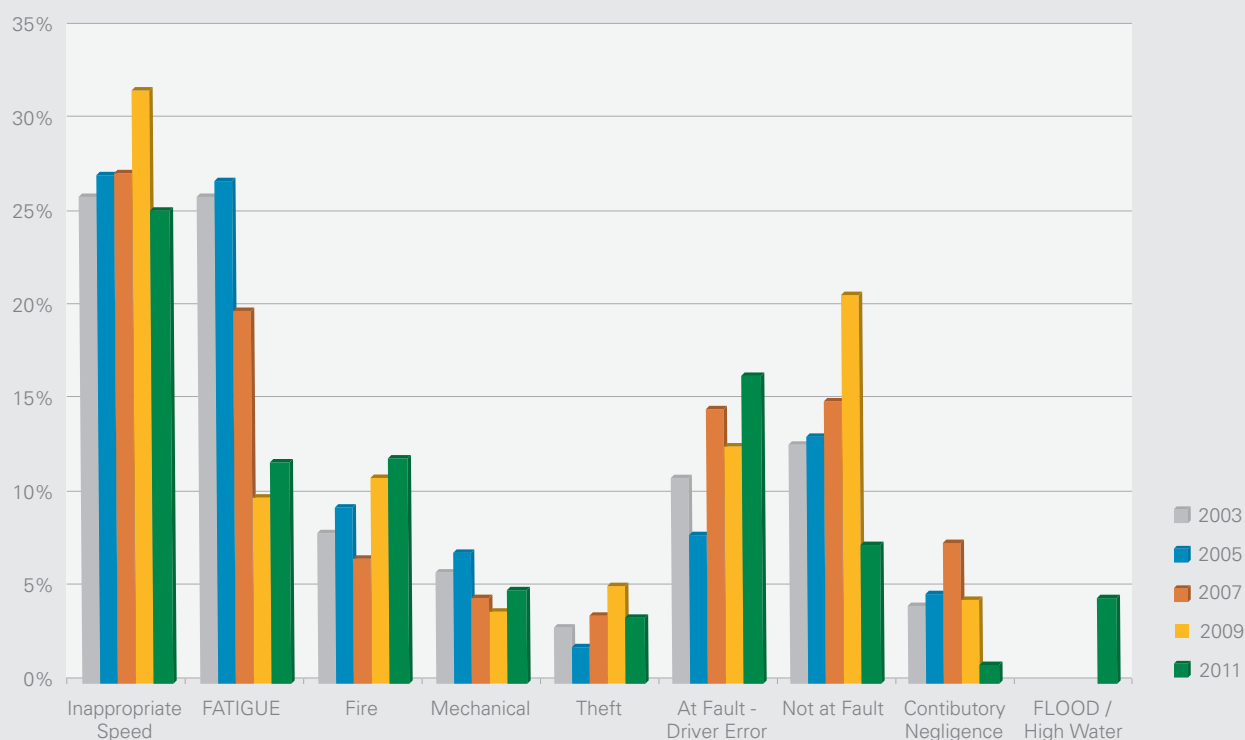


NTARC Finding AT FAULT - DRIVER ERROR FATIGUE Fire Non Impact INAPPROPRIATE SPEED Not Liable RWT Others

4.0

Accident Cause: Investigation Finding

Accident Cause: Investigation Finding



When considering the accident incidents in this 2011 report the ultimate aim, where possible, is establishing the actual accident cause. In some cases the driver's recollection of the event is improbable and difficult to substantiate. Nevertheless a degree of surrogacy is factored into any given incident finding and that along with the benefit of a post incident analysis of vehicle satellite tracking and on board engine management software, generally enlightens investigators to the root accident cause. The combination of these techniques, in most large loss circumstances, and independent investigations at the scene, will generally represent the most probable accident scenario.

For example, is driving at an inappropriate speed for the prevailing conditions still the most common factor leading to major truck crash incidents? We believe there has been a marginal improvement when compared to the 2009 result. Inappropriate speed accounted for 25.4% of major crash incidents in the 2011 research when compared to 31.8% in 2009. Later, this report will specifically investigate speed in the context of actual losses.

It is not uncommon for the NTARC to receive requests for information on crash incidents, particularly those attributed to fatigue. It has been identified in past reports, since the September 2008 introduction of



the National Model Legislation for Heavy Vehicle Driver Fatigue Reform that this change immediately impacted on management and driver behaviour with accident findings in the 2009 series accounting for a 50% reduction in fatigue incidents. The result in this study increased marginally to 11.9% of serious crash incidents; nevertheless the increase in fatigue related crash incidents would require regulators to maintain their current focus without any significant increase in the level of resourcing.

What has become apparent in this study of major crash incidents are those incidents attributed to non impact fires. With 12.1% of the 461 reported losses accounting for just over \$9m, the average fire loss was \$170,129. Whilst we review this subject further in this report, such fire losses originate from failed wheel bearings, brakes, engine, cabin electrical wiring and trailer refrigeration equipment. It naturally begs the question of whether the standard of quality and regular equipment maintenance has become less rigorous.

Multi-vehicle incidents: after excluding losses due to inappropriate speed and fatigue, 16.5% of incidents

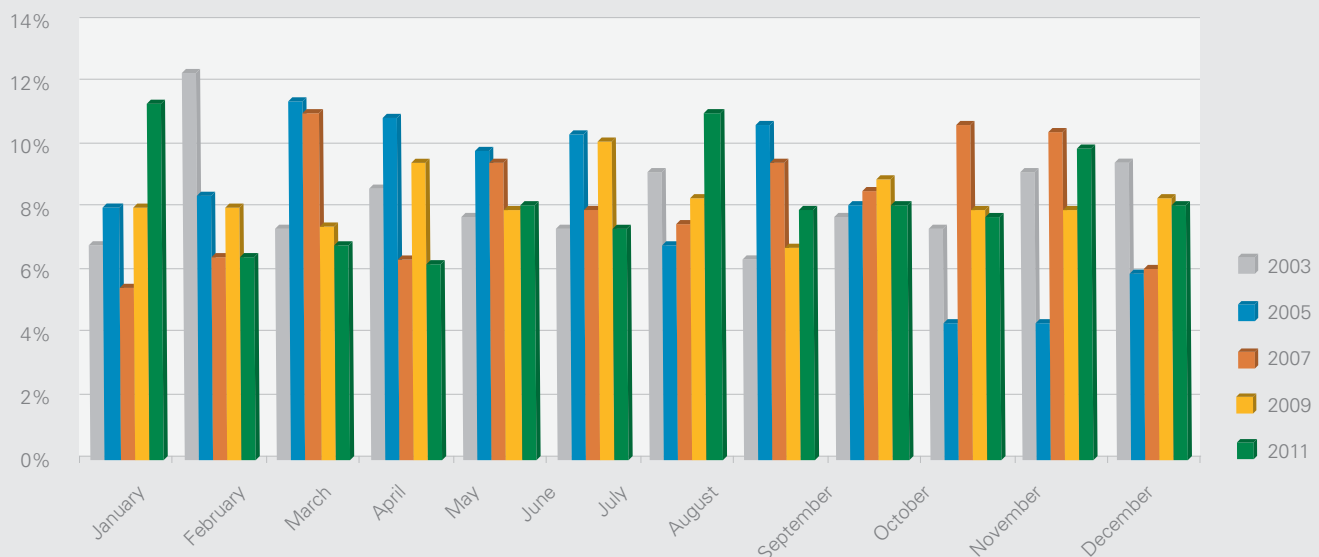
were simply found to be driver error with the highest proportion applying to non fatal accidents involving other parties. Overall, of the cases involving other vehicles, this study found that in 70% of incidents, the NTI insured vehicle was at fault. This finding is concerning given the fact that historically the other party is generally found to be at fault in the majority of cases. Further, when we investigated only fatal incidents, it was established that in every 2011 NTI insured vehicle fatal incident, the driver of the lighter vehicle or the third party, was at fault. This was a highly significant outcome from the 2011 data. In 2009, the truck was at fault in 18% of NTI insured incidents involving a fatality.

This result focuses on losses reported during 2011 which also included motor claims as a consequence of flooding and high water especially when Toowoomba, Ipswich and Brisbane were inundated in Queensland in January 2011. Transport and freight distribution outlets, often domiciled in low laying industrial areas were the worst affected. Within the context of this report, such losses were deemed to be 'off road' and included other incidents involving theft of equipment and roll-over whilst tipping.



5.0 Accident Specifics: Month

Accident Month

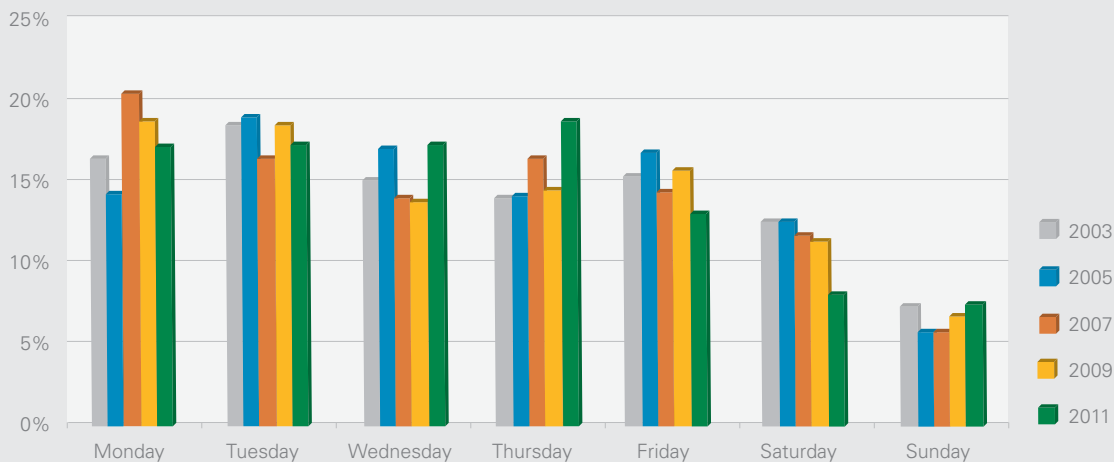


With 11.4% of reported major losses, January was noted as the busiest accident month in the 2011 study. This result was by far the worst for that month since the series of crash reports was begun in 2003. The majority of large losses for January 2011 were lodged in Queensland and related to flooding of low lying areas. This was a result of heavy rainfall caused by Tropical Cyclone Tasha which combined with a broad low pressure rain trough during the peak of a La Niña event.

July with 11.1% of large losses particularly across NSW was next with 50% of incidents involving inappropriate speed or fatigue. November and December were again strong as the freight task intensified as the year concluded.

6.0 Accident Specifics: DAY

Accident Day



When examining the day of week data, relating to each major crash incident, we note that again the early days of the week were prominent with Monday to Wednesday accounting for 52% of truck crashes. This result is consistent across the NTARC's series of studies.

It is also worth noting in this current 2011 report 18.9% of accidents reported were on Thursdays. Possibly a proportion of losses can be attributed to the Brisbane flood high water mark being recorded on Thursday January 13th. The database also indicates that livestock transporters operating within NSW were notable with 31% of losses being reported on that particular day during 2011.

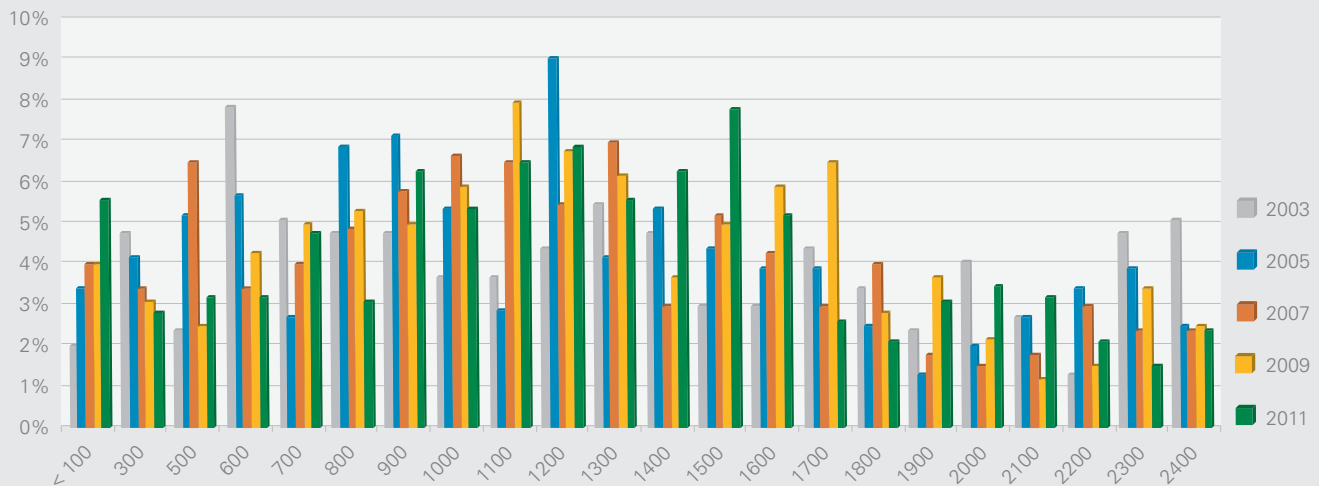
The NTARC has also established, in a recent independent study reviewing livestock losses that a high proportion of livestock incidents, irrespective of claim size, occur from Saturday pm through to Sunday pm.

“...again the early days of the week were prominent with Monday to Wednesday accounting for 52% of truck crashes.”

7.0

Accident Specifics: Time of Day

Accident Time



Information analysed on the specific time of day for major losses has historically identified that the middle of the day usually sees higher incident rates. It is during the hours of 1100 – 1400 when the greatest proportion of the fleet is being utilised and traffic on the road network is at its heaviest.

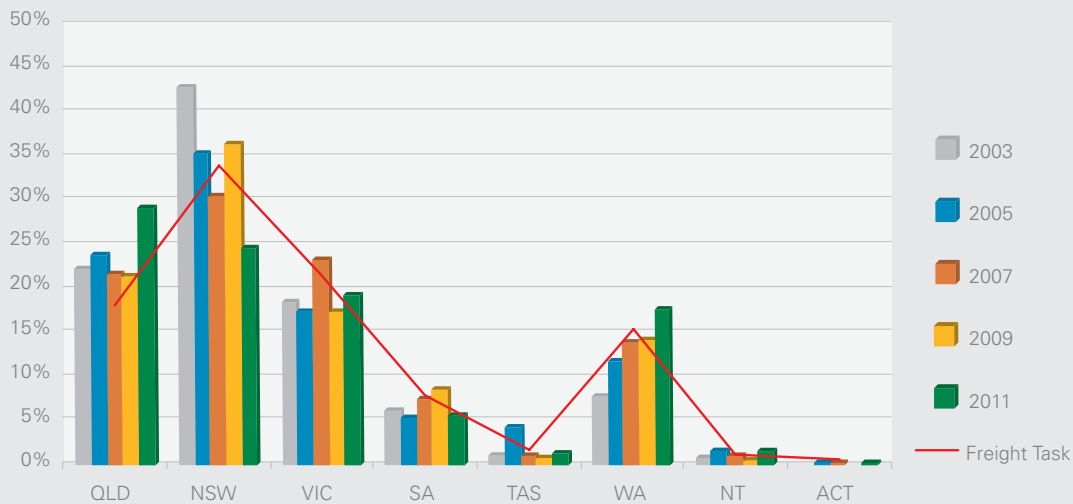
The 2011 statistics generally follows this formula albeit that the midday session is extended to 1500 hours. Early research comparisons have not found the transition to daylight saving an issue of any consequence, where for example, most Queensland losses during the summer months, have involved freight movements within the boundaries of that respective State.

There was, however, an observed incident spike in the hours of midnight to 0100 hours. At closer inspection it was established that fatigue in fact was not the dominant cause but flood. This was because, 0100 hours was used as the default loss time for registered losses to be declared if vehicles had been inundated during the early hours of any given morning.

8.0

Accident Specifics: Location State / Freight Task (Itk)

Accident Location: State / Freight Task

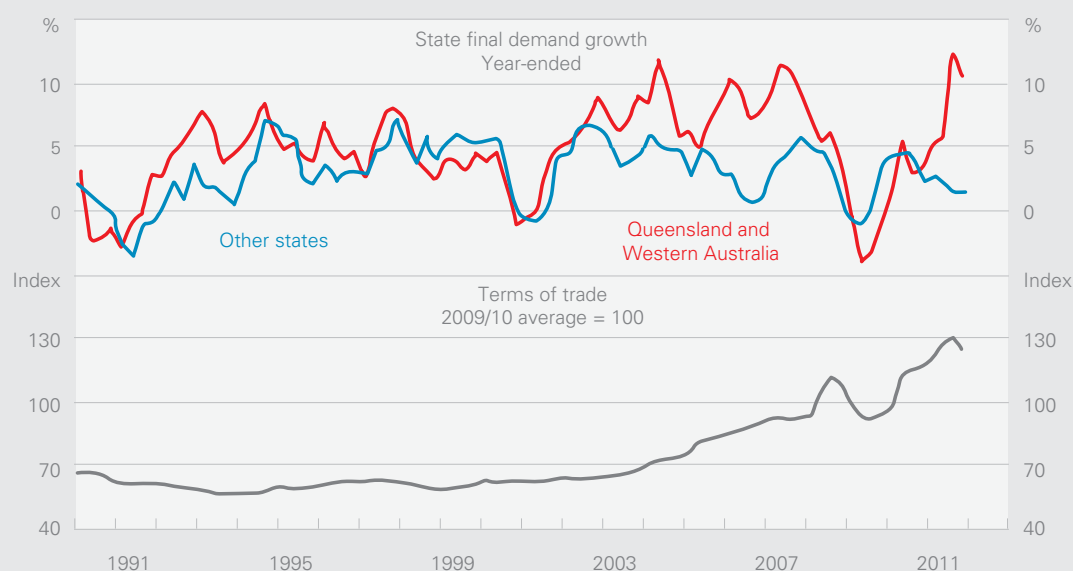


Research identifying the location of major crash incidents by State established a new and evolving trend in Australia's road transport industry behaviour. Whereas in the prior report, which studied losses registered in 2009, where there were concerns raised for New South Wales heavy vehicle incidents, NTARC now reports that since that time we have found that major losses are increasing in the resource rich States of Queensland and Western Australia as the freight task changes.

As confirmed by the RBA- *Bulletin March Quarter 2012*; 'With the large increase in global commodity prices since the mid 2000s, this has resulted in significant growth in Australia's investment spending and export earnings. This has been most pronounced in Western Australia and Queensland, which are the States with the highest concentration of mining resources and operations.'

“...the New South Wales result showed improvement with 24.7% of losses, when considering the State’s 33.8% share of the road freight task.”

State Demand and Terms of Trade



Sources: ABS; RBA

In Queensland, whilst it is acknowledged that the share of the national freight task has increased to 18.1%, *ABS (2011) and BITRE estimates*; the share is overrepresented with 29.4% of reported large heavy vehicle incidents. The Western Australian result also follows a similar trend with a 15.5% share of the road transport task in total tonne kilometres, with 17.8% of large claims.

When these results were further investigated, the NTARC identified that in the case of large losses occurring within Queensland, it was established that 14.2% of losses (excluding flood claims) involved

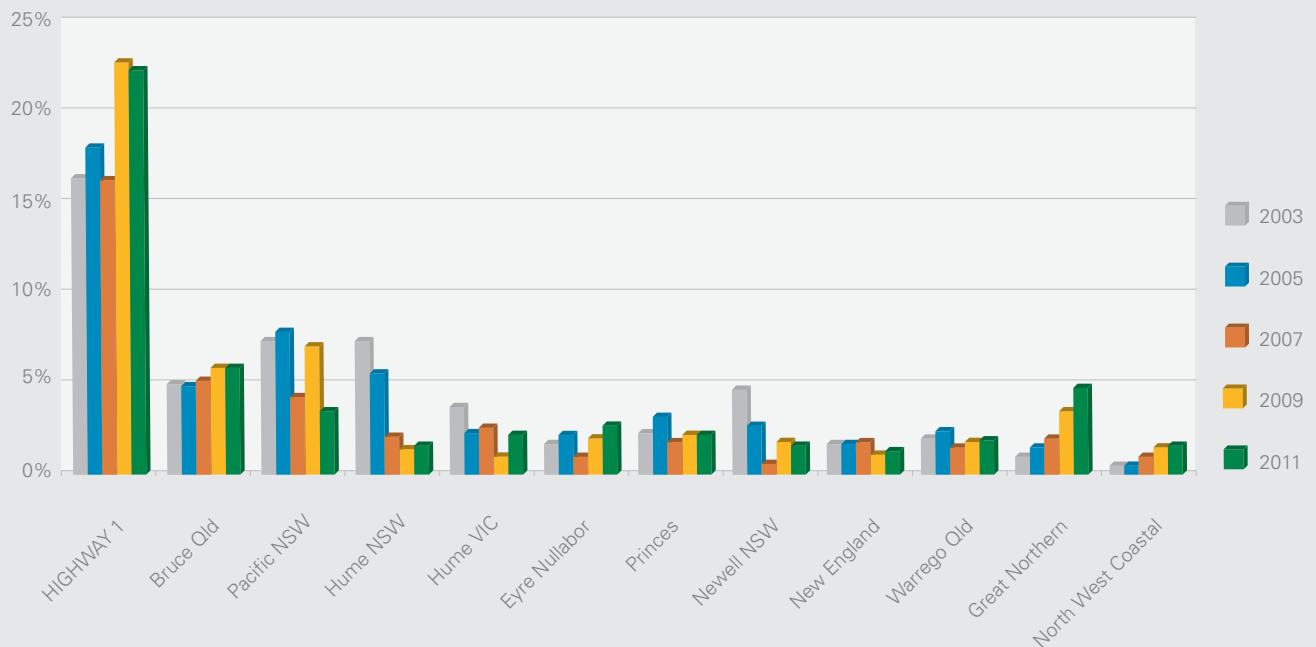
heavy vehicles that had commenced their journey from outside that State. By contrast the greater majority of WA losses involved vehicles domiciled in that State.

Insofar as major crash incidents that occurred in the remaining States and Territories, the New South Wales result showed improvement with 24.7% of losses, when considering the State’s 33.8% share of the road freight task. The Victorian and South Australian numbers resulted in an expected share of incidents. Tasmania, the ACT and the Northern Territory reported incidents continued to be very low as a percentage of the national incidents observed.

9.0

Accident Specifics: Location of Major Incidents on the Road Network

Location Road Reference



In a later section of this report we examine that category of the network where these incidents occurred. In consideration of our research establishing that almost 1 in 5 incidents actually happened off the public road system, we will now focus on those major road links that were prominent in the study. It should be understood that when we examine off road losses, we include such circumstances as theft, arson and tipping rollovers, whilst tipping hoists are in operation often occurring on private property.

Australia's Highway 1 is a collection of highways that in most places follow Australian coastal borders. This highway joins all mainland state capitals. It has a total length of approximately 14,500 km, and is the longest highway in the world although all sections are not comprised of links in the national highway system.

When the National Route numbering system was adopted in 1955, Highway 1 was then the only truly linked highway network. Many of the other common routes are tributaries of Highway 1. Federal road supported funding is directed in the main to the national highway network, and often to links in Highway 1. With this consideration the NTARC has devoted Highway 1 as an independent data set and combines losses that fall under this Highway 1 classification as a reportable topic.

In this study, 22.4% of major truck crash incidents (on the public network) occurred on Highway 1; this showed little improvement on the prior 2009 report.

Moving to specific highways, we are immediately reminded that the previously concerning rate of crash incidents on Queensland's Bruce Highway has seen little or no improvement.



“The resultant damage to the Bruce Highway pavement was substantial and compounded the existing long term maintenance and funding problem.”

The Bruce Highway is a major arterial in Queensland. Commencing in Brisbane, it passes through areas that follow the eastern coast north to Cairns in Far North Queensland. The route is a part of the Australian National Highway and also part of Highway 1. Its length is approximately 1700 kilometres; and whilst it is entirely sealed with bitumen, on many narrow stretches this is the bare minimum.

The Bruce Highway is the biggest traffic carrier in Queensland. The highway initially joined all the major coastal centres; however, a number of bypasses, particularly in the south, have diverted traffic around these cities in order to expedite traffic flow and ease urban congestion.

The Bruce accounted for 5.9% of serious truck crash incidents, many where the NTARC investigators attributed cause to either road condition, fatigue, inappropriate speed and the lack of appropriate heavy vehicle rest areas. Whilst this highway may be Queensland's busiest, should we compare freight movements to the Hume or Newell, the result is comparatively worse. No doubt in some regions the condition of the Bruce Highway can be attributed to weather activity. When the wettest December on record (2010) was followed by continuing monsoonal action, a wet New Year period in January (2011) culminated with one of the most widespread and significant floods in Queensland's history. Many sections of the Queensland road system were severely stressed.

The resultant damage to the Bruce Highway pavement was substantial and compounded the existing long term maintenance and funding problem.

This report has previously discussed the improved New South Wales incident results. No doubt that State's commitment to improving the condition of the main arterials, contributed to this result. Major NSW truck crashes reported on the NTI account reduced from 36.5% of the national count in 2009 to 24.7% in this 2011 data set. The results on the Hume, Pacific, Newell and New England are encouraging.

Western Australia's Great Northern Highway continues to be a growing concern to heavy vehicle insurance underwriters as the frequency of major truck crashes increases. This freight corridor was responsible for 4.8% of large losses, substantially more than the 1% of the national result in the 2003 research.

The Great Northern Highway is a generally north-south Western Australian highway which links the state's capital Perth with its most northern port, Wyndham. It is 3,204 kilometres in length, with 3,144 kilometres being National Highway. It is constructed as a sealed, predominantly 2-lane single carriageway.

This highway is the longest intrastate highway in Australia and also the longest Australian highway in absolute terms. In parts, it is among the remotest sealed road in the world. Some sections are several hundred kilometres in length without so much as a roadhouse. Economically, it is a vital link as it provides access to the resource rich regions of the Pilbara and Kimberley. In these areas, the key industries of mining, pastoral stations and tourism have a growing dependency on the highway as freight movements, particularly over-dimensional laden roadtrains, increase.

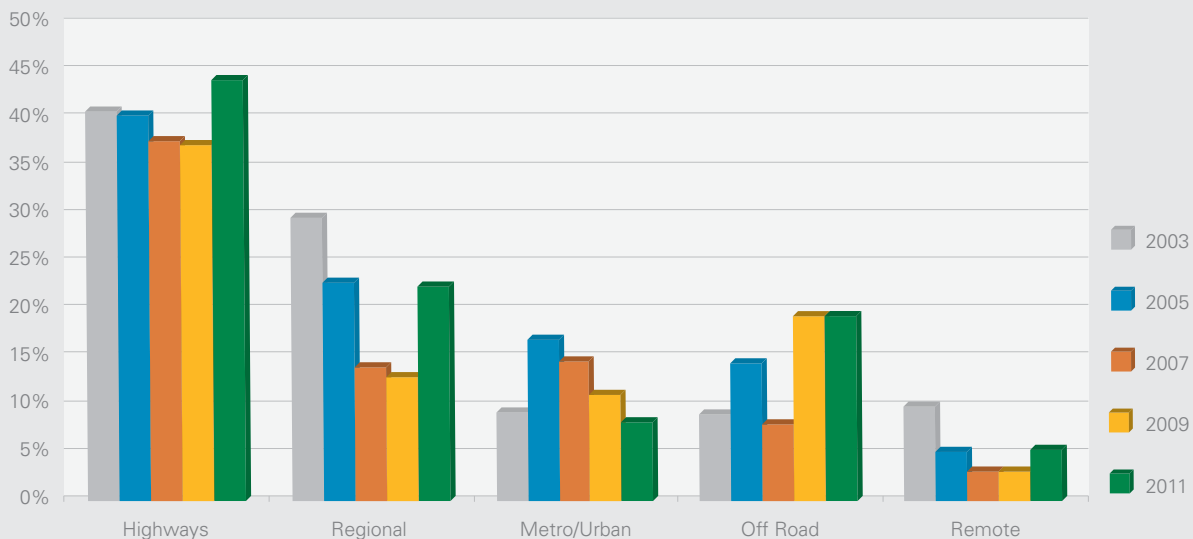
The Great Northern Highway presents several major hazards to heavy vehicles. Stray cattle and other grazing animals are particularly dangerous and prevalent throughout the Kimberley and Pilbara districts. 33% of large losses on this highway were as a result of livestock on the network. With an estimated 900 kilometres of unfenced highway and dependent freight moving 24 hours a day, the highway is a potential minefield for heavy transport operations as they are forced to play Russian roulette on a daily basis.

Flooding is another hazard, as the Kimberley and Pilbara receive periods of torrential rainfall between November and May. At other locations, it is not unusual for the highway to be underneath metres of water.

10.0

Accident Specifics: Location Road Category

Location Road Category



The 2011 investigation has again found that there continues to be a high proportion of major loss incidents occurring 'Off Road'. As stated previously, such losses involve a combination of events ie. stolen equipment, trailers rolling whilst being tipped and arson. In this research period, flood losses represented 18.4% these particular claims.

Considering the road network, *Roads Australia* advice is that the Australian road system covers more than 817,000 kilometres. Of this more than 80% or 657,000 kilometres are controlled by local governments although State – controlled roads account for 75% of all vehicle kilometres travelled.

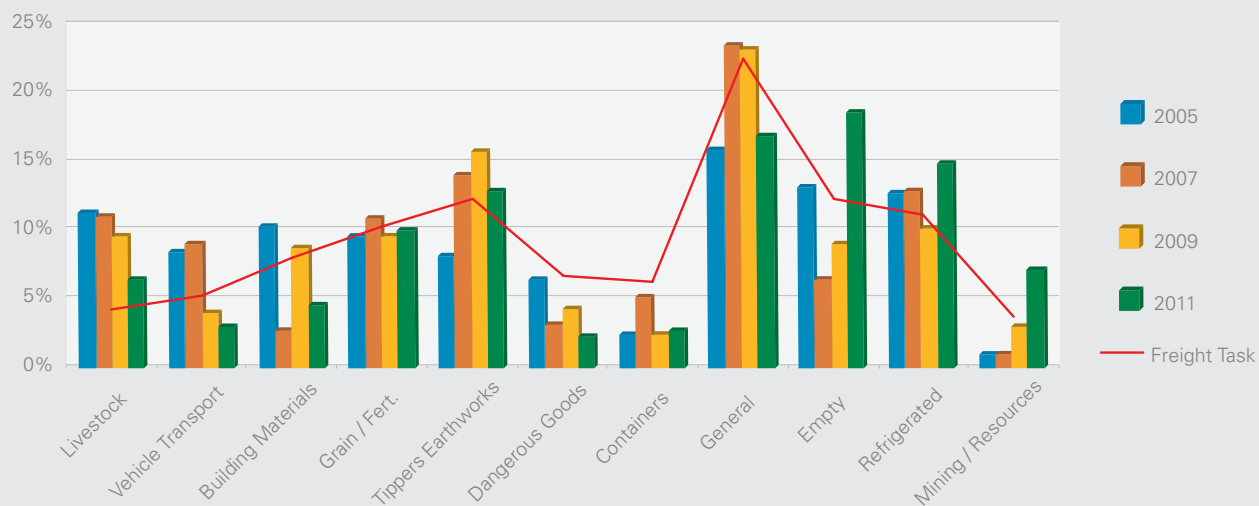
There are more than 37,000 road bridges and 23,500 rail crossings (37% of which are gazetted for public access) across Australia.

Given the (\$) quantum of each loss researched in this series of reports, as expected, a relatively small proportion, (8.24%) occur on that part of the metropolitan & urban network. Remote areas, excluding major highways dissecting these regions, account for 5.4% of major truck crash incidents with the highest proportion in those operations in WA, supporting remote mining ventures.

Highways and regionally categorised 'C' grade roads account for the greater majority of incidents with 66% of heavy vehicle crashes. This research has identified a substantial increase in losses on the 'regional 'C' network with Queensland, NSW and Victoria accounting for over 80% of losses. Grain and livestock carriers along with those operations servicing the mining ventures are well represented.

11.0 Accident Specifics: Freight on Board

Accident Freight on Board



Heavy vehicle crash incidents on the subject of freight on board can only be a general review given the lack of information available from government agencies and industry sources pursuant to load movements and the differing classification of such.

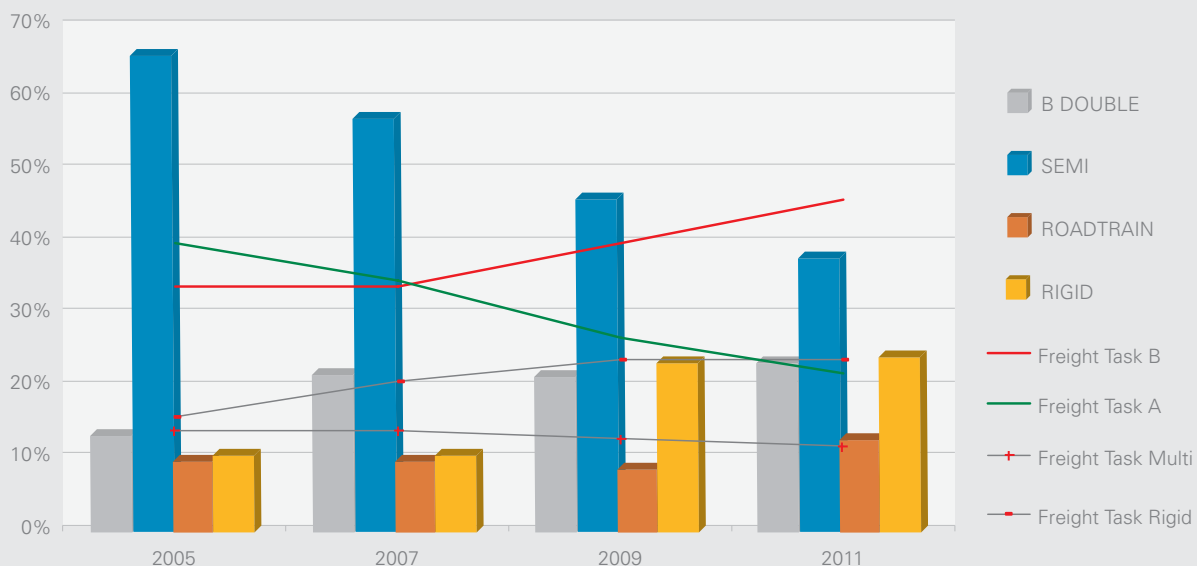
Nevertheless, with the use of the most accurate and qualified freight information, NTARC established in this review (of most recorded incidents); that in 18.7% of events, the conveying vehicle was unladen. This is noteworthy given that information indicates that the fleet runs empty 12% at any given time. We also note that some incidents when examined by freight commodity are higher than others, when it comes to empty running.

When comparing the result with past assessments, based on the freight task share, livestock saw an improvement, albeit crash incidents continued to be over-represented and general freight results showed improved crash incident rates. Grain contractors and bulk tipper applications also continue to have a high proportion of losses. The refrigerated freight sector, on the NTI book, deteriorated to 14.9% of truck crash incidents. Vehicles servicing the mining and resources sector accounted for 7.2% of major losses.

12.0

Accident Specifics: Vehicle Configuration

Accident Vehicle Configuration



Vehicle configuration reporting in the NTARC research continues to be a point of reference as it is the view that this directly influences vehicle stability. With a renewed focus by transport authorities to consider heavier, higher and longer road transport vehicles, the performance-based standards scheme (PBS) is now a key element of the Council of Australian Government's (COAG) national reform agenda for transport. Fundamentally, road safety is the precursor to any allowances as the industry strives for greater on road efficiencies.

When this research category was introduced into the program in 2005 the industry was experiencing unprecedented growth in the freight task. It was undergoing a transition to increased mass with higher utilisation of multi-combinations. At that time it was established that single articulated combinations accounted for 39% of the task and with 66% of major truck crash incidents, the worst performance. By contrast B-Doubles with a 33% share of freight carried were responsible for 13.3% of losses. Moreover, this comparative outcome was repeated in subsequent studies.



“...NTARC research has again found that B – Doubles continue to be the safer alternative...”

The 2011 study now includes the contribution of heavy vehicle Rigid combinations in the assessment. We remind readers that any previous reference to freight task share, has been adjusted to include this class.

With a growing share of the freight task, Rigid combinations with trailing equipment are now responsible for 23% of the task in loaded tonne kilometres and 24.2% of major crashes. Multi – combinations which include A – doubles, A – triples, B – trains (excluding doubles) and all other non specified combinations account for 11% of freight movement with 12.8% of losses. This result has not changed to any real extent across the series of reports.

From what we can now establish, the single articulated vehicle share of the freight task has continued to fall. From the 39% qualified in the 2005 research (ex. Rigid combinations), we can estimate that during 2011 the share had fallen to 21%. This share has been taken by heavier rigid combinations as well as B – Doubles. We continue to find though that the heavy vehicle crash incidents are over represented with this class accounting for 37.9% of large losses.

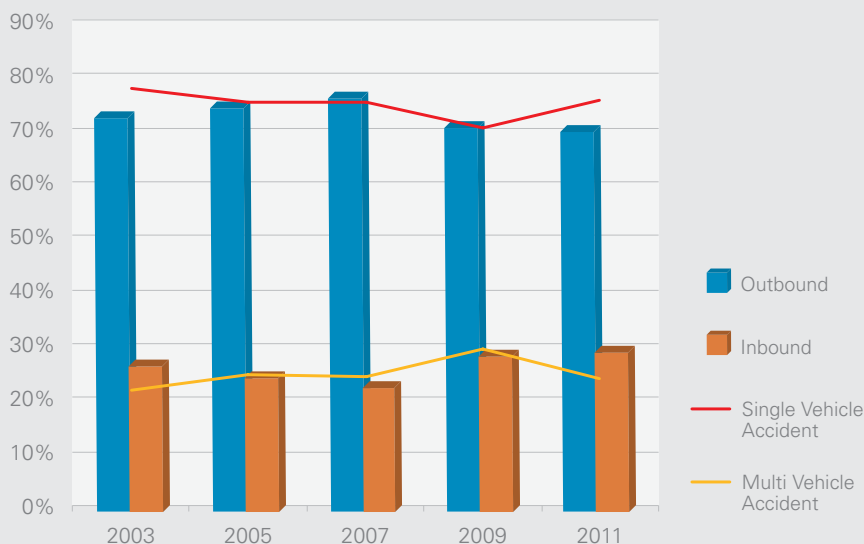
By the same token, the NTARC research has again found that B – Doubles continue to be the safer alternative with 45% of the workload in loaded tonne kilometres and 23.6% of large truck crash incidents.



13.0

Accident Specifics: Direction of Travel

Accident Inbound / Outbound Journey



This study into major incidents has focused on vehicle direction since the 2003 report. From the outset it was established that the greatest proportion of major truck crashes occur when the vehicle is on an outbound leg from home port. Of course this begs the question as to why this is so, as logic would suggest that the driver should be commencing the shift well rested and fit for duty.

This is consistently not the case, with the latest research again finding that in 70.5% of accidents, the vehicle is outbound. Whether the working week commences Saturdays, in the case of livestock

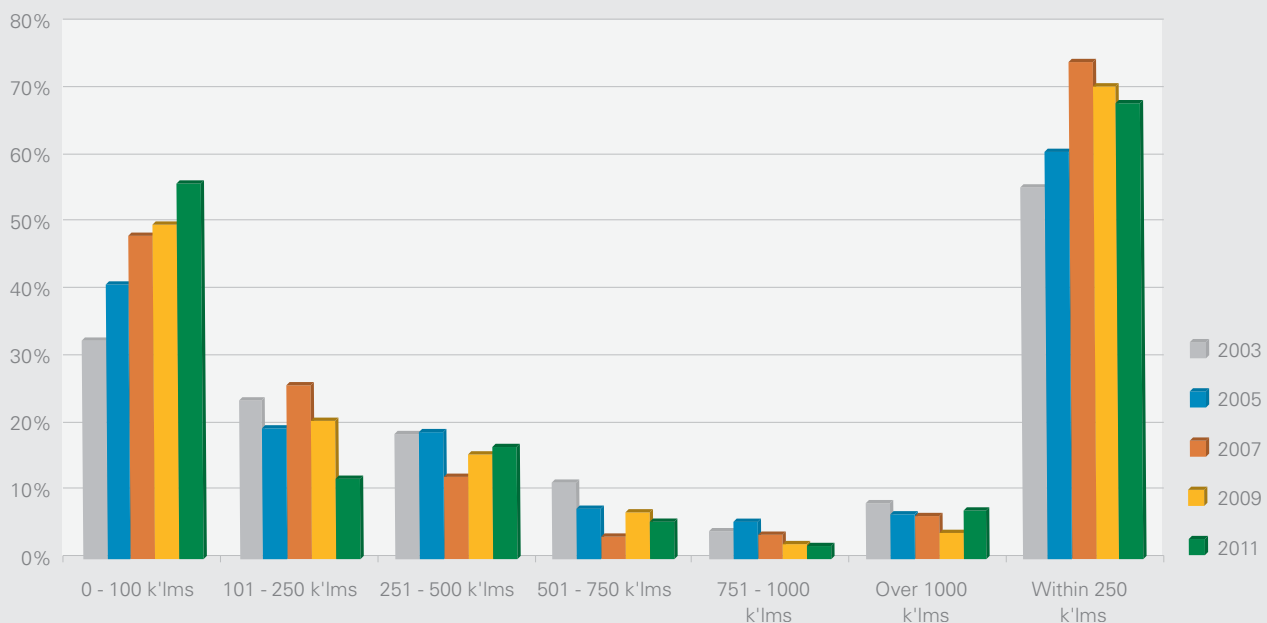
operations, or late Sunday / early Monday for other freight tasks, an extraordinarily high proportion of losses occur on the outbound leg.

Also, in this section the NTARC researchers review multi – vehicle crash incidents. Whilst we note that in this study that 75.9% of reported losses are single vehicle events, we note that in the remainder of files where a third party(s) is involved, in 67% of the events, the driver of the heavy vehicle is the ‘at fault’ party. Ironically though in those cases where a fatality occurs at the scene, it has been established that the third party was responsible 100% of the time.

14.0

Accident Specifics: Distance from Point of Departure

Accident Distance from Point of Departure



Undoubtedly this criterion may be influenced by the spread of transport operations be they local, regional or intercapital linehaul. Nevertheless the NTARC researchers have again established that by far the greatest majority of large losses occur within the first 4 to 5 hours of any given journey, whether the outbound or return leg.

With 68% reported within 250 kilometres and 85% occurring within 500 kilometres from departure, the high risk period continues to be that which would seem early in the task. Incidents registered over 500 kilometres and 1000 have little or no influence on the result.

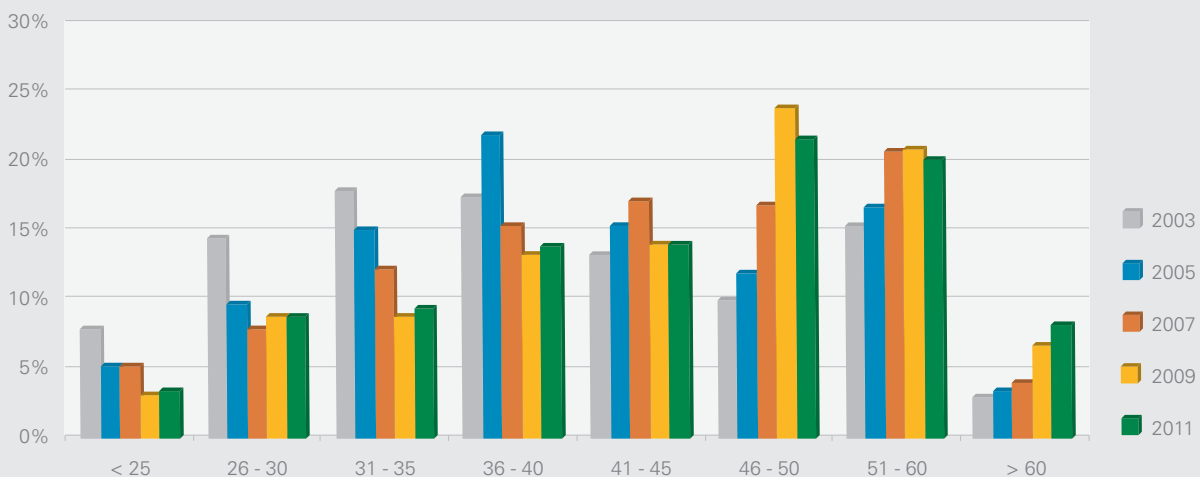
This 2011 assessment bears testimony to the historic record which consistently reports that the highest exposure is earlier rather than later in the work program. The inclusion of major truck crash incidents involving rigid units has influenced the proportion of incidents within 100 kilometres from point of departure.

To emphasise the importance of establishing a driver's pre-trip fitness for duty, NTARC has established that 90.1% of incidents reported on outbound journeys (excluding on site events), occur within 250 kilometres from commencement.

15.0

Accident Specifics: Age of Driver

Accident Rate: Age of Driver



This report into major truck crash incidents in 2011 has established the greatest proportion of losses involved drivers over the age of 40. With 65% of reported losses there was no change to the prior research result into 2009 losses. NTARC believes that whilst those drivers over the age of 40 years would make up the highest proportion of the labour pool, we are unable to qualify this fact understanding that whilst many carry commercial vehicle licences, it does not necessarily follow that they are currently employed in a role where the licence would be used.

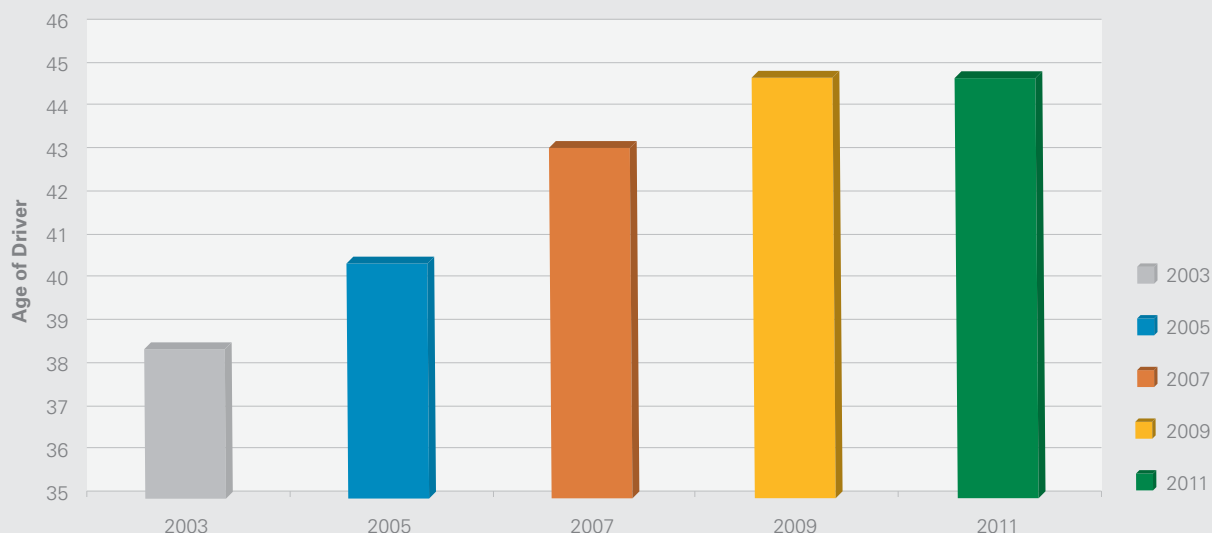
Contrary to prior reports by NTARC there were marginally less incidents involving drivers in the 46 to 60 year bracket although those over 60 years had an increase in the number of large loss incidents.

“...those over 60 years had an increase in the number of large loss incidents.”

16.0

Accident Specifics: Average Age of Drivers

Accident Driver: Average Age



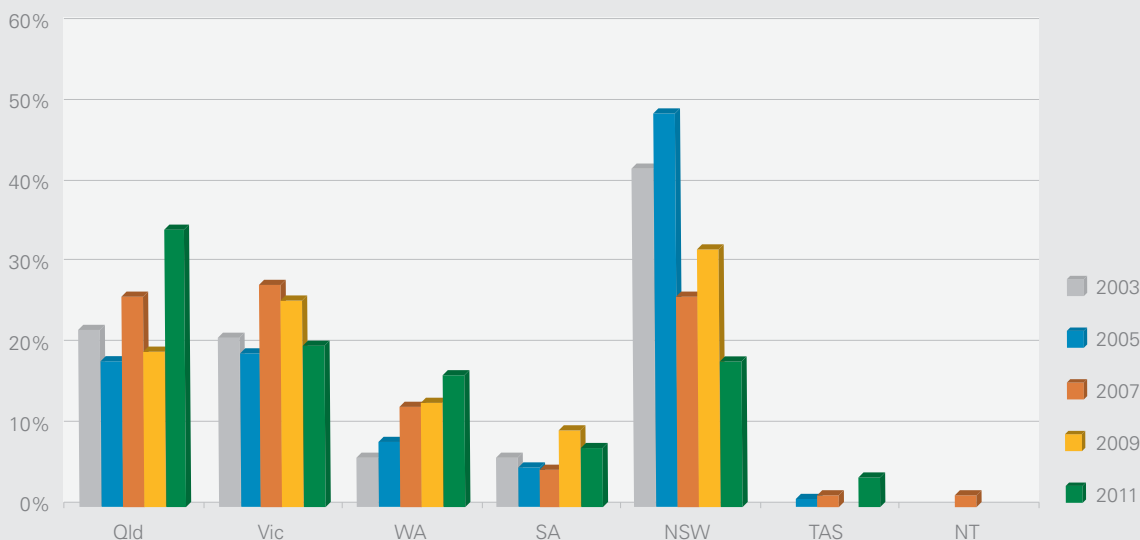
Since the first NTARC report in 2003 the average age of drivers continued to increase progressively from 38 years 6 months to 44 years 10 months in the 2009 research. Indicative of the fact that the same pool of drivers was ageing.

The 2011 study noted that the average age of drivers involved in major truck crash incidents had not changed since the last report. However in saying that NTARC does not believe that the practice of using, and keeping, aging drivers is shifting. The ageing workforce is symptomatic of the road freight industry.

17.0

Accident Specifics: Fatigue Location

Fatigue: Accident Location (State)

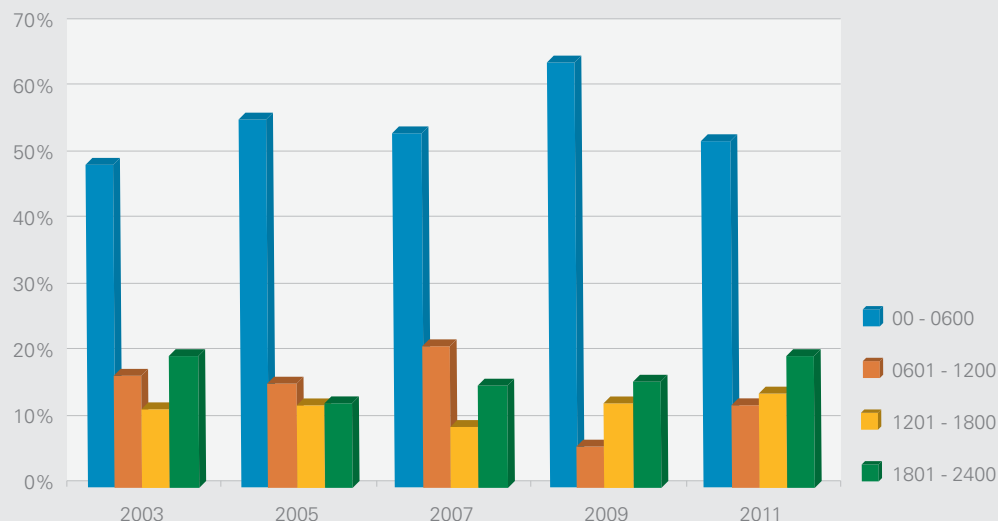


This 2011 study has stated earlier that since the introduction of the National Model Legislation for Heavy Vehicle Driver Fatigue Reform, implemented in September 2008, fewer incidents have been attributed to fatigue. It has been established in the 2011 research that in 11.9% of large crash losses, fatigue was found to be the predominant cause. A much improved outcome since the initial 2003 research, which found fatigue the primary cause in over 26% of losses.

In this recent study though, whilst Victoria, South Australia and New South Wales had fewer fatigue losses, there was an increase in fatigue related incidents in Queensland and Western Australia. In those States as the freight task alters, there is increased use of a road network that has not historically seen such high volumes of freight traffic. In some cases freight is travelling into regions not previously travelled in the normal course of events and as such are 'unexplored' territory to the experienced operator.

18.0 Accident Specifics: Fatigue – Time of Day

Fatigue: Accident Time of Day



The issue of accident time of day, especially when researching the subject of fatigue, is arguably a crucial finding in a study of this nature. As reported, losses that have been attributed to fatigue have decreased substantially during the series of MAIR studies since 2003.

We note however that when NTARC reviews those fatigue related vehicle crashes, midnight to day break continues to be high risk with over 52% of incidents occurring during this period.

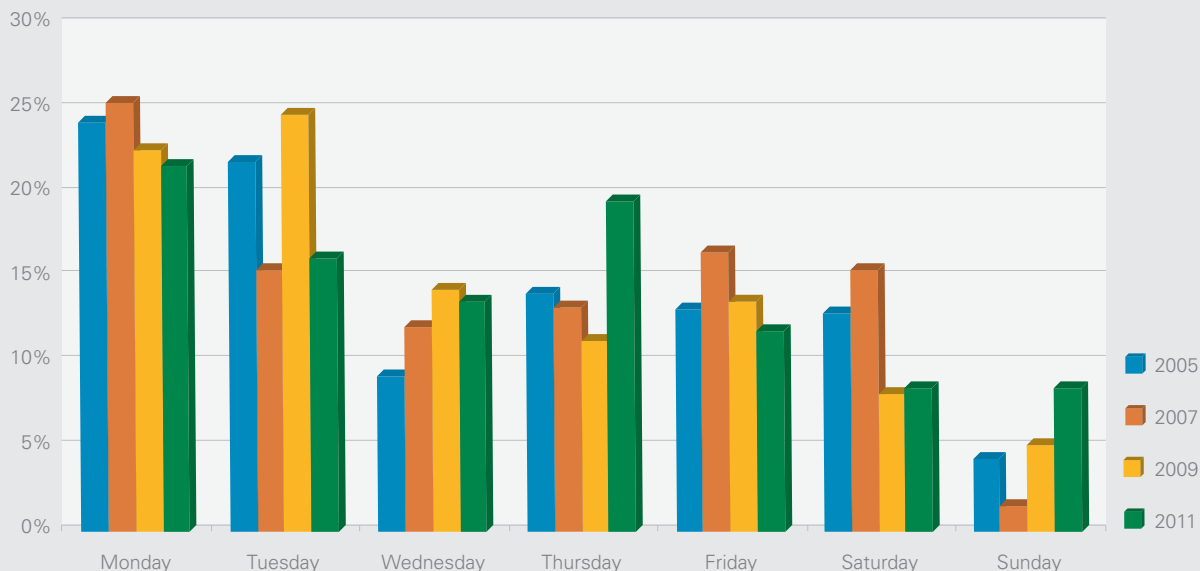
Whilst the 2011 research found some improvement in incident numbers in this time bracket there was a marginal increase in reported losses between 1201 hours and 1800 hours.

The NTARC has established that many road transport operations not requiring freight movement during the high risk hours, have instructed drivers to rest during this period.

19.0

Accident Specifics: Inappropriate Speed Day of Week

Inappropriate Speed Day of Week



Inappropriate speed for the prevailing conditions accounts for 25.5% of major truck accidents analysed in this report. Inappropriate speed has consistently been the major causal factor since the NTARC commenced this series of studies in 2003.

Research into losses recorded during 2011 established that speed was a determining factor in 73.5% of crashes on outbound journeys from home port with 41.02% occurring on state highways and 41.8% on regional roads. Urban losses accounted for only 10.3% of speed related incidents.

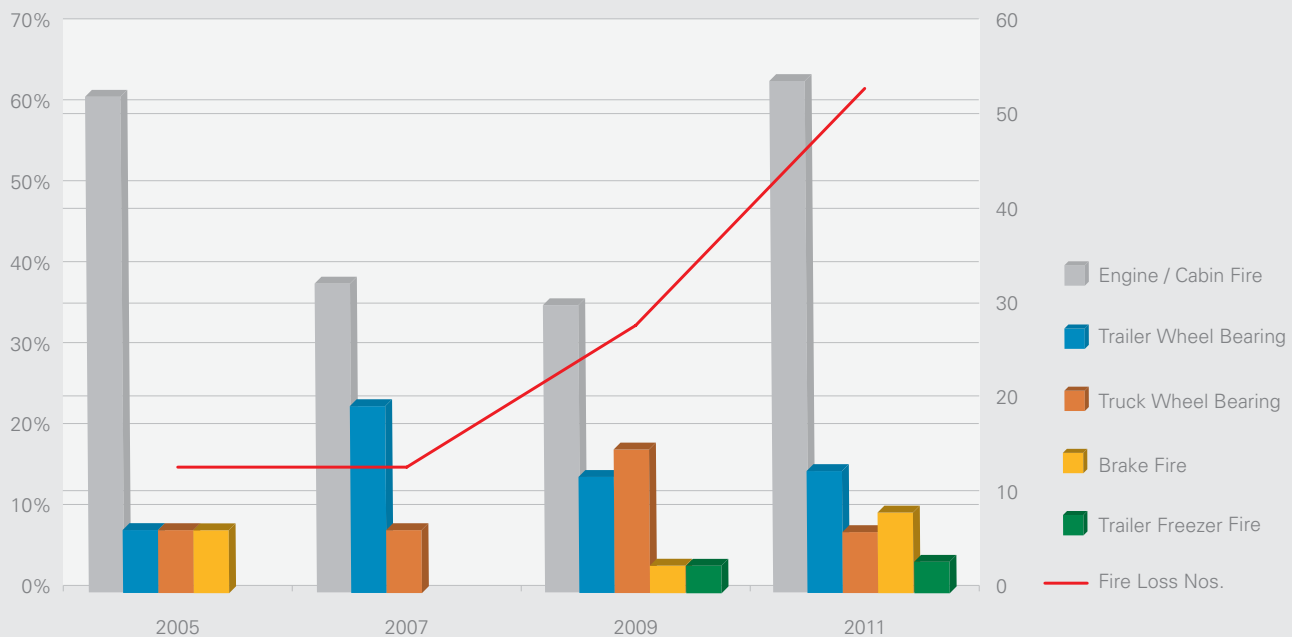
Historically Mondays through to Wednesdays have been prominent in this criterion and whilst this continued Thursdays increased to almost 20% of major losses. 71.1% of incidents on this day involved single articulated and rigid units.

Inappropriate speed ultimately leads to vehicle instability. In 59.6% of speed related losses, the insured vehicle rolled. Rollover incidents occur when the vehicle enters a roundabout or a curve so fast that it is unable to be slowed sufficiently to prevent capsizing. The NTARC supports the increased use of heavy vehicle stability safety technology, specifically electronic braking systems (EBS) and electronic stability control (ESC).

20.0

Accident Specifics: Fire Losses

Fire Loss Information



This data set focuses on losses attributed to non – impact fire. As detailed earlier in this report, fire accounted for 12.1% of the 461 reported losses representing over \$9m in settlements with the average loss \$170,129.

Undoubtedly the incident rate of fire losses has increased substantially since it was first researched in the 2005 study.

As reported in the co-sponsored publication 'Why Trucks Catch Fire' Australian Road Transport Suppliers Association, ARTSA, Dr. Peter Hart, Hart Consulting Pty. Ltd. a careful examination of burnt out trucks suggests there are a few re-occurring causes. Dr Hart stated,

'Whilst fire is possible under many initiating conditions, it is only rarely that a potential cause results in fire as conditions are often not suitable for fire propagation.'

The ARTSA report continued detailing the most common causes of truck fires and those were not dissimilar to those observed in this report. With over 60% of losses emanating from the engine and cabin compartments, such fires could be attributed to flammable material resting against the turbo charger, worn battery cables, rubbing on fuel lines resulting in leaks and fuel mist in the engine compartment, turbo charger failures and the addition of heavy additional circuit loads onto lower capacity circuits.



The remainder of losses can be attributed to tyres catching fire because they are flat or poorly inflated, wheel bearing failures resulting in bearing grease igniting, brakes overheating and even the wholesale failure of refrigeration plants.

Claims data researched on this specific issue has established unequivocally that there are simply too many fires and this trend must be arrested. Risk engineers responsible for the ongoing evaluation of associated transport operations have confirmed that to minimize risks of this nature they specify that vehicles have circuit breaker protection. Such protection should be fitted to the alternator, trailer feed and cabin power supplies from the batteries.

Further it is suggested that the starter motor cable be double insulated, conduited and taped closed.

Combustible parts, such as nose shields and fibreglass engine tunnels must be kept well removed from the turbo and exhaust. Given the ongoing issues with wheel bearings, particularly involving the use of multi-combinations in remote areas, it is imperative that they be checked regularly. Existing electrical circuits are not to be overloaded, today's high tech on-road machinery are mobile power plants with a mass of wiring and associated components. At regular intervals all wiring must be checked for rubbing, this should also include wear on the fuel lines and the turbo charger oil line.

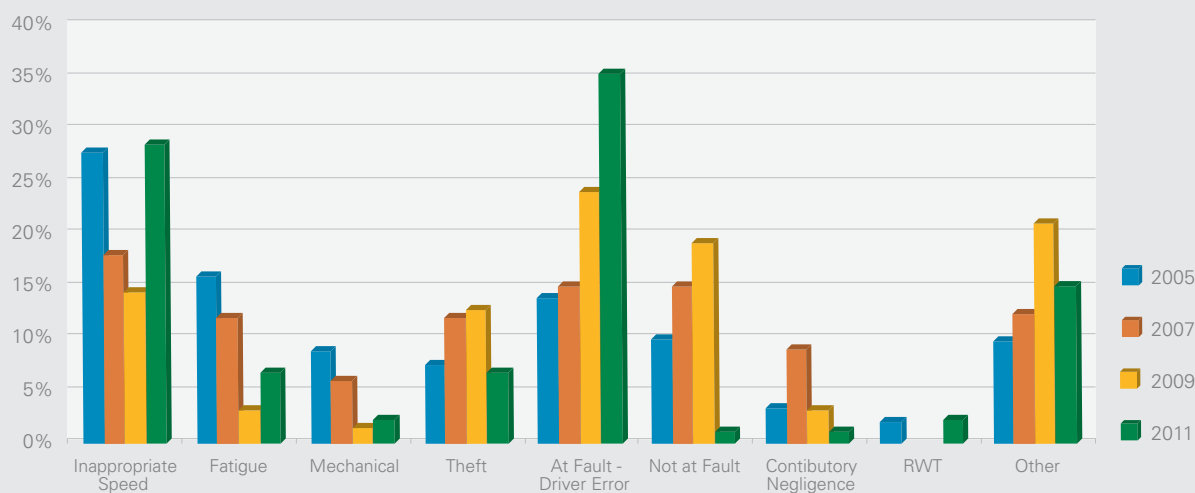
Finally, whether induced by misuse or poor maintenance, brake problems can result in tyre fires and explosions. The NTARC recommends that brake and tyre maintenance be prioritized, along with the installation of a fire fighting appliance.



21.0

Accident Specifics: RIGID Units Findings

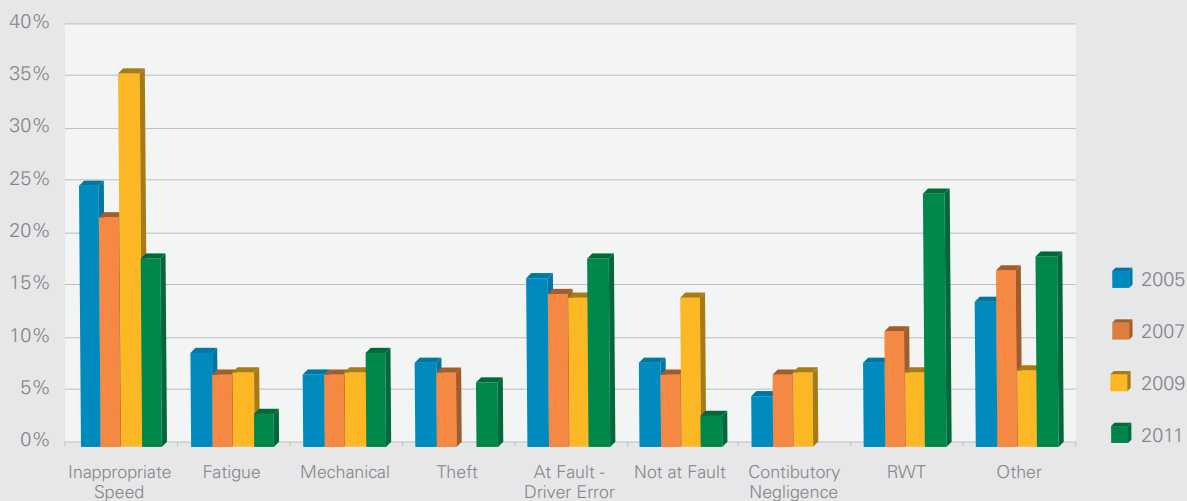
RIGID Accident Finding



22.0

Accident Specifics: RIGID/DOG – PIG Units Findings

RIGID/DOG Accident Finding



In this report, the growing influence of commercially registered, rigid bodied vehicles was discussed. With an increasing share of the freight task the inclusion of this category in the major truck accident report is crucial.

Of relevance to this category is the Performance Based Standards (PBS) program which has been referred to earlier in this report. Noting that with increased approval of truck and dog combinations under this system, many operators are now investigating the development of vehicles and combinations capable of operating at higher capacity. These standards apply to approved vehicle combinations that are commonly referred to in the heavy vehicle industry as 'Quad Dogs' and 'Quin Dogs'.

A Quad Dog combination has a total of 7 axles, comprised of a 3 axle rigid truck plus a 4 axle trailer (tandem axle + tandem axle). A Quin Dog combination has a total of 8 axles, comprised of a 3 axle rigid truck plus a 5 axle trailer (tandem axle + tri axle).

The accident database with regard to rigid vehicles (with no dog or pig trailer attachment), indicates that in the 2011 data, inappropriate speed and driver error are

prominent causal factors in major truck crash incidents. Driver error in this category is indicative of experience, although not necessarily age, with 32% of drivers having less than 5 years experience for that class of licence. The average age of drivers was 44 years and 15 days. Contrary to all major losses reported, 46% of incidents occurred either off road or on the urban network with 32% of losses involved multi vehicle collisions. Rear ended collisions are common in this class, where investigations would indicate that the insured driver is travelling too quickly and/or following too closely.

For those reported major loss incidents involving rigids (with dog and pig trailers), 31% of drivers had less than 5 years experience although the average age of those involved was 40 years and 9 months. Urban and off road incidents accounted for 42% of losses, with rolled whilst tipping incidents (RWT) responsible for almost 25% of the losses.

As the share of the freight task increases through the use of heavier rigid truck combinations, the need to research major crash incidents in this category will continue to gain importance.

23.0

About the Author

Owen Driscoll

National Manager, Industry Relations for National Transport Insurance, Australia (NTI)
Director of Research, National Truck Accident Research Centre, Australia (NTARC)
Deputy Chairperson, ATA TruckSafe Safety Accreditation, Australia

He instigated the creation of the NTARC in 2003 when he completed the inaugural study into major truck crash incidents. He has subsequently produced biennial research reports on this topic and other related investigations since that time.

Owen Driscoll has 40 years experience in the motor and heavy vehicle insurance sector and is a founding member of NTI. He conducts safety and risk management assessments and facilitates accident research and accreditation systems.

Owen holds a Master of Logistics Research (Industrial Logistics Institute) and specialises in accident investigation, workplace law and logistics management.

Since 2000, he has held the position of Deputy Chairperson, Director and Company Secretary of the Australian Trucking Association's industry accreditation program, TruckSafe Pty. Ltd.

The catalogue of client specific NTARC research papers:

2003

1. ATSB Annual Review 2002
Researching Heavy Vehicle NTI Crash Incidents 1998 – 2002.

2005

2. Fire Losses Involving Heavy Vehicles 2001 - 2005
In association with ARTSA

2007

3. Analysis of Serious Australian Truck Accidents during 2005
4. Investigation into Truck – Train Crashes 1986 - 2006

2008

5. Investigation into Truck Roll-Over Crashes in the State of Victoria 2003 – 2007
Under Agreement ARRB – (for VicRoads Melbourne).

2009

6. Major Accident Investigation Report HV Crashes 2007
 - a. Approved Course register National Insurance Brokers Association Ref.1854
7. Audit & Research Report HV Accidents Involving Kenworth Manufactured Vehicles 2001 – 2009
8. Audit & Research Report HV Accidents Involving Volvo Manufactured Vehicles 2004 – 2009

2010

9. Heavy Vehicle Accidents Involving Hand Brake Failure 2007 – 2010
10. Central Queensland Heavy Vehicle Losses 2007 -2010
Under Agreement QTMR – Rockhampton Q

2011

11. Major Accident Investigation Report HV Crashes 2009
 - a. Approved Course register National Insurance Brokers Association Ref.2313

2012

12. Heavy Vehicle Accidents Involving NSW & Qld. Livestock Transporters 2007 – 2011



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Kim was appointed Chair of the NTARC's Safety Advisory Board, AllRoads in May 2011. He has previously held positions as Transport Economist, Manager of Transport Operations and Strategy for Australia's largest network Transport Operator before becoming a principal consultant and researcher in the field of freight productivity.

He has published over 90 research papers for major domestic and international clients and worked with some of Australia's and Europe's leading transport regulatory agencies in the areas of freight productivity, infrastructure, freight and logistics policy and pricing.

He is a Director of the Industrial Logistics Institute in Melbourne and is the National Chair of Professional Development and Education for the Chartered Institute of Logistics and Transport Australia, Kim was also appointed as a fractional Principal Fellow with the Department of Infrastructure Engineering at the University of Melbourne in 2005.

24.0

Reference Information

National Transport Insurance (Major Incidents) Crash Data 1998 – 2011

National Transport Insurance Risk Services – Accident Investigation

National Transport Commission;

National Model Legislation for HV Driver Reform September 2008

<http://www.ntc.gov.au> National Transport Policy

Bureau of Infrastructure, Transport & Regional Economics 2011;

Truck Productivity: Sources, Trends and Future Prospects, Report 123, Canberra ACT.

National Transport Insurance – National Truck Accident Research Centre – published reports 1998 – 2002, 2003, 2005, 2007 & 2009.

Australian Road Transport Suppliers Association: 'Why Trucks Catch Fire'. Dr Peter Hart Hartwood Consulting

Australian Bureau of Statistics – Reserve Bank of Australia: Bulletin March Quarter 2012.

Kathryn Davis, Kevin Lane and David Orsmond

Australian Transport Safety Bureau;

http://atsb.gov.au/publications/2004nti_working_paper.aspx

25.0

Glossary



ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
ARRB	Australian Road Research Board
ARTSA	Australian Road Transport Suppliers Association
ATSB	Australian Transport Safety Bureau
BITRE	Bureau of Transport Infrastructure and Regional Economics
COAG	Council of Australian Governments
EPV	Equivalent Present Value
GDP	Gross Domestic Product
LCV	Light Commercial Vehicle
MAIR	Major Accident Investigation Report
NTARC	National Truck Accident Research Centre
PBS	Performance Based Standards
QLD	Queensland
NTI	National Transport Insurance
NSW	New South Wales
NT	Northern Territory
RBA	Reserve Bank of Australia
SA	South Australia
TAS	Tasmania
VIC	Victoria
WA	Western Australia



National Transport Insurance



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