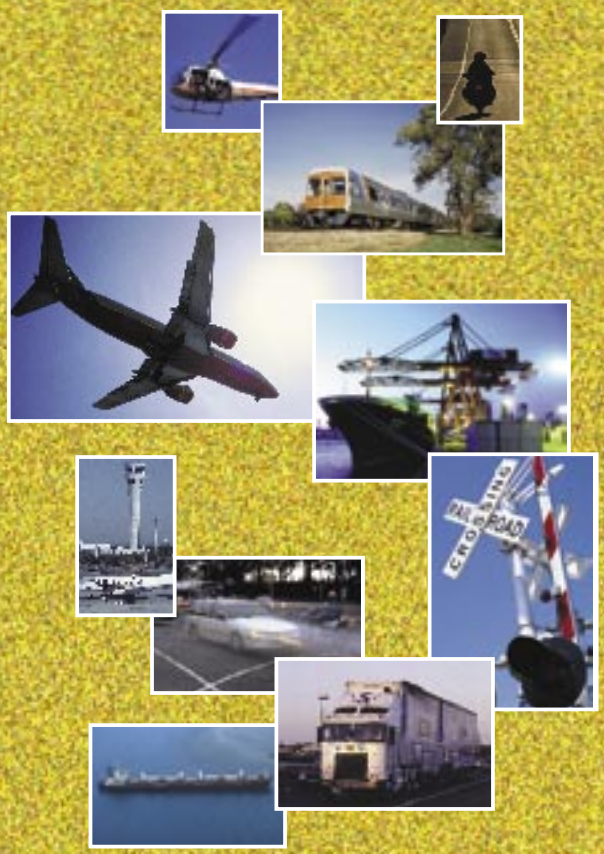
Australian Transport Safety Bureau

Annual Review 2003



safe transport

Department of Transport and Regional Services

Australian Transport Safety Bureau

ATSB Annual Review 2003

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Executive Director's message

During 2002–03, the ATSB assisted the Minister for Transport and Regional Services with new legislation to enable the Bureau to investigate rail accidents on the increasingly important interstate system. The *Transport Safety Investigation Act 2003* (TSI Act) also updates and harmonises the Bureau's aviation and marine investigative powers. The *Transport Safety Investigation Regulations 2003* were also finalised this year following industry consultation and commenced together with the TSI Act on 1 July 2003.

In 2002–03 the ATSB further developed its website **www.atsb.gov.au** which contains the new legislation and all ATSB reports, recommendations, and key safety information and receives more than five million 'hits' each year.

In August 2002, the Bureau received national tertiary accreditation for five years for its internal competency-based Diploma in Transport Safety Investigation. The Diploma will validate that ATSB investigators have reached a minimum competency standard linked to investigator work level standards.

The ATSB has worked closely with state and territory transport agencies and other major stakeholders, through the National Road Safety Strategy Panel, and coordinated the development of a *National Road Safety Action Plan for 2003 and 2004*. The Action Plan was endorsed by Australian Transport Council (ATC) Ministers in November 2002 and covers priority areas including more effective speed management, expansion of road-based treatments, enhanced drink-driving deterrence, and measures to reduce fatigue-related harm. The Action Plan seeks to accelerate progress towards reducing the national road fatality rate by 40 per cent by 2010.

Senator Ron Boswell in his role as Parliamentary Secretary, released a number of well-received ATSB research and statistical reports and a number of other road safety publications throughout the year. A special analysis of fatal crashes over the Christmas/New Year holiday period was undertaken at the request of the Minister. The ATSB also worked closely with the National Road Transport Commission to

develop a heavy vehicle safety strategy which was approved by ATC Ministers in May 2003.

The ATSB continued to participate in rail safety investigations at the invitation of state governments. Since 1999, the Bureau has undertaken or taken part in 14 investigations. Most have been in Victoria but others have involved WA, NSW, Queensland and SA. Investigations have brought about important safety changes including to operational practices, infrastructure and regulation. The ATSB highlighted the potential inadequacies with 'deadman's handle' braking devices in the event of driver incapacitation in its Footscray and Epping reports.

In 2002–03, the 13 marine reports released included the October 2002 report of a ballast tank explosion on the Hong Kong registered *Nego Kim* with eight fatalities. Its recommendations led to both operator safety action and broader recommendations for improved safety procedures for future painting and similar work in enclosed spaces.

The ATSB released 78 final air safety investigation reports during 2002–03. A major report on maintenance problems with the Ansett Boeing 767 fleet has been especially well received in Australia and internationally and has been nominated for an international air safety award. The Bureau was pleased that in many cases safety action was undertaken obviating a need for a recommendation. Most recommendations made also led to positive safety action.

At the invitation of the East Timor Government the ATSB is leading an investigation into the fatal crash of an Ilyushin IL-76TD aircraft near Baucau, East Timor in a joint investigation with the Australian Defence Force and in cooperation with Russian investigators.

The findings on 12 September 2002 of a WA Coronial inquest into a charter accident involving Beech King Air VH-SKC included some criticisms of the ATSB. While the Bureau accepted that in hindsight there were areas it could improve upon in future investigations if additional resources were applied, other criticisms were not accepted, including criticism of the basis for independent ATSB no-blame investigations under Annex 13 to the Chicago Convention.

A Coronial inquest into the accident involving Whyalla Airlines Piper Chieftan VH-MZK commenced hearings on 22 July 2002 and the SA State Coroner delivered his findings on 24 July 2003. The process also involved civil damages litigation in the US and required substantial Bureau resources to be diverted from other safety

priorities. The ATSB formally reopened its VH-MZK investigation after the US engine manufacturer issued a service bulletin in September 2002 which included MKZ's left crankshaft. The ATSB will deliver a supplementary investigation report later in 2003.

During the year the Bureau continued to liaise with and seek to improve cooperation and mutual understanding with coroners around Australia and this remains a priority for 2003–04 based on the ATSB's new legislative framework. The ATSB is reliant on coroners to assist with forensic and pathology testing.

I am again grateful to the Deputy Prime Minister and Minister for Transport and Regional Services, the Hon. John Anderson, to our Parliamentary Secretary, Senator the Hon. Ron Boswell, and to the Department Secretary Mr Ken Matthews, for their support throughout the year. I also acknowledge the bipartisan support the ATSB has received for its safety work and in the course of the passage of the TSI Act.

Kym Bills

ATSB's mission statement

Objective

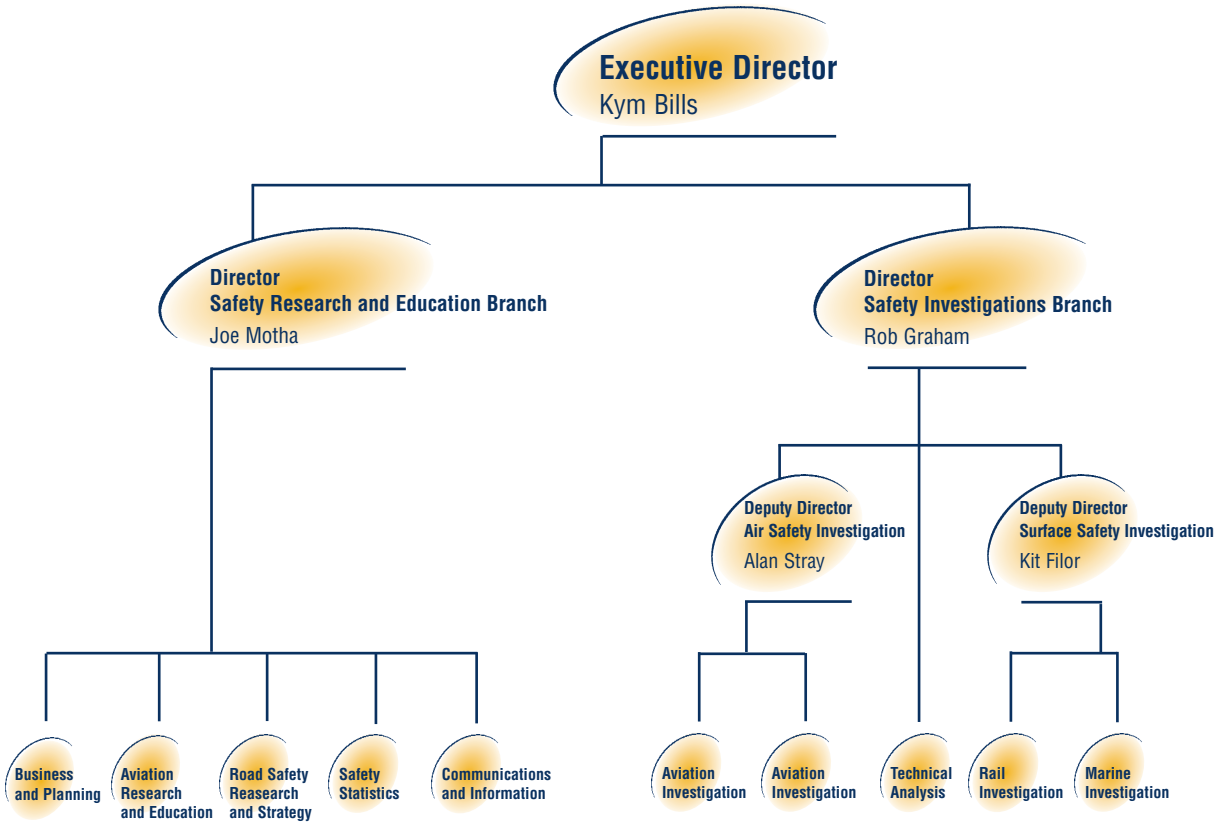
Safe transport.

Our mission

To maintain and improve transport safety and public confidence through excellence in:

- independent transport accident, incident and safety deficiency investigation
- safety data analysis and research
- safety communication and education.

ATSB organisation chart



Executive profile

Mr Kym Bills

Executive Director
Kym Bills

Kym Bills was appointed Executive Director of the newly formed Australian Transport Safety Bureau on 1 July 1999. He has held the statutory position of Director of Air Safety Investigation since June 2001 and on 1 July 2003 was appointed Executive Director of Transport Safety Investigation under the Transport Safety Investigation Act 2003. Prior to his current position with the ATSB, Mr Bills was First Assistant Secretary of the Department's Maritime Division from 1994 to 1998 and briefly of its Corporate Division. He was also a Director of ANL Limited during its restructuring from September 1995 to the signing of sale contracts at the end of 1998 and a member of the Board of the Australian Maritime Safety Authority from 1995 to 1997. In 1998, Mr Bills led negotiations at the International Maritime Organization, which established a new legal regime for archipelagic sea lanes including a precedent case for protecting Australia's shipping and other interests through the Indonesian archipelago.

In addition to Transport, Mr Bills has held a number of Commonwealth public service positions since 1978 including in the Department of Foreign Affairs, the Office of National Assessments, the Department of Immigration and Ethnic Affairs, the Department of Finance, and the Department of Workplace Relations and Small Business. Interspersed with his public service career, Mr Bills has spent seven years working in academia and as a senior adviser to state and federal political leaders. Mr Bills holds degrees from the universities of Adelaide, Flinders, Oxford and the ANU and is a fellow of a number of professional bodies.

Mr Joe Motha

Director
Joe Motha

Joe Motha became the Director of Safety Research and Education in September 2002. From July 1999 to September 2002, he was Deputy Executive Director, Sea, Air and Safety at the Bureau of Transport and Regional Economics (BTRE).

During his 13 years with the BTRE in its various forms, Mr Motha researched various transport issues including transport safety, accident costing, valuation of life and injury in transport accidents, and transport-related environmental issues. His individual and team-based work has resulted in a number of research papers and reports. In 1997, a research team led by Mr Motha won the Australasian Evaluation Society's best public sector evaluation study award for a report on the federal government's Black Spot Road Safety Programme.

Before joining the then Bureau of Transport and Communications Economics in 1989, Mr Motha worked in the Maritime Policy Division of the former Department of Transport and Communications. His public service experience also includes periods with the Australian Taxation Office, the former Inter-State Commission and the former Department of Primary Industry. Mr Motha also has overseas experience in industry, shipping and commerce.

Mr Motha has tertiary qualifications in science, economics, international affairs and business administration.

Mr Rob Graham

Director
Rob Graham

As Director of Safety Investigations, Rob Graham is responsible for aviation, marine and rail investigation. He joined ATSB in June 2001, having previously worked for the New Zealand Civil Aviation Authority as General Manager, Aviation Services. There he was responsible for airport operations, air traffic control, Part 141 training, licensing, search-and-rescue and aviation security.

Prior to the NZ CAA, Mr Graham was Director of Safety and Environment within Airservices Australia. Having worked in aviation since 1972, he has extensive experience in safety management, air traffic control, aviation systems implementation and CNS/ATM.

Captain Kit Filor, PSM

Kit Filor is the Deputy Director of Surface Safety Investigation and is responsible for marine and rail safety investigations.

Deputy Director
Kit Filor

After a career at sea on tankers and as master on cross-channel ferries in the UK, Captain Filor and his family emigrated to Australia, where he took up a position as a Commonwealth marine surveyor in Devonport. After two years, he moved to Canberra to the Ship Operations Section in the Marine Safety Division. He became increasingly involved in marine casualty investigation.

Captain Filor was appointed Inspector of Marine Accidents on 1 January 1991 when the Marine Incident Investigation Unit was formed as an independent investigation body separate from the regulator (what became the Australian Maritime Safety Authority).

Captain Filor was instrumental in formulating the International Maritime Organization (IMO) Code for the Investigation of Marine Casualties and Incidents. He has re-written the IMO Model Course for the Investigation of Marine Accidents and Incidents and is a regular lecturer at the International Maritime Academy in Trieste, Italy. He is chairman of the Marine Accident Investigators' International Forum.

In 1996, he was awarded the Public Service Medal in the Queen's Birthday Honours for services to marine safety. Captain Filor also holds a Diploma of Transport Safety Investigation.

Mr Alan Stray

Deputy Director
Alan Stray

Alan Stray is Deputy Director of Air Safety Investigation. He has been an air safety investigator with the ATSB and its predecessor, the Bureau of Air Safety Investigation, since January 1987.

Mr Stray has managed all areas of ATSB's aviation investigation operations and, from January to June 2001, acted as Director of Safety Investigations. In recent years, he has secured, on behalf of the Bureau, memorandums of understanding with government and aviation agencies in the Asia-Pacific and the Russian Federation.

Between 1992 and 1994, Mr Stray was an exchange officer with the Transportation Safety Board of Canada. While serving there as a management investigator, he developed Reflexions, a multimodal safety magazine modelled on the successful BASI Journal, which he had produced in Australia for several years.

Mr Stray is a licensed aircraft maintenance engineer, holds an Airline Transport Pilot Licence, and has flown in Papua New Guinea, Canada, the USA and Australia in a variety of piston-engine and turbo-prop aircraft types. He holds a Diploma of Transport Safety Investigation and management qualifications.

Modal overviews

Road

Role

The ATSB aims to improve national road safety by:

- undertaking research projects
- collecting and analysing statistics
- coordinating the National Road Safety Strategy
- providing safety, education and information services.

Key safety activities and results

In 2002–03 the ATSB continued to monitor and report on road safety progress under the National Road Safety Strategy framework approved by Ministers of the Australian Transport Council (ATC). Chairing and working with the National Road Safety Strategy Panel, the Bureau maintained close ties with state and territory transport agencies and other major stakeholders. During the year, the ATSB coordinated the development, and ATC endorsement, of the *National Road Safety Action Plan for 2003 and 2004*. The ATSB also contributed to preparation of the *National Heavy Vehicle Safety Strategy for 2003 to 2010*.

The Bureau released 25 research and statistical publications, including well publicised reports on community attitudes to speeding, the potential cost-effectiveness of seat belt reminder systems, and an analysis of fatal crashes over the Christmas/New Year holiday period.

Safety programmes

National Road Safety Strategy and Action Plans

In November 2000, the ATC approved the *National Road Safety Strategy for 2001 to 2010* and an associated Action Plan for 2001 and 2002. The National Strategy provides a framework that complements the strategic road safety plans of state, territory and local governments and other stakeholders. The target of the *National Road Safety Strategy for 2001 to 2010* is a 40 per cent reduction of road fatalities per 100 000 population from the 1999 rate of 9.3 to no more than 5.6 in 2010.

The ATSB and the National Road Safety Strategy Panel monitor and report on the National Strategy's progress. During 2002–03, the ATSB:

- convened and chaired two Panel meetings
- coordinated the preparation of a progress report for the ATC
- coordinated the development of the *National Road Safety Action Plan for 2003 and 2004,* to focus on priority measures for achieving better safety outcomes
  - this Action Plan for 2003 and 2004 was endorsed by all Ministers at the Australian Transport Council meeting on 8 November 2002.
  - the Action Plan covers priority areas including more effective speed management, expansion of road-based treatments, enhanced drink-driving deterrence and measures to reduce fatigue-related harm.

Heavy Vehicle Safety Strategy launch

The ATSB, in partnership with the National Road Transport Commission, coordinated the development of the *National Heavy Vehicle Safety Strategy 2003 to 2010* and associated Action Plan for 2003 to 2005. These were adopted by the ATC in May 2003 to complement the National Road Safety Strategy and to provide a focus on road trauma resulting from heavy vehicle crashes. The Minister for Transport and Regional Services publicly launched the new Heavy Vehicle Strategy and Action Plan in June 2003.

Road Safety Research Programme

Input from the ATSB's road safety research programme helps the federal government to formulate and review its road safety policies in consultation with jurisdictions and partner organisations. It also contributes to work on vehicle safety standards undertaken within the Vehicle Safety Standards Branch of the Department of Transport and Regional Services.

Most research projects are contracted out to private sector consultants or academics. ATSB officers identify the directions, manage the projects, exercise quality control, use the material in advice, and incorporate it in key safety messages. The programme includes research projects on road-user, vehicle, and road

infrastructure safety. The Bureau disseminates research reports widely in print form and through its website using a 'CR Report' sequence. Reports published between 1979 and 2001 are also available in a set of fully text-searchable CD-ROMs.

Speed

In recent years, speed has been a priority issue in Australian road safety and a major focus of the research programme. ATSB studies on speed-related risk have continued to be widely cited in policy papers produced by other agencies (both in Australia and overseas) and have supported a number of major public education campaigns around the nation.

New 2002–03 research on this topic included a large community survey on speeding and enforcement (research report CR 214). The survey involved interviews with 2500 people across Australia, and examined issues such as reported driving speeds, previous speed infringements, perceived and preferred speed enforcement tolerances, and attitudes towards speed enforcement measures.

The 2002–03 community survey on speeding and enforcement found that:

- While most people say they normally drive within the speed limit, six in ten indicate that they sometimes drive at higher speeds.
- Many admit to exceeding posted limits by 10 km/h or more, in both urban 60 km/h zones (33 per cent of drivers) and rural 100 km/h zones (46 per cent of drivers).
- On average, one in five drivers has been booked for speeding in the past two years, though this varies between States: from a low in NSW (12 per cent), to a high in Western Australia (30 per cent).
- Three-quarters of the community assumes that speed limits are enforced with some degree of tolerance. Half the community believes the enforcement tolerance in 60 km/h urban speed zones is at least 5 km/h; and four in ten think the tolerance in 100 km/h rural zones is at least 10 km/h.
- A majority of people in all jurisdictions think that speed limits should be enforced with a tolerance of 5 km/h or less;

substantial minorities favour a zero tolerance approach, in both urban (29 per cent) and rural (24 per cent) speed zones.

- The community generally believes that enforcement intensities should either stay the same or increase; there is little support for any reduction in current enforcement levels, including the number of speed cameras and the severity of penalties.

The ATSB also commissioned a study to investigate potential benefits and costs of changing speed limits on rural roads.

Vehicle Safety and Occupant Protection

ATSB research complements the regulatory work on vehicle standards managed by the Department's Vehicle Safety Standards Branch.

Seat-belt reminder systems

In 2002–03, the ATSB released the findings of a major study on the costs and benefits of fitting more intrusive seat-belt reminder systems to Australian vehicles (CR 211a). Despite seat belt wearing rates for front seat occupants being in the vicinity of 95 per cent for the past decade, current non-wearing rates in casualty crashes are as high as 33 per cent of killed occupants and 20 per cent of seriously injured occupants.

The Australian Design Rules currently require a warning light but this reminder is easy to overlook. The study considered variations on a more intrusive seat belt reminder system with a flashing light and a tone of 65 decibels, both running continuously until the seat belt was buckled or the ignition switched off. A more complex version might include a speed monitor that intensified the flashing rate and tone of the seat belt reminder system as the vehicle's speed increased.

The potential benefits of seat belt reminders were computed using the HARM Reduction method developed in Australia by the Monash University Accident Research Centre and used for previous benefit studies for the Department. HARM is a measure that quantifies injury costs from road trauma. It is a function of the number and type of injuries sustained, expressed in terms of community costs. The study found that benefit-cost ratios ranged from 5.1:1 at best (simple device for the driver only) to 0.7:1 (simple device for all occupants) depending on the type of device fitted, its assumed effectiveness, the discount rate, and the estimated fleet life. The results show that overall it would be cost-beneficial for vehicles in Australia to be required to have a more intrusive seat belt

reminder system, and there would be reductions in fatal and serious injuries.

Other research on passenger safety issues included:

- further development and testing of a prototype headband for car occupants, based on previous research showing that occupant protective headwear could provide major safety benefits (CR 210))
- assessing the safety performance of various passenger car models, based on recorded injuries in real-world crashes. This research is undertaken in partnership with other agencies.

Vehicle conspicuity

The potential to reduce daytime crashes by making vehicles more conspicuous is an ongoing subject of interest in road safety. During 2002–03, the ATSB commissioned two reviews on conspicuity-related issues in response to requests from the Australian Transport Council:

- one examined the scope for enhancing the conspicuity of trains to reduce railway level crossing collisions
- the other investigated the costs and benefits of requiring all road vehicles to be equipped with automatic daytime running lights.

Final reports from these studies are expected to be published in 2003–04.

Seeding grants

Each year, the ATSB makes available several small competitive research grants. The scheme invites researchers and community groups to submit innovative research ideas. Appendix 2 lists seeding grants awarded in 2002–03.

Community attitudes

To help develop and review its policies and programmes, the ATSB surveys the nation's attitudes and beliefs about road safety each year. It has examined:

- perceived causes of road crashes
- exposure to random breath testing
- attitudes to speed and drink driving

- perceptions of police enforcement
- reported usage of seat belts
- involvement in road crashes
- experience of fatigue while driving.

The sample (about 1600 people) is stratified to allow comparisons among the different states and territories. The 2002–03 community attitude survey results are detailed in research report CR 213.

National road safety statistics

The ATSB collects, analyses and reports national statistics on road fatalities and other data to help develop and evaluate road safety measures. Among these reports are monthly releases of national road safety statistics and annual publications that draw comparisons with other OECD countries. Work undertaken in 2002–03 will lead to important new datasets to supplement these collections:

- Australian Truck Crash Database. The ATSB has been working with states and territories to develop the Australian Truck Crash Database. The database details serious-injury and fatal crashes involving articulated and heavy rigid trucks. The ATSB is analysing and evaluating the data provided for the year 2000.
- The need for reliable national statistics on road injury has been on the agenda of the National Road Safety Strategy Panel for some time, and the ATSB is pleased to be able to report progress in this area. The ATSB has nearly completed the first issue of a bulletin titled *Serious injury due to road crashes*, which is expected to be published on the ATSB web site in the second half of 2003. The bulletin uses hospital data to examine trends in road injury since 1999.

ATSB statistical reports for 2002–03

The ATSB released 13 road fatality statistical reports and seven special-issue statistical reports, including reports on the Christmas holiday road toll and articulated truck fatalities. The ATSB's May 2003 report titled *The Characteristics of Fatal Crashes During the Christmas/New Year Holiday Period* found that the Christmas/New Year holiday road toll average of 4.5 deaths per day is not significantly different from the average of 4.8 deaths per day for the rest of the year. However, there was an increase in fatigue-related crashes, single vehicle crashes and crashes occurring on roads with speed limits of 100km/h and above; a decrease in the number of fatal

crashes involving heavy trucks; and a significant increase in the number of city drivers involved in fatal rural area crashes.

The ATSB's Monograph 15 on *Fatalities involving articulated trucks* shows that, between 1991 and 2001, tonnage carried per kilometre increased by 62 per cent and kilometres travelled by articulated trucks increased by 34 per cent. However, there was no corresponding increase in the level of fatalities and fatal crashes over that period. Accordingly, the fatality rate per kilometre travelled declined by 20 per cent, and the number of fatalities per tonne-kilometre declined by 30 per cent.

Other topics addressed include reports on motorcycle rider age and fatal injury risks, older pedestrians, and male pedestrians aged 15 to 54. These reports are detailed in Appendix 1.

Participation in road safety forums

Austroads

Austroads is the association of Australian and New Zealand road transport and traffic authorities. As the road modal group of the ATC, it advances Australia's broader transport agenda. Austroads' core activities consist of six programme areas, each managed by a senior officer from a member organisation. The ATSB's Director of Safety Research and Education also manages Austroads' Road Safety Programme.

The ATSB's participation in the Austroads Road Safety Programme allows the ATSB to influence and contribute to the national road safety agenda. Throughout 2002–03, ATSB officers:

- advised and provided administrative assistance to the Austroads Road Safety Programme Manager
- helped manage several Austroads research projects
- coordinated the activities of the Austroads Research Coordination and Advisory Group (RCAG).

The RCAG advised the National Road Safety Strategy Panel and the Austroads Road Safety Programme Manager on research priorities, coordinated road safety research between Australian jurisdictions

and assisted with arrangements for the annual Road Safety Research, Policing and Education Conference in Adelaide.

Austroads road safety publications released in 2002–03 under ATSB guidance included:

- *Review of the School Bus Safety Action Plan – Final Report*
- *Investigation of Internal Bus Safety Measures*
- *Community Road Safety in Australia and New Zealand*
- *Investigation of Cyclist Safety at Intersections*
- *Evaluation of the Proposed Actions Emanating from Road Safety Audits*
- *Reducing Collisions at Passive Railway Level Crossings in Australia*
- *The Road Safety Risk Manager Software Tool: Background Research*
- *Drink-Driving Enforcement: Issues in Developing Best Practice*
- *Self-Regulation of Older Drivers: A Review.*

National Road Safety Strategy Panel

The ATSB convenes, chairs and provides secretariat services to the National Road Safety Strategy Panel. The Panel meets twice a year and brings together key stakeholders in road safety. These include representatives of transport agencies, police, user groups and industry. The Panel:

- oversights national research on road safety issues
- provides a forum for jurisdictions to share experiences on road safety initiatives and outcomes
- advises the ATSB's Executive Director and Austroads' Road Safety Manager
- monitors implementation of the National Road Safety Strategy and Action Plan.

Motorcycle Safety Consultative Committee

The ATSB chairs the Motorcycle Safety Consultative Committee, which usually meets twice a year in Canberra. The Committee provides a forum where the federal government (represented by the

ATSB and other Departmental staff as appropriate) and major rider associations can address national motorcycle safety issues.

Heavy-vehicle driver fatigue

To help develop and evaluate strategies for managing heavy-vehicle driver fatigue, the ATSB participates in:

- the project team for the Heavy Vehicle Fatigue Management Pilot (led by Queensland Transport) and
- the Fatigue Reference Group established by the National Road Transport Commission to address heavy-vehicle driving hours and fatigue management under the Third Heavy Vehicle Reform Package.

Fleet Safety Forum

The ATSB participates with state and territory road safety agencies, university research centres and other national bodies in a Fleet Safety Forum to explore the possible road safety benefits of workplace-based fleet safety programmes. The Forum aims to facilitate fleet safety improvements, at both a macro policy level, and in Australia's various government-operated vehicle fleets.

In 2002–03, the ATSB:

- convened one of the six-monthly meetings of the Forum in November 2002
- provided funding and administrative assistance to the Australian College of Road Safety to host a seminar for Fleet Managers in the ACT.

Road Safety Public Education Forum

The ATSB participates in an annual Public Education Forum along with state and territory safety agencies and compulsory third party insurers, as well as the New Zealand Land Transport Safety Authority. The Forum facilitates the exchange of information across all road safety marketing agencies, and members seek to minimise duplication of material where possible.

Indigenous Road Safety Working Group and Forum

The ATSB chairs the Indigenous Road Safety Working Group, which advises the National Road Safety Strategy Panel on indigenous issues. Members include representatives from federal, state and

territory agencies, including the Aboriginal and Torres Strait Islander Commission. In 2002–03, the ATSB:

- obtained out of session input from the Working Group to the National Road Safety Action Plan for 2003 and 2004
- arranged to convene a one day Indigenous Road Safety Forum in 2004.

Public education

The ATSB plays a significant role in determining the nature and direction of the national road safety agenda and road safety retaining high community visibility as a crucial social issue. The ATSB fulfils this role, in part, by surveying community attitudes and distributing a range of road safety materials to stakeholders and the general public.

In 2002–03, the ATSB produced and issued a brochure called *Where are your kids? Child safety in your driveway*. The brochure is a guide to help parents improve child safety in the driveway and aims to address a problem that has tragic consequences. One child, generally a toddler, is run over in the driveway of their home every week in Australia. A parent, family member or friend is usually driving the vehicle at the time of the accident. Many of the children who are not killed sustain severe and permanent injuries. The brochure was developed with the assistance of the Motor Accidents Authority of NSW and, since April 2003, has been distributed throughout Australia through medical practices and child care centres.

The ATSB's Communications and Information Unit also prints and distributes brochures on *Fatigue: The Hidden Killer, Before Other Help Arrives and Road Safety: It's Not Child's Play,* and pamphlets and cards promoting responsible attitudes to drink driving and speed. Another ongoing success is the *Ride On* motorcycle training video.

For further information on these items, please contact the ATSB on 1800 020 616 or by email atsbinfo@atsb.gov.au

Rail

Role

Prior to its new interstate rail investigation role from 1 July 2003, the ATSB has undertaken rail investigations at the request of the States under their legislation, and has coordinated publication of a national rail occurrence database.

Key safety activities and results

In 2002–03, the ATSB continued to participate in rail safety investigations at the invitation of state governments. During the year the ATSB completed five rail investigations, including the rail level crossing accident in Salisbury, South Australia, and the Epping Victoria rail collision accident, and has ongoing involvement in a further four investigations, including Victoria's Spencer Street 'runaway train' accident. The ATSB also assisted the Special Commission of Inquiry into the Waterfall Rail Accident in NSW.

The ATSB continued to coordinate the national rail occurrence database in cooperation with state and NT rail regulators covering calendar years 2001 and 2002. Data on a number of key safety indicators are now collected every six months and published on the ATSB web site.

Development of a rail investigation Legislation

A major milestone for transport safety was achieved this year when the *Transport Safety Investigation Act 2003* (TSI Act) and the *Transport Safety Investigation (Consequential Amendments) Act 2003* (TSI (CA) Act) received royal assent on 11 April 2003. Both Acts and accompanying regulations came into effect on 1 July 2003. The TSI Act enables the ATSB to conduct rail safety investigations on the Defined Interstate Rail Network.

Rail Investigations completed in 2002–03

- At the invitation of the Government of South Australia, the ATSB led an independent investigation into a collision at a level crossing, at Salisbury, SA, between the *Ghan* passenger train and a passenger bus and private car on 24 October 2002. The collision resulted in the death of four people and injury to 26. The South Australian Government released the ATSB's report in March 2003. The report concludes that the locomotive, rolling stock, rail, signalling infrastructure and the boom gate barriers at the crossing, up to the time of the collision, were in good condition and operated as designed.

  Prima facie, the road vehicles stationary on the rail tracks had entered the crossing when the drivers could not drive through the crossing because the crossing, or road beyond the crossing, was blocked. On this view the immediate causal factor was the non-observance of the Australian Road Rules 1999. From a

systemic point of view, however, the accident was more complex with a number of causal factors relating to:

- road design (the number of entry/exit points); road traffic lights and the inter-link with the level crossing warning system; the width of the crossing; probable lack of awareness by road vehicle drivers of the road traffic rules as they relate to level crossings; the lack of 'near hit' safety reporting at level crossings; and the lack of a focused body to oversight and undertake risk-based assessments of level crossing safety.

The ATSB recommendations arising from the Salisbury rail accident investigation report are detailed in Appendix 4.

- The ATSB led an investigation into the derailment on 25 April 2001 of an XPT train on the interstate line at Wodonga, Victoria. The report was released by the Victorian Government in December 2002.
- The ATSB was a member of an investigation into the derailment of a coal train and subsequent collision with a passenger train near Hexham NSW on 12 July 2002. The report was released by the NSW government in December 2002.
- The ATSB was invited by the Victorian Department of Infrastructure to assist in the Pacific National investigation into a fatal shunting accident at Sims Street, Footscray, Victoria, on 19 August 2002. Pacific National submitted the final report to the Department of Infrastructure in accordance with their obligations under the rail operators accreditation scheme.
- At the invitation of the Victorian Government, the ATSB led an investigation into a side-impact collision on 18 June 2002 of two passenger trains on the intrastate passenger line at Epping, Victoria. The collision involved a re-positioning train with no passengers and a train carrying 16 passengers. In June 2003 the ATSB forwarded its Report to the Victorian Government which released it in July 2003.

Investigations in progress at 30 June 2003

- At the invitation of the Victorian Government, the ATSB is leading an investigation into a collision at a level crossing between a special charter passenger train and a B-double truck at Benalla, Victoria, on 13 October 2002. The collision resulted in the death of three people and serious injury to one.

- At the invitation of the Victorian Government, the ATSB is leading an investigation into a collision on 3 February 2003 between an empty suburban electric passenger train and a scheduled country passenger train that was standing adjacent to Platform Two at Spencer Street Station, Victoria. The suburban electric train had rolled away from Broadmeadows Station without its driver and travelled 16.848 km along the suburban rail network before colliding with a ready-to-depart country train, which had 18 people on board. Although there were no serious injuries, the potential for serious injury was significant.
- At the invitation of the Victorian Government, the ATSB is leading an investigation into the derailment of a freight train and subsequent collision with a scheduled passenger train near Chiltern, Victoria, on 16 March 2003. Although there were no injuries, the potential for serious injury was significant.
- At the invitation of the Queensland Government, the ATSB is leading an investigation into a collision at a level crossing near Aloomba, Queensland, between a scheduled passenger train and a private car on 23 May 2003. The collision resulted in the death of one person and serious injury of two.
- The ATSB is also assisting the NSW Special Commission of Inquiry into the Waterfall Rail Accident of 31 January 2003 on a consultancy basis.

National Rail Occurrence Database outputs and development

The ATSB is continuing to develop the National Rail Safety Occurrence Database (NROD) in cooperation with state rail safety regulators. At the end of 2002–03 the database contains a concise set of key rail safety occurrence statistics for the calendar years 2001 and 2002. The Bureau released two reports based on the database during 2002–03, one on significant occurrences and one on rail transport activity in Australia.

The ATSB continues to work with the states and territories to expand the scope of the data collected and to incorporate future and historical data.

The ATSB's website now features several rail safety statistical publications, including an analysis of level-crossing fatalities.

Participation in rail safety forums

During 2002–03, the ATSB participated in several rail safety forums. Participation helps the Bureau communicate the safety message, maintain its industry contacts, and stay informed on relevant policy and technical issues.

The ATSB met with the state representatives several times throughout the year to discuss the Australian Government's new transport safety investigation legislation, a proposed national accident and incident investigation database, and associated matters.

The Bureau attended and assisted at two meetings of the Standing Committee on Transport and two meetings of the Rail Group. It also provided relevant briefings within required timeframes for these meetings.

Training for rail industry personnel

Three rail industry staff, representing track access providers and rail accreditation authorities, completed an ATSB human factors training course in Canberra during October 2002.

Marine

Role

To enhance safety of life at sea and the protection of the marine environment, the ATSB's Marine Investigation Unit investigates incidents involving: Australian-registered ships anywhere in the world and foreign-flag ships within Australian waters. The Unit may also investigate when evidence relating to an accident is found in Australia. From 1999 to 2003, more than 80 per cent of the Unit's investigations involved foreign-flag ships, reflecting the dominance of such shipping in Australia's maritime trade.

Depending on the type and severity of the occurrence, the ATSB's Marine Unit may:

- conduct an ATSB investigation
- seek more information from the owner, operator, crew or other bodies
- enter details of the incident into the Unit's database.

ATSB marine investigations determine the factors involved in marine accidents to prevent similar occurrences in the future. The resultant investigation reports include the investigation facts, analysis, conclusions, and recommendations for authorities and involved parties to act upon. The reports, however, do not seek to assign fault or determine civil or criminal liability and the results of investigations are not binding on the parties to any legal, disciplinary or other proceedings.

From 1 July 2003, the ATSB is undertaking new marine investigations under its new *Transport Safety Investigation Act 2003* (TSI Act) and associated regulations which came into effect on that date. Further details on the marine aspects of the TSI Act are set out in the Marine policy and legislation section below.

The ATSB's marine investigation reports and other safety and educational material are widely distributed, and also promote marine safety and enhance industry awareness in Australia and internationally.

The Unit distributes about 1000 copies of each report to Australia's maritime community and educational institutions, to marine administrations in Australia and abroad, and to several overseas maritime colleges and universities. All reports also appear on the ATSB's website.

Key safety activities and results

In 2002–03, the ATSB's Marine Unit was funded to undertake 10 investigations, and actually investigated 15 of the 37 incidents reported to it. In order to reduce the current backlog of 19 marine investigations and improve future timeliness, a new shorter form of report was developed to be applied to some investigations from 2003–04.

The Marine Unit released thirteen final reports with a median completion time of 399 days, 70 days less than 2001–02. The reports concerned four groundings, fatalities on bulk carriers in two separate incidents, serious injuries to a seaman, a fire, two incidents of ships contacting a jetty and a beacon and three lifeboat accidents.

The Unit also released a safety bulletin on '*Fatigue and fishing crews*' which was distributed nationally to authorities linked with the fishing industry. The bulletin contained a description of a fatigue-linked collision as well as sections on 'fatigue and its effects', 'keeping a proper lookout' and 'remedial measures'. The section on remedial

measures covered the need for appropriate scheduling of watches, adequate rest opportunities for skippers and crews, and avoiding under-manning of vessels.

The Unit continued to provide investigators to support the ATSB's rail investigations.

During the year, members of the Unit chaired the Marine Accident Investigators' International Forum annual meeting at Bonn, Germany; and attended the 11th meeting of the Flag State Implementation Sub-Committee at IMO in London and participated in the Working Group on Casualty Analysis and Statistics.

Key investigation reports published during the year

Nego Kim fatal marine explosion accident

On Sunday 18 November 2001, the Hong Kong-registered bulk carrier *Nego Kim* was anchored inside the port limits of Dampier, Western Australia, waiting to load a cargo of scrap metal. At around 1400, the eight-man deck crew started painting the steelwork inside one of the ship's topside ballast tanks. Then at 1640, a large explosion ripped through the ballast tank. Three men standing on the deck adjacent to the tank were killed. A further four were blown overboard and despite a prolonged search only one body was recovered from the sea. The single crew member who was actually inside the tank suffered major burn injuries and subsequently died in hospital.

The ATSB released its Nego Kim investigation report on 22 October 2002. The report found, amongst other issues, that the explosion occurred when the volatile paint fumes inside the inadequately ventilated tank were ignited, most probably when an electric light, used to illuminate the tank, was dropped and broke, momentarily exposing the filament in the globe to the volatile paint fumes.

The report concluded, amongst other things, that the crew were not provided with adequate instructions or equipment to safely undertake the painting work and they were unaware of the dangers associated with the task. The ventilation of the tank was grossly inadequate and the electrical equipment in use was not intrinsically safe/explosion proof. In addition, hand mixing the paint, together with high ambient temperatures, contributed to an excessive use of volatile thinners, resulting in high concentrations of flammable vapour.

The investigation also found that Dampier Port Authority's emergency response plan was deficient as it did not reflect the changed role of the authority in an emergency, following the closure of the port communications tower some months earlier.

The ATSB report recommended that the International Safety Management documentation carried on ships be improved to include clear instructions on all operations carried out in enclosed spaces. Documentation should provide information on the relevant hazards and advice regarding the wearing of appropriate clothing and protective equipment, together with guidance on the conditions under which work in enclosed spaces should be undertaken.

The ATSB also recommended that the Dampier Port Authority's emergency response plan be amended to remove ambiguities, and to ensure a consistent and appropriate approach to emergency situations, including clear communications, within the port.

The report's recommendations are detailed at Appendix 4.

Spirit of Tasmania marine accident involving fire on board

At 1800 on 23 February 2001, the Australian passenger ferry *Spirit of Tasmania* sailed from Melbourne for Devonport, with 112 crew, 967 passengers and 10 staff from licensed on-board businesses.

At 0114 on 24 February, the second mate on the bridge received a fire 'pre-warning' from a detector he identified as being in 'The Ship's Photographer' shop. When the crew arrived on the scene, two ratings entered the shop and, although the smoke was very thick, used hand-held extinguishers in an attempt to extinguish the fire burning in the store at the rear of the shop. However, the fire kept re-igniting. They then used a fire hose to extinguish the fire and, after thirty minutes, the fire was declared to be out.

As a precautionary measure, the passengers were directed from the accommodation to their muster stations. At 0255, it was decided that the passengers could be escorted back to their cabins and the voyage was completed without further incident.

On 12 September 2002 the ATSB released its investigation report into the *Spirit of Tasmania* fire accident. The report concluded that the fire in the photo shop was caused by a short circuit in an extension lead under the sink. The short circuit in turn was caused by the breakdown of insulation between the conductors in the extension lead, which had been damaged by boxes being stored on top of it for the previous several months.

The report also concluded that the response to the fire was well executed and effective; the master's actions in ordering an evacuation of the passengers from the accommodation was totally appropriate; and the crew were to be commended on the passenger evacuation.

As part of the investigation, the ATSB, in conjunction with the operators of the ferry, developed a questionnaire comprising 28 questions for the ship's passengers. Completed questionnaires from 123 passengers indicated that the evacuation procedures on board the *Spirit of Tasmania* were generally effective. However, the passenger survey showed that a number of passengers had difficulty hearing and understanding the public address announcements and that only seven percent had been alerted to the emergency by the fire alarm. Unescorted passengers moving back to their cabins (back flow) hindered the movement of other passengers to their muster stations and could also have placed them at risk had they entered unsafe areas.

The report's recommendations are listed at Appendix 4.

A list of all 13 reports released in 2002–03 is at Appendix 3.

Marine policy and legislation

On 1 July 2003 the ATSB's new *Transport Safety Investigation Act 2003* (TSI Act) and associated regulations came into effect. From that date the former *Navigation (Marine Casualty) Regulations* (formed under the *Navigation Act 1912*) only apply to marine investigations started before the TSI Act commenced. For all other marine investigations, the TSI Act empowers the Executive Director of the ATSB to delegate the new powers to marine investigators to carry out their duties.

Under the TSI Act, the ATSB has the authority to conduct investigations into marine occurrences that:

- involve Australian ships on overseas or interstate voyages
- involve ships travelling intrastate as long as they are operating outside the baseline from which the territorial sea is measured
- involve foreign-flag ships within the Australian territorial sea limits, or

- where an international agreement provides the authority for the investigation.

The TSI Regulations list occurrences which must be immediately reported, such as:

- death or serious injury on board a ship
- the ship being lost, presumed lost or abandoned
- the ship being stranded or disabled
- the ship being involved in a collision.

The TSI Regulations also set out who must report any such occurrence and to whom they must report it.

Participation in Marine Safety Forums

Marine Accident Investigators' International Forum (MAIIF)

Australia is the current chair of the Marine Accident Investigators' International Forum (MAIIF), which was established in Canada in 1992. The eleventh meeting of MAIIF was held in Bonn, Germany from 26 to 30 August 2002. Thirty-eight authorities from 34 countries attended MAIIF 11. In all there were 60 attendees and five countries were represented for the first time.

Delegates discussed, among other issues, the strengthening of the '*Code for the Investigation of Marine Casualties and Incidents*' and the possibility of the use of the amended Code in the International *Convention for the Safety of Life at Sea 1974 (SOLAS)*, as amended.

Discussion items of particular significance included:

- increasing levels of cooperation between flag and coastal states in the investigation of casualties and a MOU between Japan and Korea
- miniature remotely operated vehicles being developed in the UK to examine and retrieve items from wrecks at depths that were previously inaccessible
- developing voyage data recorders, their use in accident investigation and the ownership of the data
- investigator training.

Three forum presentations focused on the training of marine accident investigators. The Isle of Man delegate discussed their use

of police experts to conduct courses in managing investigations; Hong Kong spoke about their training program based on the IMO model course; and Australia explained ATSB's in-house training scheme, leading to a diploma that involved training on the job, course work, assignments and recognition of prior learning.

Flag State Implementation Sub-committee

The ATSB participated at the eleventh meeting of the IMO Flag State Implementation Sub-committee (London, 7–11 April 2003) and formed part of the Working Group on Casualty Analysis and Statistics. Sixty-six member governments were represented, along with Hong Kong as an associate member of IMO, two UN agencies, an observer from the European Union and observers from 21 non-governmental organisations.

A report on measures to prevent lifeboat accidents at the meeting was significant for the ATSB, as the Bureau has made numerous recommendations in its investigation reports in respect of such accidents. It has also published a safety bulletin on lifeboat accidents with measures to reduce the risk of occurrence of these accidents.

The report referred to amendments to SOLAS providing for:

- additional tests of launching arrangements for lifeboats
- the inclusion of references to the ISM Code
- enhanced cooperation with lifeboat manufacturers.

The report also referred to providing draft amendments to SOLAS regulations on operational readiness, maintenance and inspection, and emergency training and drills in the use of lifeboats.

One of the tasks of the Working Group on Casualty Analysis and Statistics was to review Australia's proposal for electronic entry of information into the IMO casualty database and the accident categories list, and to prepare draft instructions for the Secretariat. Appreciation for Australia's work was expressed, and its offer of a copy of the ATSB's 'Requirements Documention' for its own casualty database was welcomed.

The ATSB's role at the meeting centred around:

- casualty analysis, remaining an active member of the Correspondence Group

- developing ways to incorporate the early stages of FSA (Formal Safety Assessment) methodology into the analysis process to identify safety issues
- developing a structure to pass issues between groups and the appropriate sub-committees and committees and, eventually, to the IMO website
- developing a system for electronic input of casualty data into the IMO database, and
- coordinating input for the list of accident categories for the IMO database.

Maritime conferences, courses and training

During 2002–03 the ATSB's marine unit attended a Transport Summit in Sydney, a National Marine Safety Committee conference in Brisbane, the Asian Marine Safety Conference in Singapore, a Passenger Ship Safety conference in London, a Port and Maritime Security conference in Sydney, and a ship handling course at the Australian Ship Handling Centre.

Maritime training

The marine unit also presented the human factors input at Advanced Marine Pilots courses. Other liaison with the marine industry on the TSI legislation was undertaken by senior ATSB staff.

Presentations

During the year, members of the marine unit presented papers at:

- Navsafe 2003
- an AMSA seminar on Human Factors
- a NSW Association of Fire Investigators seminar on Aspects of Fire Determination
- the Australian Marine Pilots Association seminar on Marine Pilotage-Current and Future Directions
- a conference organised by the Institute of Marine Engineering, Science and Technology
- a meeting of the Company of Master Mariners, Sydney.

Aviation

Role

As Australia's prime air safety investigation agency, the ATSB investigates accidents, incidents and safety deficiencies involving civil aircraft in Australia. It does so in accordance with Annex 13 to the Convention on International Civil Aviation (Chicago Convention 1944), as incorporated in Australian law through Part 2A of the *Air Navigation Act 1920* for accidents that occurred before 30 June 2003 and through the *Transport Safety Investigation Act 2003* for air accidents occurring after 1 July 2003.

From 1 July 2003 all air transport safety matters as listed in section 23 of the *Transport Safety Investigation Act 2003* (formerly aircraft accidents, incidents and safety deficiencies as defined in Part 2A of the *Air Navigation Act 1920*) that occur in Australia must be reported to the ATSB. The Bureau then decides if it will investigate. Investigating selectively allows the Bureau to more thoroughly analyse those occurrences it believes will yield the most useful safety benefits within the budget available after meeting international obligations and domestic expectations with respect to fatal accidents.

The ATSB may also assist in:

- investigations of accidents and serious incidents involving Australian-registered aircraft overseas
- investigations of occurrences that do not involve Australian-registered aircraft.

The Bureau manages the Confidential Aviation Information Reporting (CAIR) Programme and conducts aviation safety studies.

ATSB recommendations are purely advisory.

The ATSB publicises its aviation safety results through:

- aircraft accident/incident reports
- safety recommendations and advisory notices CAIR alert bulletins and information circulars
- articles in magazines such as *CASA's Flight Safety Australia*.

Key Safety Activities and Results

In 2002–03, the ATSB received notifications of 5948 accidents and incidents and commenced 67 new occurrence investigations. The

ATSB also released 78 final occurrence investigation reports, which are available on the ATSB website and are listed at Appendix 3.

Major reports released included:

- maintenance problems with the Ansett Australia Boeing 767 fleet
- a Boeing 737 encounter with microburst windshear while on approach to Brisbane
- the fatal accident involving the Western Australia Police Air Support Unit's Cessna 310 at Newman
- a fatal controlled flight into terrian accident during approach and landing at Mt Gambier involving Beech 200C VH-FMN.

At the beginning of 2003–04 the ATSB continued to investigate 66 occurrences including:

- VH-MZK Whyalla Airlines Piper Chieftain accident with eight fatalities (investigation re-opened in November 2002).
- VH-IBK/VH-JTV (Bankstown) fatal accident
- VH-MAR (Hamilton Island) fatal accident
- VH-CNW/VH-EUH Moorabbin Airport fatal accident
- Ilyushin IL-76TD aircraft accident, Baucau, East Timor
- VH-MTX Bell 47G helicopter fatal accident, Caboolture
- VH-TJB B737 runway excursion at Darwin
- VH-OLM Saab 340 serious incident near Bathurst
- ZK-NBC Boeing 767 engine failure near Brisbane
- VH-TUR Cessna 172M fatal accident south west of Sydney
- VH-LQH Beech King Air fatal accident, Toowoomba
- VH-OHA Robinson R22 helicopter fatal accident west of Sydney

A full list of ATSB air investigations underway at the beginning of 2003–04 is at Appendix 5.

The ATSB issued 61 aviation recommendations (including two recommendations to multiple organisations) during 2002–03 which addressed issues including:

- meteorology and training for windshear conditions

- maintenance, airworthiness directives, implementation and international cooperation for Class A aircraft
- lifejackets in floatplanes
- broken stator vanes in Rolls Royce Trent 800 engines
- helicopter shoulder harnesses
- runway access for maintenance vehicles
- fuel starvation
- barometric gauge maintenance for pressurised aircraft
- foreign airworthiness audits of Australian certification holders
- fire extinguisher systems.

A full list of ATSB's aviation recommendations is at Appendix 4.

In September 2002 the upgraded Occurrence Analysis and Safety Information System (OASIS) database was launched including the facility to electronically import web-generated incident reports and Air Services Australia incident reports.

In April 2003 the ATSB conducted Operation TAPOK, a further internal desktop exercise to assist with its preparedness for a major aviation accident.

Occurrence investigations

Occurrences reported in the last five years under Part 2A of the *Air Navigation Act 1920* show an increase from 3962 reported in 1996 to 1997 to 5948 occurrences (151 accidents and 5797 incidents) reported to the ATSB in 2002–03 (see Table 21).

The 2002–03 total for occurrences reported is lower than the 2000–01 peak possibly due to:

- statistical variation
- the cessation of operations by Ansett Australia
- a decline in tourism and aviation activity as a result of:
  - the terrorist attacks of 11 September 2001
  - the effects of the terrorist attacks in Bali, Indonesia on 12 October 2002 and the spread of the SARS virus
- favourable weather conditions.

Table 20:
Accidents & incidents notified to the ATSB, 1996–97 to 2002–03

Occ Type	1996–97	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03
Accident	251	244	226	203	215	179	151
Incident	3710	3985	5686	5274	5918	5468	5797
Total	3961	4229	5912	5477	6133	5647	5948

OTE: Incident includes serious incident
Financial year

Key air safety investigation reports published during 2002–03

Ansett Australia Boeing 767 and Class A Aircraft Maintenance Investigation

The ATSB's Ansett 767 maintenance investigation was commenced in early 2001 following the withdrawal from service by Ansett Australia of several Boeing 767 aircraft in December 2000, and again in April 2001. Ansett acted in response to the realisation that they had not conducted certain safety critical aircraft engineering inspections.

On 12 April 2001, prior to the Civil Aviation Safety Authority's decision to ground all Ansett Boeing 767s, the ATSB released two safety recommendations to CASA. The Bureau recommended that CASA should ensure that the continuing airworthiness of Australian registered Class A aircraft was not compromised through any lack of action by the national airworthiness authorities of other countries. The Bureau also recommended that CASA should ensure that all service bulletins with safety of flight implications for Australian registered aircraft were implemented where appropriate. To overcome the specific Ansett problems CASA mandated Ansett compliance with Boeing Service Bulletins related to the monitoring and repair of fatigue cracks in the Boeing 767 rear fuselage and fatigue cracking of the engine strut fitting on the wing front spar.

Action by Ansett and CASA addressed the potential risks to fare-paying passengers. Although Ansett was subsequently placed into voluntary administration in September 2001, the ATSB continued a detailed systemic investigation because of the importance of the issues involved, both in Australia and internationally.

The final ATSB report of the investigation into Ansett's Boeing 767 maintenance safety deficiencies was issued on 15 November 2002. The ATSB's report has received considerable Australian and international recognition from aviation stakeholders and has been nominated for an international air safety award. The highly complex

investigation addressed systemic issues relating to the continuing airworthiness of Class A aircraft. These issues included the systems for communication of safety information between ICAO states and the timely development, dissemination and implementation of continuing airworthiness requirements.

The ATSB issued recommendations to ICAO, the FAA and to CASA. The recommendations related to issues including continuing airworthiness standards, timely processing and release of airworthiness directives, advice to States of Registry when there are delays to the issuing of airworthiness directives, airworthiness assurance, risk assessment, and the processing of aircraft in-service defect information.

CASA has acknowledged the intent of the recommendations and is working towards their implementation. A number of the recommendations will be addressed in the new suite of Maintenance Regulations to be introduced before the end of 2003. The ATSB is monitoring the progress on the recommendations to ICAO and the FAA.

Newman WA Police Airwing Accident

On 26 January 2001, a Cessna 310R operated by the Air Support Unit of the WA Police Service crashed in the vicinity of Newman aerodrome, fatally injuring the four occupants. The aircraft was returning to Newman after transporting the police officers to attend a serious incident at a remote community in the Gibson Desert. The flight was being conducted at night under the visual flight rules.

The ATSB's final report was released on 23 October 2002 and identified a number of factors that had contributed to the circumstances of the accident. The investigation established that the accident occurred after the pilot lost control of the aircraft following a double engine failure. The investigation concluded that the engine failures were a consequence of fuel starvation and that the pilot did not have the appropriate skills or experience to safely undertake long distance flights in dark night conditions.

On 7 September 2001 the ATSB issued a safety recommendation to CASA, recommending an increase in the operations' classification and/or the minimum safety standards for organisations that transport their own employees and similar personnel on a regular basis. On 1 February 2002 CASA responded that it was reviewing the standards contained within the existing CARs and CAOs with regard to the Classification of Operations and that the ATSB

recommendation would be taken into consideration and addressed as part of this project.

The ATSB made three additional recommendations to CASA concurrently with the release of the investigation report. These related to: general operating requirements, training requirements, flight planning requirements and guidance material provided to pilots conducting VFR operations in dark night conditions; required qualifications and/or competencies for chief pilots, with particular reference to management and system safety issues; and provisions for planning fixed fuel reserves and determining if this fuel should be contained in the fuel tanks that are to be used during the approach and landing.

CASA responded to these recommendations on 12 December 2002. Their response indicated that the requirements for night VFR ratings were being developed in conjunction with CASR Part 61 and included the introduction of competency standards for night visual flight operations, and acknowledged the intent of the ATSB recommendation. The requirement for qualifications and/or competencies for chief pilots was being addressed in the context of CASR Part 119. This proposed requiring operators to introduce a Safety Management System, providing for training and checking of crews and a greater regulatory emphasis on the responsibilities of key personnel, including the head of flying operations. CASA's response also acknowledged the intent of this ATSB recommendation on qualifications and competencies. CASA rejected the recommendation relating to fixed fuel reserves, indicating that they believed sufficient guidance on fuel management already existed

VH-TJX, a Boeing 737-476 Microburst Windshear Serious Incident

On 18 January 2001, VH-TJX, a Boeing 737-476 aircraft, en-route from Sydney to Brisbane, encountered microburst windshear at 0729 EST while conducting a go-around from runway 19 at Brisbane airport during an intense thunderstorm. The aircraft was operating a scheduled fare-paying passenger service with 137 passengers and seven crew. As the aircraft passed 1000 ft during the landing approach, it encountered rain and some isolated hail. At about 500 ft, the weather deteriorated rapidly, and the aircraft encountered hail and turbulence.

The pilot in command discontinued the approach and applied go-around engine thrust. The aircraft commenced to climb normally at

about 3600 ft/min, however, shortly after the go-around was initiated, the climb performance substantially reduced to less than 300 ft/min due to the effects of the microburst downdraft and from flight through heavy rain. The pilot in command applied maximum engine thrust to improve the aircraft's climb performance, and advised the Aerodrome Controller that the aircraft had encountered severe windshear. There were no injuries reported, and the undamaged aircraft diverted to and landed safely at Maroochydore Airport.

The investigation found that this serious incident may have been averted had the air traffic controllers been appraised of the latest weather conditions by the Bureau of Meteorology and had controllers relayed more information on the thunderstorm to the aircraft crew. The investigation found that the weather forecasts issued to the public and to the airport are not always similar. Thunderstorms and convective activity around airports are a significant issue in Australian and international aviation, particularly for aircraft in the landing, take-off, missed approach or go-around phases of flight.

As a result of the investigation the ATSB issued a number of safety recommendations to Airservices Australia, the Civil Aviation Safety Authority and the Bureau of Meteorology. These recommendations cover issues relating to air traffic controller and airline operator training programs to address weather information and aircraft performance matters, the development and implementation of advanced weather radar systems, a review of the meteorology syllabus for training of pilots and air traffic controllers, weather recording information being made available for research, and co-location of air traffic controllers and meteorologists for weather information coordination.

The recommendations are detailed in Appendix 4.

Some key ATSB Air Safety Recommendations released during 2002–03

The ATSB recommendations arising from the investigations into Ansett 767 Maintenance, Newman WA Police Airwing, and Microburst Windshear accidents and other occurrence recommendations are detailed in Appendix 4.

Other key 2002–03 ATSB Air Safety Recommendations included:

Boeing 777-212ER broken stator vane incident, 18 November 2001 – Rolls Royce Trent 800 engines (R20030002, R20030003)

The ATSB recommends that:

R20030002

- Rolls Royce Plc. revise service bulletin RB211-72-D516 to highlight the potential for cracking failure between the lever and connecting pin of the Variable Stator Vane lever assemblies, and ensure that inspections contained within this bulletin adequately address this mode of failure.

R20030003

- The United Kingdom Civil Aviation Authority review the Rolls Royce Plc, Trent 800 Engine inspection procedures for the Variable Stator Vane assemblies and service bulletin RB211-72-D516. To ensure that they adequately address and manage the potential for cracking failure of the lever assemblies.

The UK CAA accepted this recommendation. The UK CAA, in conjunction with Rolls-Royce plc, has reviewed the revision to Service Bulletin RB211-72-D516 and stated that it is satisfied that the Safety Bulletin adequately addresses and manages the potential for cracking and failure of the variable stator vane lever assemblies.

The related ATSB investigation report on the Boeing 777-212ER broken stator vane incident has featured in the international Flight Safety Foundation's *Aviation Mechanics Bulletin* (July-August 2003) article *Fatigue Cracking Cited in Boeing 777 Engine Failure* and is receiving widespread industry interest.

VH-NFD Cessna 441 Aerial Ambulance, near Perth, 31 January 2002 - Barometric switch maintenance (R20020101-0109)

The ATSB recommends that CASA, US Federal Aviation Administration (US FAA), the UK Civil Aviation Authority (UK CAA), and the European Joint Aviation Authorities (JAA) respectively:

- ensure the adequacy of the maintenance requirements for calibration, functional test and return to service of barometric pressure switches used to activate:
  - cabin altitude alerting systems in pressurised aircraft engaged in the carriage of fare paying passengers (and type certificated in the USA, UK, and in accordance with the Joint Aviation Regulations respectively).

- deployment of drop down passenger oxygen masks in pressurised aircraft engaged in the carriage of fare paying passengers (and type certificated in the USA, UK, and in accordance with the Joint Aviation Regulations respectively).

The ATSB recommends that CASA liaise with the US FAA, the UK CAA and the European JAA on implementation strategies to address these safety deficiencies.

In response to these recommendations CASA issued the following Airworthiness Bulletins (AWB) on 1 October 2002 to provide advice on how this feature may be incorporated into maintenance documentation covering periodic maintenance of barometric pressure switches in Australian registered pressurised aircraft.

- AWB 21-1 Issue *'Cabin Altitude Alert Pressure Switch Maintenance Requirements.'*
- AWB 35-1 Issue 1 *'Passenger Oxygen Mask Pressure Switch Maintenance Requirements'* .

CASA advised that its long-term approach will be influenced by the response of other aviation authorities to the liaison initiated by CASA as the result of Recommendation 20020109.

Having already taken action prompted by the ATSB with Raytheon, the US FAA liaised with Cessna aircraft company and gained undertakings from Cessna to develop and incorporate maintenance procedures for the switch.

VH-TJY Boeing 737-476 Perth Airport, Sweeper Vehicle on Runway, 18 June 2001–Vehicles on Runways (R20020036, R20020040)

The ATSB recommends that:

R20020036

- Airservices Australia, in conjunction with airport owners, review the adequacy of equipment and procedures that allows drivers of all vehicles using airport runways to monitor the aerodrome controller radio frequency.

R20020040

- Airservices Australia, CASA and the Australian Airports Association should jointly review airside vehicle operation with a view to establishing national operating standards and procedures (including vehicle colour, lights and procedures).

Airservices Australia accepted these recommendations. In relation to activities in Perth, a number of joint workshops have occurred involving the Perth Airport owner, airside operators and Airservices Australia. As an interim result, a number of local vehicle operating procedures were modified to enhance safety.

Following a national meeting on 14 May 2003, attended by representatives from Airservices Australia, CASA, the Australian Airports Association and the ATSB, Airport Services, a business group of Airservices Australia, initiated changes to local procedures at other aerodromes. The new procedures will ensure that vehicles that enter and remain on a duty runway will be capable of communicating on the tower aerodrome control frequency and will be controlled by air traffic controllers.

Of the four aerodrome control towers that require this change, Perth, Adelaide, and Melbourne are expected to change during September 2003 and Canberra on a date to be advised after the Melbourne implementation.

With respect to ATSB Recommendation 20020040, Airport Services will be requesting a change to CASR 139 MOS 8.10.4 to delete paragraph 8.10.4.1 and to amend paragraph 8.10.4.2 to read:

> *A vehicle used regularly on the movement area must be marked either by using a flashing dome light on top of the vehicle in accordance with Paragraph 9.19.1 or, by day only, by flags.*

This amendment would result in the minimum requirement for airside vehicles to be equipped with either the lights, or flags by day, and removes any reference to preferred colours.

Airservices Australia has acknowledged that CASA has regulatory governance over aspects of airside vehicular operations through CASR 139, and any suggested national changes that affect this regulation require their agreement.

Reduction in investigation backlog

In 2002–03, the ATSB released 78 aviation investigation reports with a median time from occurrence date to report release of 279 days, down from 317 days the previous year. The backlog of uncompleted investigation reports declined from about 90 during 2001–02 to 66 as at 30 June 2003, and the number of investigations more than 12 months old declined slightly from 16 to 14. The Bureau is

initiating fewer new investigations and reducing the scope of some it undertakes in order to operate within its budget and publish reports in a more timely manner with appropriate quality assurance.

Safety deficiency investigations

A safety deficiency investigation may lead to formal recommendations to industry bodies to address the deficiencies that often feature as significant factors or findings in an occurrence investigation.

The Ansett 767 Class A Aircraft Maintenance Investigation report was released in November 2002 and features in the Key Reports section of this Review. The final recommendations are listed in Appendix 4.

In 2002–03 the ATSB created 16 safety deficiency notices and issued 61 recommendations (including two recommendations to multiple organisations) and no safety advisory notices.

Confidential Aviation Incident Reporting

Confidential Aviation Incident Reporting (CAIR) programme was established in 1988. The CAIR programme helps to identify and remedy aviation safety deficiencies that might otherwise remain unreported. By publishing de-identified reports and remedial action taken, the programme helps with learning from the experiences of others.

The number of CAIR reports received over the last six years shows solid industry support (see Table 21). In 2002–03, CAIR issued 190 'For Your Information' notices and three Alert Bulletins.

The CAIR scheme will be reviewed in 2003–04 as a result of the very few incidents reported in recent years and the proposed Government legislation to establish an ATSB-administered aviation self-reporting scheme under an amendment to the Civil Aviation Act.

Table 21:
CAIR reporting to the ATSB 1997–98 to 2002–03

Occ Type	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03
CAIR	287	326	265	357	321	257

Financial year

Safety promotion

Along with CASA, the ATSB provides safety information to the aviation industry. The Bureau promotes aviation safety by:

- publishing investigation reports and safety studies
- publishing safety recommendations and notices
- providing information on its website
- delivering presentations at conferences and safety forums
- cooperating internationally
- contributing to Parliamentary inquiries
- participating in coronial inquests
- publishing the ATSB Supplement in CASA's *Flight Safety Australia* (Appendix 1 lists articles published during 2002–03)
- maintaining safety programmes such as CAIR and INDICATE.

Presentations at conferences and safety forums

Effective safety systems depend on communication, a free exchange of information between safety professionals, and the ability to target those directly involved, including operators and managers.

To help spread the safety message, investigators spoke to:

- aero clubs and flying training schools
- helicopter operators
- aerial agriculture conferences
- regional airlines conferences
- air safety investigators conferences
- Australian Defence Force training days
- state government disaster management planning committees
- Airservices Australia training days
- flight safety and other industry forums
- tertiary institutions.

The Human Factors Advisory Group advises the CASA Board on current and emerging aviation performance issues such as human factors education, training and awareness initiatives at both the individual and organisational level. The Group, which includes the ATSB, meets four times a year.

Professional conferences address engineering, human factors, flight operations, air traffic control, cabin safety and flight recording issues.

In 2002–03, ATSB aviation staff attended:

- Aviation Industry Association Conference, New Zealand, August 2002
- International Society of Air Safety Investigators Conference, Taipei, Taiwan, September 2002
- Flight Safety Foundation Conference Dublin, Ireland, November 2002
- International Conference on Failure Analysis, Melbourne, November 2002
- 2003 Flightscape Users Conference, Ottawa, Canada, June 2003.

Involvement in international cooperation

As aviation is an international endeavour, aircraft accidents and incidents, regardless of location, are of direct interest to the global industry.

The International Civil Aviation Organization's (ICAO's) standards and recommended practices apply to international and Australian aviation operations.

Unless a difference is notified to ICAO, investigations of aircraft accidents and serious incidents must comply with Annex 13 to the Convention on International Civil Aviation – the convention that gave birth to ICAO. Australia has incorporated the provisions of Annex 13 into the *Transport Safety Investigation Act 2003*, and prior to the operation of the TSI Act on 1 July 2003, filed differences (shown in italics) against the following paragraphs:

- Paragraph 5.1 ('State of Occurrence'): *Australia may not institute an investigation into 'domestic' accidents where the aircraft concerned is on the Australian Register. Decisions on whether a particular domestic accident will be investigated will depend on resources and the likely benefit to future safety, particularly in the*

general aviation sector. Serious incidents involving either foreign or Australian-registered aircraft may also not be investigated depending on resources and the likely benefit to future safety.

- Paragraph 5.4 ('Responsibility of the State Conducting the Investigation'): *With respect to 5.4(a) resources may constrain Australia from 'gathering, recording and analysing all available information on that accident or incident'.*
- Paragraph 5.6 ('Investigator-in-charge – Access and control'): *The Investigator-in-charge does have access to all relevant material but primary control over bodies of the deceased and pathological testing lies with coronial authorities within Australia. Control over other evidence is sometimes shared with regulators, police and other domestic authorities but the Investigator-in-charge has primacy if this is required.*
- Paragraph 5.25 ('Entitlement of Accredited Representatives – Participation'): *All Article 26 obligations will be met. While Australia will endeavour to comply with the standard to the extent necessary to make participation effective, the timing and access to sensitive evidence may be subject to confidentiality considerations and agreements. Australia reserves the right to remove a participant from an investigation if they contravene the agreed conditions of participation or have a serious conflict of interest that may impede the conduct of the investigation.*
- Paragraph 7.1 ('Accidents to aircraft over 2250 kg'): *Australia will comply with the standard for the more complex accidents. However, for some less complex investigations Australia does not prepare a Preliminary Report.*
- Paragraph 7.2 ('Accidents to aircraft of 2250 kg or less'): *Australia will comply with the standard for the more complex accidents. However, for some less complex investigations Australia does not prepare a Preliminary Report.*
- Paragraph 7.5 ('Accidents/Incident Data Report: Accidents to aircraft over 2250 kg'): *If Australia does not investigate a 'domestic' accident it will send ICAO only the initial notification details it has with regard to the accident. If an accident investigation is undertaken, the final report will be sent to ICAO.*

ATSB is a corporate member of the international Flight Safety Foundation (FSF), one of the world's most influential private air safety organisations. The FSF has developed accident prevention programmes with the International Civil Aviation Organization, the

International Air Transport Association and the US Federal Aviation Administration.

The ATSB is also a member of the International Transportation Safety Association (ITSA) and of the International Society of Air Safety Investigators (ISASI).

ATSB expertise in materials failure analysis and flight recorder replay and analysis assisted investigations in Indonesia, Papua New Guinea, New Zealand, Singapore, Bangladesh and East Timor.

At the request of the East Timor Government, the ATSB is leading an air safety investigation into a fatal aircraft accident involving a Lao registered Iluyshun IL-76TD aircraft which crashed near Baucau, East Timor. The six Russian national occupants, all crewmembers, were fatally injured. Australia appointed a senior investigator to lead a joint investigation team with the Australian Defence Forces. Investigators from the Interstate Aviation Committee in Moscow provided invaluable assistance with recorder replay, analysis and translation. At 30 June 2003 the investigation was continuing.

Memorandum of Understanding with the Interstate Aviation Committee of the Commonwealth of Independent States

In March 2003 the increasing cooperation between Australian transport safety investigators and their counterparts from the Commonwealth of Independent States (CIS) was recognised by the signing of a Memorandum of Understanding between the ATSB and the Interstate Aviation Committee (IAC), representing 12 Independent States: Azerbaidjan, Armenia, Belorus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russian Federation, Tajikistan, Turkmena, Uzbekistan and Ukraine.

In the memorandum, the ATSB and IAC agreed to:

- Provide assistance, in the form of investigation facilities and equipment, as resources permit. This assistance may include expertise in the fields of air traffic services, engineering, operations, flight recorders, human performance and management organisation
- Appoint investigators as observers or participants in investigations, with a view to improving understanding of each other's investigation requirements and procedures.

Declaration of intent with Japan on air and rail safety

On 3 June 2003, the ATSB signed a Declaration of Intent (DOI) with the Japan Aircraft and Railway Accidents Investigation Commission (ARAIC) on matters of air and rail safety. The purpose of the DOI is to assist in enhancing national, regional and international aviation safety and railway safety.

Inquests

State Coroners sought the attendance of transport safety investigators at four coronial inquests: The Whyalla Airlines Piper Navajo Chieftian accident near Whyalla SA; the Burketown Qld Raytheon Beech King Air accident; the Bencubbin WA Bell 206 accident; and the Mount Newman WA Police Air Wing Cessna 310 accident. Investigators also gave evidence by telephone at other inquests.

The VH-MKZ Whyalla Airlines inquest process involved considerable ATSB resources as a result of a dispute regarding the relevance of a crankshaft manufacturing problem to the fractured left Whyalla Airlines Piper Chieftain crankshaft and the criticism levelled at the Bureau from the opening of the inquest on 22 July 2002 until the Coroner delivered his findings on 24 July 2003. The cost of the ATSB participation in the MKZ inquest alone was more than $1 million and contributed significantly to resource pressure on the Bureau.

The Beech King Air inquest was conducted by the WA Coroner due to the likely time of death of the occupants being determined to have occurred over Western Australia. A number of investigators were called to give evidence about the investigation and findings as well as ATSB investigation policy and processes. The Coroner, although critical of aspects of the ATSB investigation, accepted and adopted all of the ATSB's safety recommendations.

The Bell 206 helicopter inquest heard evidence from the ATSB's investigator in charge about the operation being conducted at the time of the accident and the helicopter's flight path and impact with powerlines. The Coroner supported the findings and recommendations made by the ATSB and examined the need for wire cutters on helicopters conducting low level operations, recommending that they be fitted.

The Mt Newman inquest again involved investigators being called to give evidence, including the Bureau's investigation policies. The

Coroner accepted the Bureau's evidence, findings and safety recommendations.

The Bureau hopes that a combination of more regular high level liaison with coroners and the provisions of the TSI Act will lead to improved cooperation in the future.

Aviation safety research

The ATSB continued to develop an embryonic air safety research programme in 2002–03 to examine aviation safety issues and to promote safety within the industry. The programme drew on safety data and knowledge held by the ATSB as well as input from industry stakeholders.

Aviation safety research project reports published in 2002–03 included:

The hazards posed to aircraft by birds. This study analysed Australian data concerning birdstrike rates, species involvement and hazard potential, the time of day and the phase of flight. Recorded birdstrikes in Australia seem to have increased since 1992. Not surprisingly, most strikes occur at or near airports during the take-off, approach or landing phases of flight.

The report on birdstrikes prompted several interested parties to form a committee to promote best practice measures in reducing birdstrike incidents.

Airspace-related occurrences within Australia's mandatory broadcast zones. This study reviewed the available data for airspace-related occurrences in mandatory broadcast zones since 1994. It found that between one and two occurrences were reported each week.

Australian aviation accidents involving fuel exhaustion and starvation. This study investigated the significance, overall rates and factors contributing to fuel-related accidents between 1991 and 2000. It found that fuel starvation accidents are still a significant problem in Australia. While fuel exhaustion accident rates have decreased, they still account for an unacceptable percentage of all aviation accidents. It is hoped that raising awareness of fuel-related issues within the aviation industry will reduce the number of fuel-related accidents.

New funding in the May 2003 federal budget will enable an expansion of aviation safety analysis and research projects in 2003–04.

Communications and Information

The Communications and Information Unit plays a central role in helping the ATSB maintain and improve transport safety.

The Unit:

- coordinates public communication, briefing and media activities
- designs and publishes safety investigation and education materials
- provides information to stakeholders and the community
- manages the ATSB's website.

The Unit also has particular oversight of:

- the ATSB supplement in *Flight Safety Australia*
- media releases
- ATSB briefing on reports for the Minister and Department
- issues likely to provoke national media interest
- graphic standards and style
- materials in support of larger public communication events and launches
- Freedom of Information and legal coordination issues.

Media

Wide public interest in the ATSB's activities and findings require a well-planned media response. The ATSB can be reached through its media contact officer or (24 hours, seven days a week) rostered duty officer.

Nominated staff received media training during the past year to help them meet the requirements of their roles.

In 2002–03 the Unit organised major media conferences with respect to the following high-profile issues:

- Ansett 767 Maintenance Investigation
- Newman Western Australia Police Airwing
- *Nego Kim* Marine Explosion Accident
- IL 76 fatal accident in East Timor.

These conferences helped ensure that the media coverage that followed was well informed and responsible. They also helped to publicise the ATSB's role in transport and aviation safety.

The Unit developed a series of information brochures to inform stakeholders about the ATSB and its various functions and to reinforce the message that the ATSB is an operationally independent multi-modal safety body within the Department of Transport and Regional Services. The Unit also played a major role in promoting the TSI Act 2003 to industry stakeholders.

Website

The Communications and Information Unit develops and maintains the ATSB's website **www.atsb.gov.au**

Users can access information by selecting navigation links within each transport mode, or by searching directly for specific information using a customised search engine. The site contains:

- safety investigation and other reports
- recommendations and responses
- research publications
- public education material (advice on child safety, drink driving, speeding, learner driving, fatigue, motorcycle safety and first aid)
- accident and incident statistics
- media alerts and releases
- speeches and 'audio grabs'
- online purchasing and downloads
- free 'subscription' information service
- safety-related articles of interest (backgrounders, fact sheets and discussion papers).

The site offers information produced or commissioned by the ATSB in easily searchable, accessible and downloadable formats. Users can request copies of road safety education material and teaching resources, or purchase online other ATSB safety information products such as the *Ride On* motorcycle safety video, and the '*Road Safety Research Library*' (a 3 CD set).

The site's aviation Accident and Incident Report form and Confidential Aviation Information Report (CAIR) form provide a secure online option for reporting air safety accidents and incidents and making other confidential reports. The site's free information service announces new releases and developments to interested parties and industry stakeholders by means of an e-mail notification.

In 2002–03, the site attracted more than five million hits. The number of hits increases markedly following the release of high-profile information or reports, particularly in aviation and road safety.

The ATSB provides required online information and services. The ATSB also supports the government's Online Strategy objectives concerning Australian Government Locator Service metadata, accessibility for the disabled, and copyright and privacy concerns.

Information requests

During 2002–03, the Unit responded to more than 33 000 requests for safety information. Responses ranged from giving verbal advice on safety-related issues to distributing reports, statistical monographs and road safety public education materials. The Unit also fielded media inquiries and promoted public awareness of the ATSB's safety materials.

The Unit updated and reprinted road safety resources as required: for example, the brochure *Where are your kids? Child safety in your driveway* was developed for parents as a guide to child safety.

Graphic design

The Unit's graphic design and publishing staff provide quality control of internally and externally produced publications. The ATSB website has benefited by way of high-quality design elements which have been incorporated into the general site design, and which form the visual basis for many reports and articles.

Freedom of information

During 2002–03, the Unit responded to 27 Freedom of Information requests within the statutory timeframes of the *Freedom of information Act 1982*. Three applications for internal review of ATSB decisions under the Freedom of Information Act were resolved during 2002–03, and the primary decisions were largely upheld.

The Unit also attended to 11 subpoenas within specified timeframes.

Court and AAT hearings

One case was heard in the Administrative Appeals Tribunal (AAT) in which the applicant sought review of an ATSB decision under the Freedom of Information Act. The majority of the decision was upheld.

Two cases were heard in the ACT Supreme Court. Affidavits were sworn and after arguments made by Counsel for the ATSB in relation to the public interest in protecting the safety investigation documents, the Judge ruled in favour of non-disclosure.

Briefing minutes for Minister and Parliamentary Secretary

In 2002–03 the ATSB submitted 158 briefing minutes to the Minister and Parliamentary Secretary.

Ministerial correspondence

The ATSB helped draft responses to 132 letters for the Minister and Parliamentary Secretary.

Questions on notice

The ATSB drafted responses to seven Questions on Notice, excluding the Senate committee responses listed below.

Senate Legislation Committees

In 2002-03 the ATSB appeared at two Senate Estimates hearings of the Rural and Regional Affairs and Transport Legislation Committee :

- 11 February 2003: 2002–03 Additional Estimates Hearings, after which the ATSB drafted answers to six questions on notice.
- 28 May 2003: 2003–04 Budget Estimates Hearings, after which the ATSB drafted answers to eight questions on notice.

The ATSB also appeared at two Senate Committee hearings relating to the passage of the Transport Safety Investigation (TSI) legislation in 2002–03:

- 21 October 2002 – the Standing Committee for the Scrutiny of Bills hearing on the TSI legislation. The Committee's report was handed down in February 2003.
- 24 October 2002 – the Rural and Regional Affairs and Transport Legislation Committee hearing on the passage of the TSI legislation. The details relating to ATSB's attendance are in the Committee's thirteenth and fourteenth reports in October and November 2002.

Transport safety performance statistics

Cross modal safety comparisons

Table 1 compares the relative risk of fatal injury to passengers using all major forms of land and air transport in Australia. Airline travel is by far the safest form. Bus and rail are the safest forms of land transport, while motorcycling is the least safe of all forms of transport.

Table 1:
Relative risk of fatal injury by Australian transport mode

Transport mode	Relative fatality rate based on passenger kilometres travelled (car travel = 1.0)
Aviation	
High-capacity RPT	0.0
Low-capacity RPT	0.2
Fixed-wing general aviation	5.7
Road	
Car	1.0
Motorcycle	28.0
Bus	0.2
Rail	0.2
Marine [1]	0.0

Source: *ATSB. ABS: using latest avaliable data*

(1) *Marine public transport via ferries.*

Multimodal trends (fatalities)

Table 2 shows the number of fatalities in each of the major transport modes over the last decade. Between 1993 and 2002, the most notable trend was a drop in road fatalities until 1997, after which they tended to remain relatively stable.

Table 2:
Australian transport fatalities by mode, calendar years, 1993 to 2002

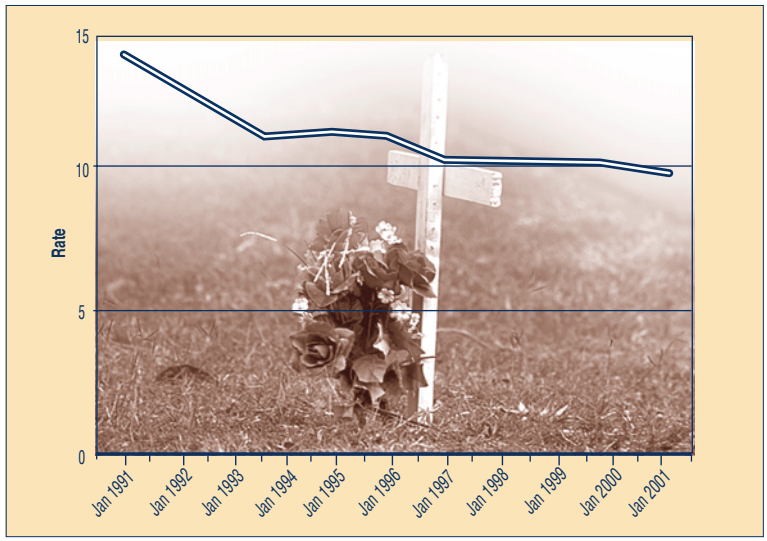
Year	Road	Rail	Marine	Aviation
1993	1953	52	69	53
1994	1928	43	58	51
1995	2017	46	55	39
1996	1970	30	60	43
1997	1767	43	46	28
1998	1755	43	46	46
1999	1764	41	51	40
2000	1817	38	42	37
2001	1737	34	45	41
2002	1714	..	..	23

Sources: *ATSB (road and aviation), Australian Bureau of Statistics (rail and marine).*

Note: *[..]Denotes data unavailable.*

The number of transport accident fatalities per 100 000 population decreased substantially during the period 1991 to 2001 (the latest ten-year period for which data are available), from 14.1 to 9.6 fatalities per 100 000 of population (Figure 1).

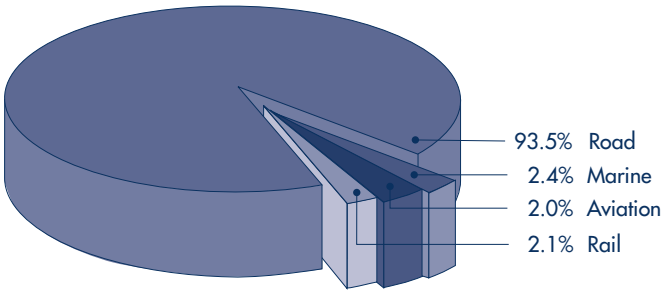
FIGURE 1:
Australian transport fatalities (all modes) per 100 000 population, calendar years 1991 to 2001



Source: *Chart compiled by ATSB; data sourced from Australian Bureau of Statistics.*

Figure 2 shows that road trauma is by far the largest contributor to transport fatalities. It accounted for 94 per cent of total transport fatalities in the five years from 1998 to 2002.

FIGURE 2:
Australian transport fatalities in the last five years (1998 to 2002) by mode

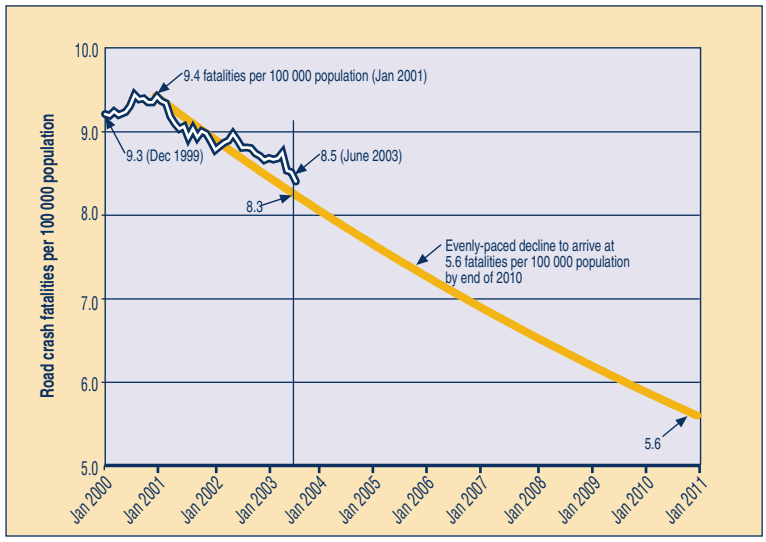


Source: *ATSB (road and aviation). Australian Bureau of Statistics (rail and marine). Marine and rail data were estimated for 2002.*

Road safety trends

The aim of the *National Road Safety Strategy 2001–2010* (NRSS) is to reduce the road fatality rate to no more than 5.6 road fatalities per 100 000 population by 2010.

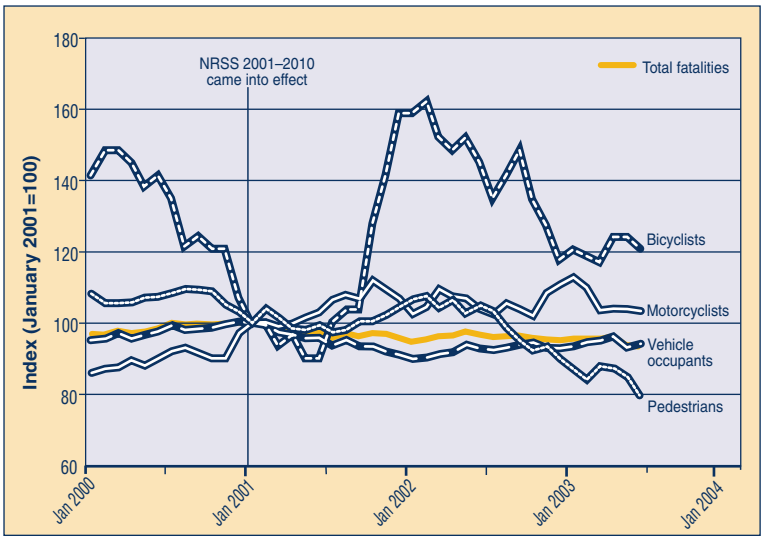
FIGURE 3:
Australian road fatality rates per 100 000 population, 2000 to 2003, including the NRSS 2010 projected target



The NRSS came into effect on 1 January 2001, at which time the annual fatality rate for the preceding 12 months was 9.4 fatalities per 100 000 population. Figure 3 shows that by mid–2003 the Australian 12–month road fatality rate was 8.5 per 100 000 population. On a straight line projection between the rate at January 2001 and the target rate of 5.6 by the end of 2010, the projected rate for mid–2003 was 8.3 fatalities per 100 000 population.

It is hoped that the combined effort of stakeholders under the ATC-approved *National Road Safety Action Plan 2003 and 2004* will accelerate progress towards the target.

FIGURE 4:
Australian road fatalities by road user group, January 2000 to June 2003 (indexed at January 2001)



Since the introduction of the NRSS, vehicle occupant and pedestrian fatalities have decreased by 6 per cent and 21 per cent respectively. On the other hand, motorcyclist and bicyclist fatalities have increased by 3 per cent and 21 per cent respectively.

Figure 4 gives a picture of road-user fatalities indexed to the point at which the 10-year NRSS came into effect; that is, fatalities for the 12 months to January 2001 are indexed at 100.

Table 3:
Australian road fatalities per 100 000 population, by state and territory, calendar years 1999 to 2002

Year	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Australia
1999	9.0	8.2	9.0	10.1	11.8	11.2	25.4	6.1	9.3
2000	9.3	8.6	8.9	11.0	11.3	9.1	26.1	5.7	9.5
2001	8.0	9.2	8.9	10.1	8.7	12.9	25.3	5.0	8.9
2002	8.4	8.1	8.7	10.1	9.3	7.6	27.8	3.1	8.7

Source: *Calculated using ATSB road fatality data and Australian Bureau of Statistics population data.*

Since 2000, the fatality rate per 100 000 population has decreased in all states and territories, with the exception of the Northern Territory. Overall, this has resulted in a decrease of about 8 per cent.

Truck safety trends

Table 4 shows the number of fatalities involving articulated trucks in each jurisdiction between 1999 and 2002. Detailed recent data for heavy rigid trucks are not available, but during the period 1990–1999 fatalities involving heavy rigid trucks amounted to 63 per cent of fatalaties involving articulated trucks.

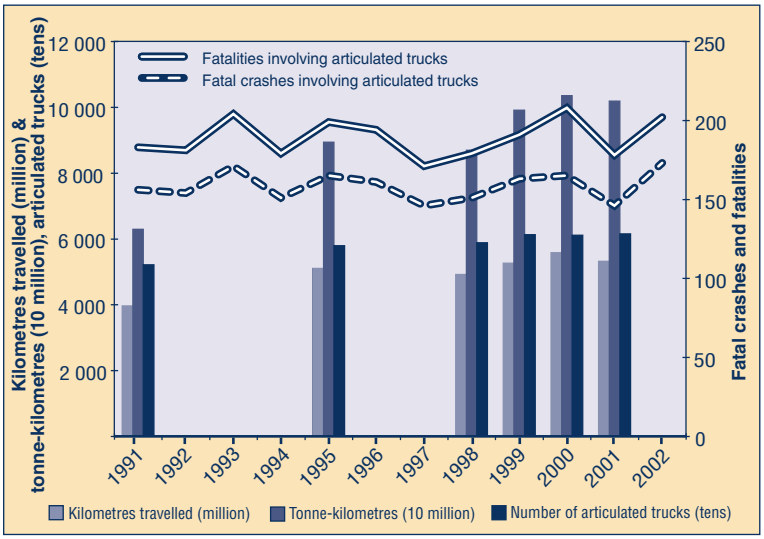
Table 4:
Australian road fatalities involving articulated trucks, by state and territory, calendar years 1999 to 2002

Year	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Australia
1999	64	39	38	21	23	2	3	1	191
2000	84	40	40	19	13	6	6	0	208
2001	60	45	33	18	14	5	0	3	178
2002	86	49	28	13	14	3	7	0	200

Source: ATSB.

Between 2000 and 2002, the Australia-wide number of fatalities in crashes involving articulated trucks fell by about 4 per cent.

FIGURE 5:
Australian road fatalities and fatal crashes involving articulated trucks,articulated truck kilometres travelled, tonne-kilometres, and number of articulated trucks, calendar years 1991 to 2002



Sources: *ATSB fatality and fatal crash data, ABS 'Survey of Motor Vehicle Use' data.*

While fatalities and fatal crashes involving articulated trucks have remained relatively stable since the early 1990s, kilometres travelled, tonne-kilometres, and articulated truck numbers all increased (figure 5). Overall, between 1991 and 2001:

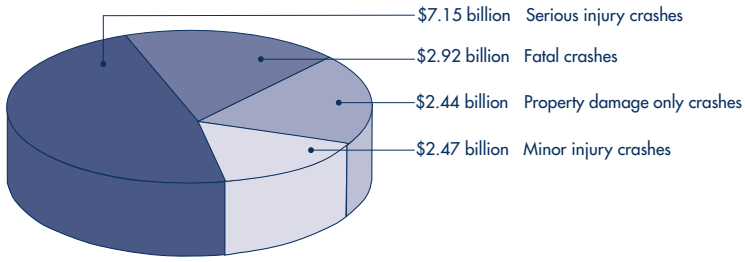
- the fatality rate per kilometre travelled declined by 20 per cent
- the fatality rate per tonne-kilometre declined by 30 per cent
- kilometres travelled by articulated trucks increased by 34 per cent
- articulated truck tonne-kilometres increased by 62 per cent
- articulated truck numbers increased by 18 per cent.

An Australian Truck Crash Database has been developed to investigate the full range of heavy-truck crashes that resulted in serious casualties. It is anticipated that data for the year 2000 will be available for analysis shortly.

Cost of road accidents

Road crashes impose a substantial financial burden on the Australian community as a whole and on particular groups within the community. The cost of road crashes in Australia in 1996 has been conservatively estimated at $15 billion in 1996 dollar values *(Road Crash Costs in Australia*, Bureau of Transport Economics Report 102, 2000). Figure 6 shows the breakdown of these costs across crashes of different severity categories.

FIGURE 6:
Annual cost of road crashes in Australia, 1996, by type of crash



Source: *BTRE*
All costs are in 1996 dollars.

Rail safety trends

Table 5 presents rail fatalities for the latest available 10-year period. The figures show fluctuations in rail fatalities from year to year, with an overall downward trend.

Table 5:
Australian rail fatalities, calendar years 1992 to 2001

Year	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Australia
1992	28	10	11	5	5	0	2	0	61
1993	16	17	11	3	5	0	0	0	52
1994	18	8	6	4	7	0	0	0	43
1995	16	14	11	3	1	0	1	0	46
1996	9	11	3	2	5	0	0	0	30
1997	21	16	2	2	2	0	0	0	43
1998	25	8	3	3	4	0	0	0	43
1999	19	10	2	2	8	0	0	0	41
2000	14	12	2	3	6	0	0	1	38
2001	14	11	6	1	2	0	0	0	34

Note: *States and territories shown are those in which the death was registered. Suicides are excluded.*

Sources: *Compiled by ATSB using unpublished data from the Australian Bureau of Statistics.*

Cost of rail accidents

Table 6:
Costs of rail accidents In Australia – 1999 ($ Million)

Type of costs of rail accidents	Rail accidents		Other rail-related incidents		All rail-related incidents
	Rail accidents excluding level crossing accidents	Level crossing rail accidents	Level crossing acidents involving motor vehicles	Suicides and attempted suicides	
Workplace productivity	20	8	3	19	50
Household productivity	19	8	3	18	48
Medical/ambulance/ rehabilitation	2	0	1	3	6
Quality of life	11	5	2	12	31
Total	52	21	9	53	135
Productivity costs	56	0	1	0	57
Other costs	4	0	0	1	5
OVERALL TOTAL	111	22	10	53	196

Note Source. BTRE. *All figures are in 1999 dollars, are based on a discount rate of 4 per cent, and are rounded to the nearest million dollars.*

Marine safety trends

Tables 7 and 8 show database details of marine investigations from 1991 to 2003.

Table 7:
Australian marine investigations by incident type, 1 January 1991 to 30 June 2002 and 1 July 2002 to 30 June 2003

Incident type	1991–2002	2002–03	Total
Grounding	47	5	52
Collision	32	0	32
Fire/Explosion	19	2	21
Foundering	8	1	9
Structure	5	0	5
Equipment	11	1	12
Berthing	7	0	7
Machinery damage	4	3	7
Accidents causing fatalities	17	3*	20
Accidents causing serious injuries	9	0	9
TOTAL	159	15	174

** One accident causing a fatality involved a collision between a ship and a fishing vessel.*

Table 8:
Number of vessels involved in incident investigations by vessel type, 1 January 1991 to 30 June 2002 and 1 July 2002 to 30 June 2003.

Incident type	1991–2002	2002–03	Total
Bulk carrier	70	10	80
Tanker	22	0	22
Container	14	1	15
General	13	2	15
Roll on/roll off	5	1	6
Livestock	5	-	5
Supply/offshore	9	-	9
Tug	5	-	5
Training	4	-	4
Fishing Vessel	21	2	23
Passenger	2	-	2
Pleasure	7	-	7
Other	6	-	6
TOTAL	183	16	199

Cost of marine accidents

Table 9:
Total Australian maritime accident casualties and costs, 1993

Year	No. of fatalities	No. of hospital injuries	Cost to the community nominal $m	Cost to the community 1993 $m
1993	73	901	316	316

Source *BTCE estimates based on data provided by Australian Bureau of Statistics, Australian Department of Transport, Australian Maritime Safety Authority, National Injury Surveillance Unit and the Insurance and Superannuation Commission.*

Aviation safety trends

Australia has a relatively favourable aviation safety record internationally.

Accident information is usually presented in terms of Australia's aviation sectors:

- high-capacity (Regular Public Transport aircraft with a seating capacity greater than 38 seats or a maximum payload exceeding 4200 kg)
- low-capacity (Regular Public Transport aircraft with a seating capacity of fewer than 39 seats or a maximum payload of 4200 kg)
- General Aviation (aircraft used for charter, agriculture, training, aerial and private including business operations).

High-capacity aircraft operations continue to be the safest, with extremely low accident rates. As Tables 11 and 12 show, both high-capacity and low-capacity operations are very safe in terms of the number of accidents reported.

Accidents

Table 10 shows aviation accidents and fatal accidents over the 10-year period 1992 to 2001.

Table 10:
Accidents and fatal accidents involving Australian-registered aircraft by category, calendaryears

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
High-capacity										
All accidents	1	2	1	1	0	1	7[a]	3	3	1
Fatal accidents	0	0	0	0	0	0	0	0	0	0
Low-capacity										
All accidents	5	4	4[b]	2	0	2	3	3	3	4
Fatal accidents	1	0	1	0	0	0	0	1	0	0
General Aviation										
All accidents	257	206	216	203	229	208	166	187	176	136
Fatal accidents	22	25	22	23	17	23	21	16	22	10

(a) Includes five accidents where aircraft were on the ground with passengers on board.

(b) Includes one RPT training flight with two fatalities.

While caution needs to be exercised because of the small numbers involved, Table 8 shows a low and stable pattern for accidents in both the high and low-capacity Regular Public Transport categories. For the General Aviation sector, the number of accidents each year is larger, and Figure 7 shows all General Aviation accidents and fatal accidents over the decade to 2002.

FIGURE 7:
Fatal accidents and total accidents involving Australian-registered General Aviation aircraft, calendar years 1993 to 2002

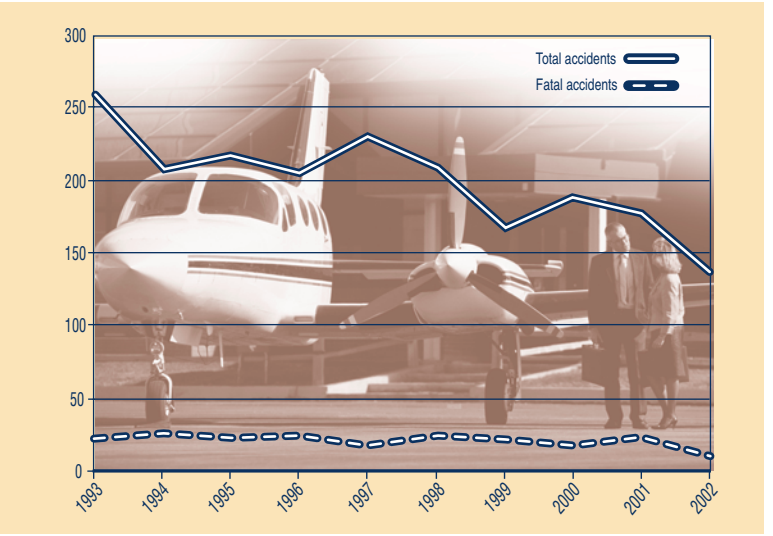


Figure 7 shows a downward trend in total accidents recorded in the General Aviation sector. An additional perspective may be obtained by examining accident rates based on the number of hours flown.

FIGURE 8:
Accidents involving Australian-registered General Aviation aircraft per 100 000 hours flown, calendar years 1993 to 2002

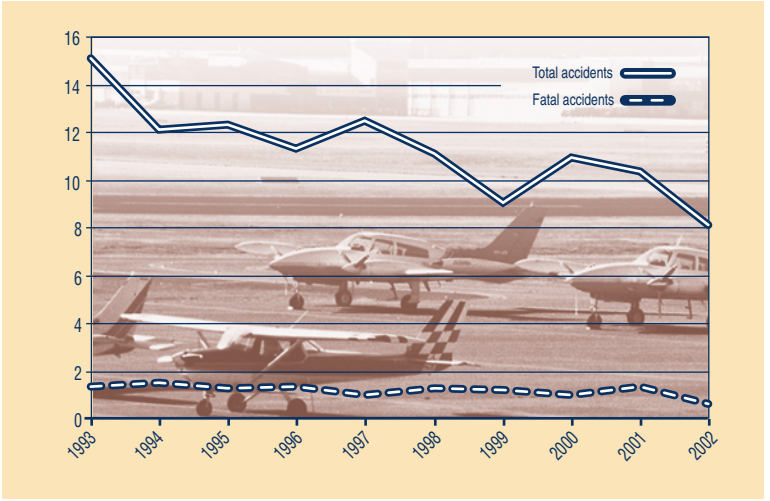


Figure 8 shows a significant overall decrease in the accident rate over the last decade. The Avgas contamination episode, which grounded several thousand General Aviation aircraft, complicates interpretation of the rates in late 1999 and early 2000.

In addition to hours flown, accident rates can also be estimated in terms of aircraft departures.

From 1993–2002, high capacity activity generally increased, with the only notable decrease occurring in 2002.

From 1993–2002 activity in the low capacity airline sector initially increased before a period of stability in the late 1990's. In the last two years, activity has decreased by approximately 30 per cent and can in part be attributed to the collapse of Ansett, which has limited the associated regional airlines' activity. Charter activity too has fallen in recent years.

Tables 11, 12 and 13 provide accident information for high-capacity, low-capacity and charter respectively, for the years 1993 to 2002. The data are presented in terms of the categories used by the ATSB to record accidents and incidents. In broad terms, the higher the number, the less serious the occurrence. Categories 1 and 2 are applied if there is a significant threat to public safety, while category 4 is normally used for occurrences where the facts do not indicate a

serious safety deficiency or where the deficiency is well-known. Occurrence categories have varied over time, with the balance between categories 4 and 5 in particular influenced by resource availability and investigator workload.

For the period 1993 to 2002, most high-capacity, low-capacity and charter accidents are category 4.

The total of seven high-capacity accidents in 1999 (see Table 11) is not in keeping with the trend for previous years. Five of these occurred when the aircraft was on the ground but are included in the statistics because passengers were on board. Three of the seven were of a more serious nature.

Table 11:
Accidents involving Australian-registered high-capacity aircraft by investigation category, calendar years 1993 to 2002

	Investigation category				
Year	2	3	4	5	Total
1993	-	-	1	-	1
1994	1	-	-	1	2
1995	-	-	-	1	1
1996	-	1	-	-	1
1997	-	-	-	-	0
1998	-	-	1	-	1
1999	1	2	3	1	7
2000	-	1	2	-	3
2001	-	-	1	2	3
2002	-	-	-	1	1

Table 12:
Accidents involving Australian-registered low-capacity aircraft by investigation category, calendar years 1993 to 2002

	Investigation category				
Year	2	3	4	5	Total
1993	1	1	2	1	5
1994	.	.	4	.	4
1995	1	.	3	.	4
1996	.	1	1	.	2
1997					0
1998	.	.	2	.	2
1999	.	1	2	.	3
2000	1	.	2	.	3
2001	.	.	2	1	3
2002	.	.	.	4	4

Table 13:
Accidents involving Australian-registered charter aircraft by investigation category, calendar years 1993 to 2002

	Investigation category				
Year	2	3	4	5	Total
1993	1	9	27	7	44
1994	2	5	40	2	49
1995	1	4	36	1	42
1996	.	9	24	1	34
1997	.	3	38	8	49
1998	1	3	37	.	41
1999	.	2	19	.	21
2000	1	3	7	15	26
2001	1	2	7	22	32
2002	.	2	4	13	19

Table 14 shows that, based on hours flown, both high- and low-capacity aircraft operations have significantly lower accident rates than do charter operations.

Table 14:
Australian-registered aircraft accidents per 100 000 departures and per 100 000 hours flown (high-capacity, low-capacity and charter), calendar years 1993 to 2002

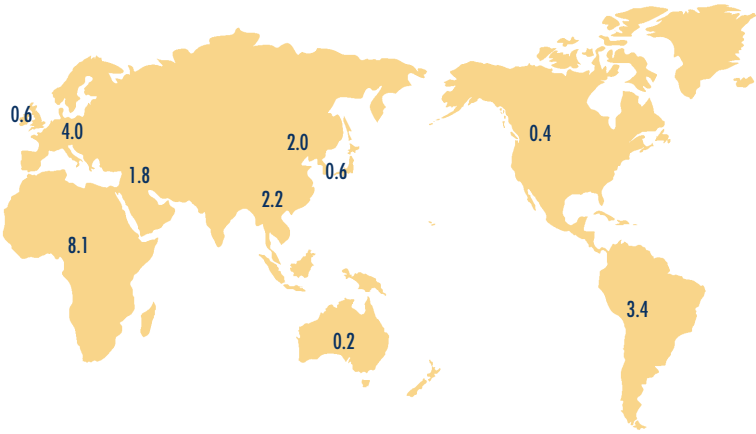
Year	Accidents per 100000 departures	Accidents per 100000 hours flown	Accidents per 100000 departures	Accidents per 100000 hours flown	Accidents per 100000 hours flown
1993	0.4	0.2	1.6	2.2	11.1
1994	0.7	0.3	1.3	1.6	11.5
1995	0.3	0.2	1.3	1.6	9.0
1996	0.3	0.1	0.6	0.8	7.0
1997	0.0	0.0	0.0	0.0	10.1
1998	0.3	0.1	0.6	0.7	8.2
1999	2.4	1.0	0.9	1.1	4.1
2000	0.9	0.4	0.9	1.1	5.4
2001	0.9	0.4	1.1	1.2	6.8
2002p	0.3	0.1	1.8	1.9	4.3

p *Provisional data. Departure data for charter unavailable.*

International comparison

Compared with the rest of the world, Australia has the lowest accident rate for high-capacity aircraft (see figure 9). In Canada for example, the number of accidents per 100 000 hours for such airlines varies each year from 0.4 to 1.2 and was 0.4 in 2001. International comparisons of high-capacity operations are often based on hull losses per million departures.

FIGURE 9:
International comparison of hull losses per million departures, calendar years 1990 to 1999



Source: *Flight Safety Foundation*

Figure 9 provides data for the period 1990 to 1999 for the different regions of the world compared with the world average of 1.2 hull losses per million departures. While Oceania, including Australia, is the lowest for the world at 0.2 hull losses per million departures, Australia has never had either a hull loss or a fatal accident involving a high-capacity jet aircraft. Oceania covers a large area and goes as far north as Guam. It is less economic to repair older aircraft and hull loss data are in some measure biased by the age of aircraft involved in serious accidents.

Incidents

Compared with accidents, there are considerably more incidents recorded. Tables 15 to 17 show the incidents recorded by investigation category for high-capacity, low-capacity and charter aircraft.

Table 15:
Incidents involving Australian-registered high-capacity aircraft by investigation category, calendar years 1993 to 2002

	Investigation category				
Year	2	3	4	5	Total
1993	-	16	81	576	673
1994	-	8	46	763	817
1995	-	10	55	711	776
1996	-	5	60	660	725
1997	-	7	264	572	843
1998	-	2	580	781	1363
1999	-	1	551	1058	1610
2000	-	4	76	1627	1707
2001	-	10	33	1661	1704
2002	-	2	26	1690	1718

Table 16:
Incidents involving Australian-registered low-capacity aircraft by investigation category, calendar years 1993 to 2001

	Investigation category				
Year	2	3	4	5	Total
1993	-	12	44	297	353
1994	-	5	26	307	338
1995	-	-	26	294	320
1996	-	-	28	328	356
1997	-	4	156	277	437
1998	1	2	313	257	573
1999	-	2	289	382	673
2000	1	4	37	750	792
2001	-	4	15	715	734
2002	1	-	6	534	541

Table 17:
Incidents involving Australian-registered charter aircraft by investigation category, calendar years 1993 to 2001

	Investigation category				
Year	2	3	4	5	Total
1993	.	5	31	284	320
1994	.	2	15	290	307
1995	.	1	16	339	356
1996	.	.	21	342	363
1997	.	.	96	244	340
1998	.	1	187	218	406
1999	.	3	173	233	409
2000	.	.	16	414	430
2001	.	1	7	336	344
2002	.	.	4	385	389

Although changes in investigation category definitions over time complicate comparisons, Tables 15 and 16 show that over the period 1993 to 2002, the yearly number of reported incidents involving high-capacity and low-capacity air transport operations has steadily increased particularly from 1998 with electronic safety incident reports from Air Services Australia. The improvement in reporting also suggests a growing safety culture within the airlines. The ATSB also contributed to the increase by adopting a more comprehensive incident recording policy during this period including recording all reported bird strikes instead of only those significantly damaging aircraft.

Table 18 shows reported incident rates for high-capacity, low-capacity and charter aircraft. In contrast to reported charter accidents per 100 000 hours (see Table 14), charter incidents per 100 000 hours are significantly fewer than those reported by the high-capacity and low-capacity sectors. This is likely to reflect the better reporting culture within the RPT sectors.

Table 18:
Incidents involving Australian-registered aircraft (high-capacity, low-capacity and charter), calendar years 1993 to 2002

Year	Incidents per 100000 departures	Incidents per 100000 hours flown	Incidents per 100000 departures	Incidents per 100000 hours flown	Incidents per 100000 hours flown
1993	260.3	121.6	115.7	153.2	80.7
1994	301.3	133.4	108.7	138.0	71.9
1995	264.5	116.5	103.2	129.0	75.9
1996	242.0	102.9	109.6	137.9	75.1
1997	285.6	117.4	134.4	157.9	69.9
1998	465.1	192.4	173.9	200.7	81.6
1999	548.8	226.9	203.1	235.8	80.6
2000	528.1	219.6	242.4	277.2	89.6
2001	501.4	213.3	266.6	294.5	73.4
2002 p	553.9	238.8	245.5	259.5	88.0

Data for charter incidents per 100 000 departures unavailable.

Cost of aviation accidents

As with other transport modes, aviation accidents result in considerable losses to the community in terms of costs, fatalities and injuries. The Bureau of Transport Economics estimated that the cost of aviation accidents was close to $112 million in 1996 (see Table 20). Reportedly, the direct cost of the 1999 QF1 Bangkok runway overshoot by a 747 was of the order of $100m. A 747 accident involving large numbers of fatalities could involve billions of dollars in overall costs.

Table 20:
Estimated cost of aviation accidents in 1996

Category	Cost/losses ($ thousand)
Productivity losses	65 075
Property damage	20 854
Loss of quality of life	16 100
Insurance administration	3733
Legal costs	326
Emergency services	988
Accident investigation	1648
Medical costs	1314
Rehabilitation/long term care	446
Workplace costs—non-victim	994
Premature funeral costs	64
Total	**$111 542**

Source: Bureau of Transport Economics, 1999

Internal management and processes

Financial overview

In 2002–03, the ATSB received funding of $12.927 million, including $0.388 million through revenue and $0.600 million for capital to deliver its safety outputs.

Comparisions	1999–00 ACTUAL $ million	2000–01 ACTUAL $ million	2001–02 ACTUAL $ million	2002–03 ACTUAL $ million	2003–04 BUDGET $ million
ATSB Departmental expenses					
Employee expenses	7.421	9.137	8.238	8.195	9.287
Supplier expenses[1]	4.792	5.021	3.786	3.689[2]	4.112
Depreciation/amortisation	0.119	0.156	0.240	0.424[3]	0.464[4]
Other expenses	0.287	0.277	0.144	0.004	0.025
Total Departmental expenses	12.619	14.591	12.407	12.312	13.888[5]
Revenue	0.163	0.256	0.273	0.388	0.200
Net cost to Department	12.456	14.335	12.134	11.924	13.688
Less DSU expenses[6]	-0.233	-0.233	0.000	0.000	0.000
Less Black Spot & Vehicle Recall expenses[7]	-0.586	-0.586	0.000	0.000	0.000
Revised net costs to Department	11.637	13.516	12.134	11.924	13.688
Plus devolution of corporate costs[8]	0.911	-0.318	-0.318	0.000	0.000
Comparable net costs to Department[9]	12.592	13.298	11.849	11.888	13.424
Capital expenditure					
Plant and equipment[10]	0.370	0.909	0.927	0.600	0.548
Average staffing level	116	114	105	92	93
Less DSU resources[11]	-4	-4	0	0	0
Less Black Spot & Vehicle Recall resources[12]	-4	-4	0	0	0
Total comparable ASL[13]	104	102	97	92	93

In May 2003, the Government announced Federal Budget funding for three new ATSB functions from 2003–04: interstate rail safety investigation, aviation safety data analysis and a confidential marine

safety reporting scheme. Subsequently, the ATSB, like other areas of the Department, was required to make a contribution to the DOTARS 'work out/work up' funding requirements. This involved a cut of about 10.5 per cent in 2003–04 in both the old indicative base budget and funding for the three new functions. The ATSB will also internally fund certain incremental certified agreement and superannuation costs.

The 2003–04 Portfolio Budget Statements include the ATSB's departmental expenses under Outcome 1 'A better transport system for Australia' in three outputs. The Department's corporate group has provided corporate overhead and capital use charge funding to compare the ATSB's operating budget for 2000–01, 2001–02 and 2002–03 against the ATSB's budget for 2003–04.

ATSB funding by output ($ millions)

	2000–01 PBS	2001–02 PBS Revised	2002–03 PBS	2002–03 PBS Revised	2003-04 PBS	2003-04 PBS Revised
Output 1.1 Transport Policy Advice						
ATSB[14]	1.798	1.169	1.113	1.093	0.855	0.724
Corporate[15]	0.966	0.582	0.534	0.534	0.412	0.564
CUC[16]	0.016	0.016	0.016	0.016	0.000	0.000
Total	**2.780**	**1.767**	**1.663**	**1.643**	**1.267**	**1.288**
Output 1.3 Transport Safety Investigation						
ATSB[17]	11.743	6.542	6.228	5.910	9.033	9.061
Corporate	6.968	3.256	2.985	2.985	4.347	4.430
CUC	0.111	0.087	0.089	0.089	0.000	0.000
Total	**18.822**	**9.885**	**9.302**	**8.984**	**13.380**	**13.491**
Output 1.5 Transport Research and Data						
ATSB	-	4.992	4.753	5.191	5.416	4.103
Corporate	-	2.485	2.278	2.278	2.569	2.827
CUC	-	0.067	0.068	0.068	0.000	0.000
Total	-	7.544	7.099	7.537	7.985	6.930
Total ATSB	**21.602**	**19.196**	**18.064**	**18.164**	**22.632**	**21.709**

1 *Includes funding for road safety public communication, which from 1999-00 to 2001-02 was provided through revenue from the Administered Black Spot Programme. Funding from 2002–03 onwards has been added to the ATSB's base allocation for supplier expenses.*

2 *Includes funding transferred to corporate group for proposed capital expenditure and as a contribution towards legal costs associated with the Whyalla Airlines accident investigation.*

3 *Includes funding for part year depreciation of IT assets capitalised in June 2003.*

4 *Includes funding for full year depreciation of IT assets capitalised in June 2003 and depreciation of new IT systems associated with the new rail investigation and marine confidential reporting functions.*

5 *Includes funding for three new budget measures: interstate rail investigation, aviation safety data analysis, and marine confidential reporting.*

6 *Funding for the Divisional Support Unit (DSU) was centralised to the corporate group during 2000–01. DSU funding figures for the ATSB are included for 1999–00 and 2000-01 to aid in comparison.*

7 *Funding for the Black Spot Programme and Vehicle Recall Unit was transferred to other Divisions in 2001–02 following a restructure of the Department. Funding figures are included for 1999–00 and 2000–01 to aid in comparison.*

8 *Funding for some corporate expenses, including IT costs was devolved to the ATSB in 2000–01. The IT funding was subsequently re-centralised to the corporate group at the beginning of 2002–03, with a further re-centralisation of funding during 2002–03 for Internet usage and IT licences. Funding figures for corporate expenses have been added into the 1999–00 figures to allow comparison among the years. Similarly, the figures for 1999–00, 2000–01 and 2001–02 have been adjusted to exclude the IT funding. Other corporate costs that the Department manages and meets on behalf of the ATSB are not included in these figures.*

9 *Actual funding in 2000–01 covered a number of one-off items and in 2003–04 funding covers the three new functions cited in note 3. This line removes depreciation/amortisation as these expenses are substantially managed corporately but adds in revenue that the DOTARS Executive has agreed can be retained by the ATSB.*

10 *ATSB agreed during 2001–02 to transfer responsibility for the management of all its current and future IT capital projects to the corporate group.*

11 *Four DSU staff positions were moved to a central pooled arrangement in the corporate group during 2000–01. The DSU FTE figure has been subtracted from the 1999–00 figures to aid in comparison.*

12 *Five Black Spot Programme and three Vehicle Recall Unit staff positions were transferred to other Divisions in 2001–02. The total FTE figure of eight for both groups has been subtracted from the 1999–00 and 2000–01 figures to aid in comparison.*

13 *These staffing figures are broadly comparable except in 2003–04 when the three new functions funded by the Federal Budget commence.*

14 *Direct funding to the ATSB.*

15 *Corporate overhead funding within the Department attributed to the ATSB.*

16 *Capital use charge funding attributable to the ATSB.*

17 *Decline in second column principally explained by ascribing funding to output 1.5*

Risk management

The ATSB's risk management plan outlined a number of risks faced and suggested how the bureau might respond to the more serious ones.

Major risks included:

- infringing, or inappropriately administering, legislation
- publishing inaccurate information or data
- criticism from coroners for investigations or unidentified safety factors
- public criticism from prominent stakeholders
- conducting an investigation that is not perceived to be independent of the Department or its Minister
- providing inadequate advice to the Minister, Parliamentary Secretary or to the Department's Executive.

People profile

The ATSB values staff who are committed to helping prevent transport deaths and injuries. It seeks to develop a satisfied, capable and productive workforce that is well managed to achieve 'results through people'.

ATSB staff work within the APS Values and Code of Conduct set out in the Public Service Act. Further responsibilities are outlined in the Financial Management and Accountability Act and other legislation.

The ATSB ensures there are clear linkages between individual Plans-on-a-Page, business plans and the Department's Portfolio Budget Statements. Six-monthly performance exchanges with staff allow supervisors to give and receive feedback comments, review Results-on-a-Page and discuss learning and development needs.

The ATSB is a diverse community of team players and encourages staff to work hard and reach their potential in a safe, fair and flexible workplace.

*Comparison of staffing levels 2002–03 and 2003–04**

Classification level	Actual 2002–03[1]	Projected 2003–04
Executive Director	1.0	1.0
Director	2.0	2.0
Deputy Director Transport Safety Investigation	2.0	2.0
Team Leader Transport Safety Investigation	6.4	5.0
Senior Transport Safety Investigator	40.3	45.1
Transport Safety Investigator	0.3	0.0
Executive Level 2	4.8	4.0
Executive Level 1	5.1	6.8
Australian Public Service Level 6	10.1	8.6
Australian Public Service Level 5	9.9	7.2
Australian Public Service Level 4	4.3	4.2
Australian Public Service Level 3	5.0	6.0
Australian Pubic Service Level 2	0.9	1.0
TOTAL	**92.1**	**92.9**

* *Excludes staff on leave for more than three months and staff on short term contract.*

Overview of Key Safety Outputs

In its first four years of operation from July 1999 to June 2003, the ATSB has generated over four hundred air, marine and rail investigation reports, and over a hundred statistical and research publications. The tables below display the progress of these key reports and publications from initiation to completion over the four year period.

FIGURE 10:
ATSB occurrence investigations initiated/in process/ completed (all modes)

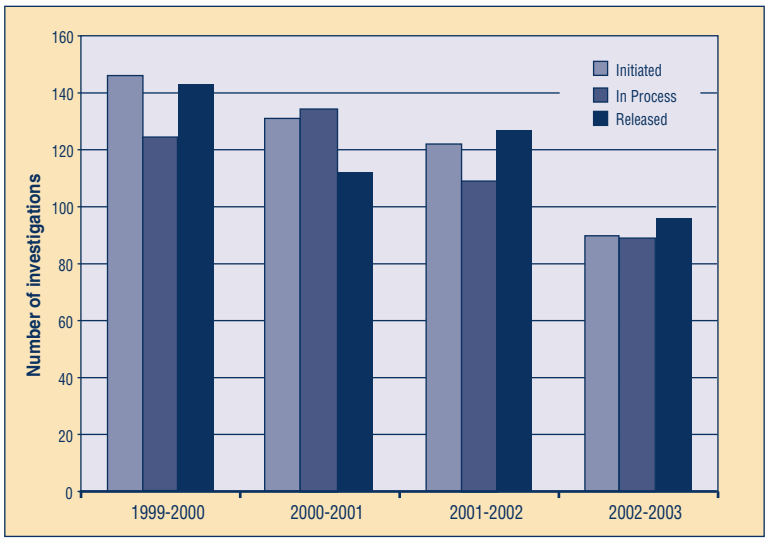
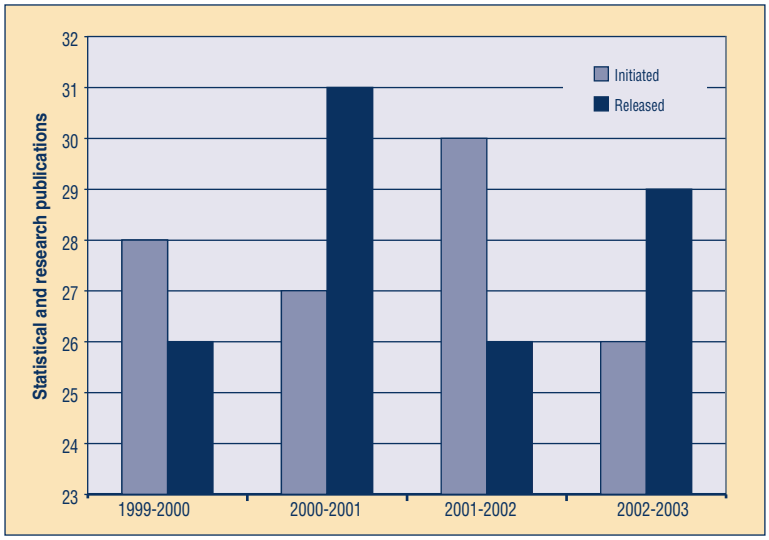


FIGURE 11:
ATSB statistical and research publications initiated/ completed



Enactment of Transport Safety Investigation (TSI) Act and Regulations

The recently enacted *Transport Safety Investigation Act 2003* (TSI Act) and the *Transport Safety Investigation (Consequential Amendments) Act 2003* (TSI CA Act) and associated regulations consolidate and update the ATSB's powers of aviation and marine investigation and extends them to allow investigations on the interstate rail system. The TSI Act received royal assent on 11 April 2003. The Administrator in Council proclaimed the TSI Act and TSI CA Act to commence operation on 1 July 2003. The *Transport Safety Investigation Regulations 2003* were also finalised this year following industry consultation and commenced together with the TSI Act on 1 July 2003 to provide the new and complete legislative framework for ATSB investigations.

The TSI Act and Regulations cover the:

- reporting of transport safety matters
- conduct of independent transport safety investigations by the ATSB
- making of safety action statements including safety recommendations to address safety deficiencies identified by investigations
- publication of investigation results
- protection of sensitive safety information.

The TSI Act and Regulations replace the ATSB's investigation powers in Part 2A of the *Air Navigation Act 1920* (AN Act) for aviation and the *Navigation (Marine Casualty) Regulations 1990* (Marine Casualty Regulations) for marine. Transitional arrangements have been provided for investigations conducted under this legislation before 1 July 2003. Aviation and marine investigations commenced or completed before 1 July 2003 will be covered by the provisions of Part 2A of the AN Act and the Marine Casualty Regulations respectively. Investigations commenced on or after 1 July 2003 will be covered by the TSI Act and Regulations.

Investigators and other ATSB staff who may be required to have regard to the TSI Act in the course of their duties completed relevant training for the 1 July 2003 commencement. In addition, internal policies have been amended where necessary. Explanatory material and/or briefings have also been provided to industry on request.

Copies of both Acts and the Regulations plus explanatory material can be found on the ATSB's website at **www.atsb.gov.au**. Included in the explanatory material is an amended suite of pamphlets that provide information on ATSB investigations under the TSI Act.

Training and development

Diploma of Transport Safety Investigation

During 2002–03 the ATSB received national accreditation for the Diploma of Transport Safety Investigation program and as a Registered Training Organisation. To date five staff have completed the course and have been awarded the Diploma and 16 staff have also qualified for the Certificate IV in Assessment and Workplace Training, enabling them to train and assess at the Diploma level. A further six staff have made substantial progress towards the Diploma award.

Major accident preparedness

In 2002–2003, major accident preparedness remained a high development priority for aviation and surface safety. During the year:

- Selected investigators attended training including courses on Critical Incident Stress Management and Dangerous Goods Awareness.
- Aviation staff participated in a major accident response and deployment exercise (Exercise TAPOK).
- The ATSB worked with Emergency Management Australia on a major aviation accident response plan 'AVDISPLAN' expected to be finalised later in 2003.

Human factors courses

The ATSB periodically offers an introductory course in Human Factors for Transport Safety Investigators. This one-week course provides a general overview of human factors in safety-critical systems and provides participants with opportunities to improve their awareness of how human factors issues can be considered during a transport safety investigation. The course was originally designed to meet the training needs of ATSB aviation safety investigators. However, the course has been made available to a

limited number of industry participants from state and international government transport safety investigation agencies, airline safety departments, and rail and marine safety organisations.

The ATSB held one human factors course in Canberra in 2002–03 (28 October–1 November 2002). About 25 participants attended the course. They included ATSB and Australian Defence Force personnel, and transport safety personnel from the Australian aviation, marine and rail industries and participants from New Zealand, Singapore and the United Arab Emirates.

Workforce planning

Replacing the ATSB's specialist staff is generally not easy and resources constrain duplicating or actively recruiting certain specialist positions ahead of time. To ensure that critical positions, such as those of transport safety investigators, remain filled, the ATSB monitors expected staff departures. The ATSB also considers consultancy assistance to augment its staff if required.

Asset management

The ATSB has assets with a book value of $ 1.819 million,[2] including specialist computer equipment and software (such as for air traffic control and aircraft data recorder analysis), a teleconferencing unit, and technical equipment such as electron and optical microscopes. These assets are subject to depreciation. The writen down value of assets traded in or disposed of during the year was $0.049 million.

Access and equity

In November 2000, the ATC adopted the *National Road Safety Strategy 2001–10*. Noting that not all road users enjoy the same level of safety, the Strategy commits the ATSB to improving equity among road users. Targeted groups include:

- youth and older people
- indigenous Australians
- Australians from a non-English speaking background
- residents in rural and remote areas
- pedestrians, cyclists and motorcyclists.

[2] *Based on SAP book value information as at 30 June 2003*

The National Road Safety Strategy and the Action Plan for 2003 and 2004 also address equity issues specific to indigenous road safety. In 2002–03 the ATSB supported continued collaboration among jurisdictions on indigenous road safety issues by:

- providing $20 084 to reprint and distribute a video of road safety resources for use in indigenous communities
- commissioning an ARRB Transport Research scoping study of indigenous road safety which examined current databases and research and identified priorities for action.

The Charter of Public Service in a Culturally Diverse Society represents a nationally consistent approach to ensuring that government services are delivered in a way that is sensitive to the language and cultural needs of all Australians. The ATSB as part of the Department is committed to ensuring its programmes are accessible and equitable to all Australians. The ATSB places all key reports on its website in PDF, and increasingly in HTML, format.

Aboriginal reconciliation

The Council of Australian Governments (COAG) has requested that ministerial councils develop action plans, performance reporting strategies and benchmarks for Aboriginal reconciliation where these do not already exist.

To help implement the National Road Safety Strategy and the Action Plan, the ATSB convened the Indigenous Road Safety Working Group and a further forum is planned in 2004.

Disability strategy

The Department is also committed to the Australian Government's Disability Strategy. The ATSB is increasingly placing its key reports on the website using HTML, where this is practicable, to assist those with a disability.

Government online and e-services Initiative

ATSB online activities run concurrently with those of the Department. Working in conjunction with the Department's online

consultants, the ATSB provides online purchasing for some of its safety information products.

Other ATSB services and initiatives implemented in 2002–03 included:

- a secure online Confidential Aviation Information Report (CAIR) form
- an online road fatality statistics database – August 2002
- the updated OASIS aviation occurrence database – September 2002
- an online safety recommendation database – November 2002
- Multimodal release notification subscription system – March 2003
- an online payment gateway for 'real-time' transaction processing June 2003.

Occupational health and safety

All ATSB investigators receive occupational health and safety training during their induction and are vaccinated against possible bloodborne pathogen hazards while conducting an on-site investigation.

During 2002–03 the ATSB responded to a potential OH&S hazard by conducting remedial construction work on the Licenced Aircraft Mechanical Engineers (LAME) laboratory.

In 2002–03, the ATSB again offered influenza inoculations to staff, with 38 per cent of employees taking up the offer.

Looking ahead

Projects to be undertaken in 2003–04 include:

- Implement the ATSB role in rail investigations on the Defined Interstate Network based on new budget funding.
- Implement other aspects of the *Transport Safety Investigation Act 2003* and regulations including through investigator training and memoranda of understanding with key stakeholders.
- Investigate rail safety occurrences if commissioned by the states or the NT.
- Implement a confidential marine reporting system based on new budget funding.
- Improve the targeting and timeliness of aviation and marine safety investigations, reducing the backlog in each mode with an emphasis on the oldest investigations.
- Expand the ATSB's capacity to undertake aviation safety research and analysis based on new budget funding.
- Develop an investigation occurrence database for rail based on new budget funding.
- Develop a business case for the replacement of the OASIS aviation database.
- Continue ATSB preparation for a possible major transport accident investigation.
- Coordinate, monitor and report on matters relating to responsibilities under the National Road Safety Strategy and the Action Plan for 2003 and 2004.
- Improve stakeholder liaison to assess safety needs and the effectiveness of our outputs, convey key messages and receive feedback.
- Continue to implement the Transport Safety Investigator Diploma course.
- Support the Heavy Vehicle Safety Strategy and the Heavy Vehicle Crash Database and targeted research on fatigue.

- Issue a supplementary report on the Whyalla Airlines VH-MZK fatal accident including addressing material raised during the coronial inquest.
- Improve risk management processes.
- Review cost recovery arrangements throughout the bureau.
- Participate in industry safety forums.
- Further develop the integrated ATSB website in cooperation with the Department.

Because much of the ATSB's work is necessarily reactive, many other investigations will be undertaken in 2003–04 that were unknown at the beginning of the financial year.

Appendixes

Appendix 1: Research, statistical, and other non-investigation publications released in 2002–03

ATSB released the following publications during 2002–03. Most are available on the Bureau's website www.atsb.gov.au or can be obtained by telephoning 1800 621 372.

Road safety research reports

- *Development and Testing of Production Prototypes of a Protective Headband for Car Occupants (CR 210)*
- *Benefits of Seat Belt Reminder Systems (CR 211a)*
- *Community Attitudes to Road Safety: Community Attitudes Survey Wave 14, 2001 (CR 212)*
- *Community Attitudes to Road Safety: Community Attitudes Survey Wave 15, 2002. (CR 213)*
- *Survey on Speeding and Enforcement (CR 214)*

Road safety statistics reports

- *Twelve issues of the monthly bulletin Road Fatalities in Australia*
- Monograph 12 – *Motorcycle rider age and risk of fatal injury.*
- Monograph 13 – *Road fatalities among older pedestrians.*
- Monograph 14 – *Road fatalities involving male pedestrians aged 15 to 54.*
- Monograph 15 – *Fatalities involving articulated trucks.*
- Report OR 23 – *Fatigue-related crashes.*
- Report OR 24 – *Australian Truck Crash Database summary, January–June 2000*
- Road Safety Report – *The characteristics of fatal crashes during the Christmas/New year holiday period.*

Road safety public education brochures

- *Where are your kids? Child safety in your driveway.*

Aviation safety articles in CASA's Flight Safety Australia (ATSB supplement)

July–August 2002

- *Recently completed investigations* (lists investigations from May–June 2002)
- *Gear Up!!!.*
- *How's your attitude?* Article on Human Factors.
- *Safety Briefs* (Problems with the upper yaw damper computer on a 747; Auxiliary power unit malfunction; Helicopter vs Powerlines; ramifications of incorrect component installation; Helicopter joyflight lucky escape; Pressurisation problem).
- *Confidential Aviation Incident Reporting (CAIR)*

September–October 2002

- *Recently completed investigations* (lists investigations released July–August 2002).
- *Engine failure due to fuel exhaustion.*
- *Safety briefs* (Encounter with severe turbulence; Inadequate preflight preparation; Increasing cabin altitude during climb; Failure to comply with ATS clearance; Mid-air collision between two aircraft; Loss of separation standards).
- *Microburst effect on aircraft performance.*
- *Confidential Aviation Incident Reporting (CAIR).*

November–December 2002

- *Recently completed investigations* (lists investigations released September–October 2002).
- *Disorientation during night operations.*
- *Safety Briefs* (Malfunction of door locking mechanism; fuel starvation; Loss of power on take-off, Loss of separation standards; smoke in the cockpit; Loss of control at low level; Engine flameout; rising cabin altitude indication; Encounter

with microburst windshear; Inoperative cooling flaps; Loss of engine power; Engine failure on take-off).

- *Safety first – aircrew, ground personnel and passengers.*
- *Confidential Aviation Incident Reporting (CAIR).*

January–February 2003

- *Recently completed investigations* (lists investigations released November–December 2002).
- *In-flight engine fire.*
- *Safety Briefs* (Turbine nozzle vanes thermal fatigue cracks; Collision with powerline; Loss of separation standards; Rough running engine; Faulty fuel gauge; Erratic fuel flow indicator).
- *Confidential Aviation Incident Reporting (CAIR).*

March–April 2003

- *Recently completed investigations* (lists investigations released January–February 2003.
- *Engine flame-out-Shoulder harness failed on impact.*
- S*afety briefs* (Engine failure; Impact with floodlight; Intermittent electrical connection; Loss of separation standards; Inadequate pre-flight preparation; Fractured high pressure duct.)
- *Confidential Aviation Incident Reporting (CAIR).*

No **May–June 2003** Issue of Flight Safety Australia was released.

Rail occurrence database reports

- *Rail occurrences in Australia*
- *Rail transport activity in Australia.*

Air safety research reports

- *The hazards posed to aircraft by birds.*
- *Airspace-related occurrences within Australia's mandatory broadcast zones.*
- *Australian aviation accidents involving fuel exhaustion and starvation.*

Appendix 2: Road safety research grants 2002–03

Successful applications

One grant was awarded for work to be undertaken under the Road Safety Research Grant Scheme funded by the ATSB:

Older road users: from driving cessation to safe transportation

Applicant: Dr Kryss McKenna of the Department of Occupational Therapy, University of Queensland ($25 000).

The project aims to understand the transport and lifestyle issues and needs of older people with a view to developing measures to assist the transition from driving to non-driving. It is based around a survey of 180 people over the age of 65 living in the community (that is, not in a residential care facility), split into three groups: current drivers, retired drivers and those who have never driven.

Appendix 3: ATSB investigation reports released in 2002–03

Rail reports released

Occurrence date	Rail accident or incident	Report release
25 April 2001	Derailment of XPT on interstate line at Wodonga, Victoria.	December 2002
12 July 2002	Derailment of coal train and subsequent collision with a passenger train near Hexham NSW. ATSB was a team member.	December 2002
19 August 2002	Shunting Accident at Sims Street, Footscray. ATSB assisted Pacific National investigation.	No report released
24 October 2002	Collision between the passenger train 5AL8 and vehicles at the Salisbury Interchange level crossing.	11 March 2003
18 June 2002	Side-impact collision of two passenger trains on the intrastate passenger line at Epping, Victoria.	25 July 2003 (sent to Victoria prior to 30 June)

Marine reports released

Report number	Vessel(s)	Location	Date released
21 Apr 2001	*Maksim Mikhaylov* (Behalf Of QLD Transport)	Moreton Bay, Qld	30 Jul 2002
12 Oct 2001	*Cape Kestrel*	Dampier, WA	27 Aug 2002
23 Feb 2001	*Spirit Of Tasmania*	Bass Strait	12 Sep 2002
16 Mar 2001	*Regal Princess*	Cairns Channel, Qld	18 Sep 2002
18 Nov 2001	*Nego Kim*	Dampier, WA	22 Oct 2002
21 Apr 2001	*Devprayag*	Portland, Vic	26 Nov 2002
06 Aug 2000	*Washington Trader*	Abbott Point, Qld	10 Jan 2003
24 Jan 2001	*Alianthos*	Geelong, Vic	10 Jan 2003
18 Feb 2002	*CSL Pacific*	Off Portland, Vic	17 Feb 2003
15 Apr 2002	*Sa Fortius*	Port Kembla, NSW	18 Mar 2003
28 Jun 2001	*Mirande*	Port Phillip Bay, Vic	31 Mar 2003
19 Jun 2002	*Western Muse*	Port Kembla, NSW	01 May 2003
19 July 2002	*ANL Excellence*	Moreton Bay, Qld	19 May 2003

Aviation reports released

No	Occurrence number	Occurrence date	Occurrence type	Registration	Location	State	Date released
1	200102866	25 Jun 2001	Incident	VH-XFT/ZS-SAL	15 km NNE Perth, VOR	WA	03 Jul 2002
2	200105866	14 Dec 2001	Incident	VH-JCH	83 km NE Warrnambool, Aerodrome	VIC	04 Jul 2002
3	200102905	05 JulL 2001	Incident	VH-UDD/VH-LIH	12 km SSE Tamworth, VOR	NSW	05 Jul 2002
4	200105701	04 Dec 2001	Incident	C-FXCA	46 km ESE Sydney, Aerodrome	NSW	08 Jul 2002
5	200105926	23 Dec 2001	Accident	VH-SLC	Palm Beach, (ALA)	NSW	09 Jul 2002
6	200102139	15 May 2001	Incident	VH-EES/VH-CSV	Sydney, Aerodrome	NSW	10 Jul 2002
7	200004070	18 Sep 2000	Accident	VH-ZIB/VH-ZIR	Merredin, (ALA)	WA	24 Jul 2002
8	200105743	06 Dec 2001	Incident	VH-TQG	Lord Howe Island, Non Directional Beacon	NSW	24 Jul 2002
9	200103353	24 Jul 2001	Incident	VH-TAZ/REG_2001	Canberra, Aerodrome	ACT	24 Jul 2002
10	200004671	13 Oct 2000	Incident	VH-IMA	120 km NNE Canberra, Aerodrome	ACT	30 Jul 2002
11	200104847	07 Oct 2001	Incident	9V-SPA/VH-OJL	Pinav, (IFR)	WA	31 Jul 2002
12	200105937	17 Dec 2001	Incident	ZS-SAJ	Perth, Aerodrome	WA	05 Aug 2002
13	200105157	22 Oct 2001	Serious Incid.	VH-TAU	Alice Springs, Aerodrome	NT	06 Aug 2002
14	200200007	04 Jan 2002	Incident	VH-MSF	4 km N Porpoise Point, VTC Approach Point	QLD	12 Aug 2002
15	200105932	29 Dec 2001	Accident	VH-JBM	Strahan	TAS	14 Aug 2002
16	200101929	24 Apr 2001	Accident	VH-BGQ	Merredin, (ALA)	WA	27 Aug 2002
17	200103749	12 Aug 2001	Incident	VH-DMI	Orange, Aerodrome	NSW	28 Aug 2002
18	200106230	26 Dec 2001	Incident	VH-OGG/VH-ZMD	159 km SW Sydney, VOR	NSW	28 Aug 2002
19	200102263	23 May 2001	Incident	VH-EKX	Canberra, Aerodrome	ACT	29 Aug 2002

No	Occurrence number	Occurrence date	Occurrence type	Registration	Location	State	Date released
20	200102901	27 Jun 2001	Incident	VH-IMS/REG_2001	4 km N Tamworth, Aerodrome	NSW	03 Sep 2002
21	200102292	24 May 2001	Incident	VH-NJY	Perth, Aerodrome	WA	06 Sep 2002
22	200105446	14 Nov 2001	Accident	VH-LMX	10.7 km ESE Kalgoorlie/Boulder, Aerodrome	WA	09 Sep 2002
23	200105942	27 Dec 2001	Incident	VH-OLN/VH-ALN	6 km NNW Sydney, VOR	NSW	10 Sep 2002
24	200100213	18 Jan 2001	Serious Incid.	VH-TJX	Brisbane, Aerodrome	QLD	13 Sep 2002
25	200104280	05 Sep 2001	Incident	VH-ZXA/VH-UJM	Melbourne, Aerodrome	VIC	16 Sep 2002
26	200201100	24 Mar 2002	Accident	VH-RRI	Groote Eylandt, Aerodrome	NT	16 Sep 2002
27	200200035	11Jan 2002	Accident	VH-STL	9 km E Horn Island, Aerodrome	QLD	16 Sep 2002
28	200104604	24 Sep 2001	Accident	VH-SVW	5 km W Kurrajong Heights	NSW	18 Sep 2002
29	200102695	18 Jun 2001	Serious Incid.	VH-TJY	Perth, Aerodrome	WA	19 Sep 2002
30	200105627	27 Nov 2001	Incident	VH-EAQ	56 km NE Melbourne, Aerodrome	VIC	23 Sep 2002
31	200102289	27 May 2001	Accident	VH-BMQ	20 km W Louth	NSW	27 Sep 2002
32	200200029	06 Jan 2002	Incident	VH-VEH	56 km NE Melbourne, Aerodrome	VIC	03 Oct 2002
33	200201617	02 Apr 2002	Incident	VH-EBT	741km N Cairns, Aerodrome	QLD	04 Oct 2002
34	200200463	20 Feb 2002	Incident	VH-VOA/VH-OGP	22 km E Sydney, Aerodrome	NSW	04 Oct 2002
35	200200190	08 Feb 2002	Incident	VH-OJL/ZK-NBW	PUMIS, (IFR)	Other	09 Oct 2002
36	200200095	31 Jan 2002	Incident	VH-NFD	222 km NW Perth, VOR	WA	15 Oct 2002
37	200200018	08 Jan 2002	Incident	VH-EAK	Sydney, Aerodrome	NSW	17 Oct 2002
38	200203242	19 Jul 2002	Serious Incid.	VH-HTZ	Gogo Station, Condamine Yards	WA	21 Oct 2002

No	Occurrence number	Occurrence date	Occurrence type	Registration	Location	State	Date released
39	200100348	26 Jan 2001	Accident	VH-HCP	3 km E Newman, Aerodrome	WA	23 Oct 2002
40	200105820	08 Dec 2001	Incident	VH-VQE	30 km N Launceston, Aerodrome	TAS	23 Oct 2002
41	200102710	25 Jun 2001	Accident	VH-OZG	Cootamundra, Aerodrome	NSW	25 Oct 2002
42	200102253	23 May 2001	Accident	VH-CNZ	Archerfield, Aerodrome	QLD	29 Oct 2002
43	200201723	25 Apr 2002	Accident	VH-UXU	5.5 km SW Mount Isa, Aerodrome	QLD	04 Nov 2002
44	200203641	08 Aug 2002	Incident	VH-VXD	APOMA, (IFR)	NSW	20 Nov 2002
45	200105173	27 Oct 2001	Incident	VH-TQY	Sydney, Aerodrome	NSW	02 Dec 2002
46	200201228	26 Mar 2002	Incident	VH-KEQ	83 km ESE Canberra, VOR	NSW	05 Dec 2002
47	200104983	11 Oct 2001	Incident	VH-VEH	46 km ENE Melbourne, Aerodrome	VIC	09 Dec 2002
48	200202656	05 Jun 2002	Accident	VH-PHA	58 km SSW Lake Evella, Aerodrome	NT	16 Dec 2002
49	200200094	31 Jan 2002	Incident	VH-OED/VH-OEB	111km NNE PUMIS, (IFR)	Other	06 Jan 2003
50	200202709	13 Jun 2002	Incident	VH-TQC/VH-TAH	22 km E Canberra, VOR	ACT	13 Jan 2003
51	200200885	09 Mar 2002	Accident	N79GW	11 km SE Cairns, Aerodrome	QLD	15 Jan 2003
52	200200047	17 Jan 2002	Incident	VH-TTB	93 km SE Melbourne, Aerodrome	VIC	15 Jan 2003
53	200202385	25 May 2002	Incident	VH-JER/VH-EBX	Cairns, Aerodrome	QLD	16 Jan 2003
54	200200377	16 Feb 2002	Accident	VH-AJG	2 km SW Williamtown, Aerodrome	NSW	24 Jan 2003
55	200202896	24 Jun 2002	Incident	VH-IGN/VH-YCS	13 km SE Tamworth, VOR	NSW	11 Feb 2003
56	200105494	18 Nov 2001	Incident	9V-SRE	Tindal	NT	17 Feb 2003
57	200202442	28 May 2002	Accident	VH-HJT	Western Tiers	TAS	18 Feb 2003

No	Occurrence number	Occurrence date	Occurrence type	Registration	Location	State	Date released
58	200105777	08 Dec 2001	Accident	VH-PHH	Rottnest Island, Aerodrome	WA	20 Feb 2003
59	200204016	24 Aug 2002	Serious Incid.	VH-OED/REG_2002	2 km WSW Los Angeles, Aerodrome	Other	21 Feb 2003
60	200203102	04 Jul 2002	Incident	VH-VBC	Sydney, Aerodrome	NSW	28 Feb 2003
61	200205179	05 Nov 2002	Incident	VH-TJG	Canberra, Aerodrome	ACT	28 Feb 2003
62	200300316	12 Feb 2003	Accident	VH-AIC	4 km NNE Mareeba, Aerodrome	QLD	04 Mar 2003
63	200300526	26 Feb 2003	Accident	VH-FOI	28 km NNW Snowy Range, (ALA)	VIC	05 Mar 2003
64	200203573	17 Jul 2002	Incident	VH-XFY/VH-JWW	2 km NW Bankstown, Aerodrome	NSW	07 Mar 2003
65	200300971	15 Mar 2003	Accident	VH-NTT	Buymarr	NT	15 Apr 2003
66	200205901	17 Dec 2002	Accident	VH-RTH	Killiecrankie, (ALA)	TAS	15 Apr 2003
67	200203171	16 Jul 2002	Accident	VH-SVA	Darwin, Aerodrome	NT	15 Apr 2003
68	200203940	30 Aug 2002	Incident	VH-TJL/VH-TJF	204 km SE Townsville, VOR	QLD	16 Apr 2003
69	200203243	22 Jul 2002	Incident	VH-NJR	Brisbane, Aerodrome	QLD	16 Apr 2003
70	200202707	09 Jun 2002	Incident	PK-GPE/VH-TJT	185 km NW Melbourne, VOR	VIC	17 Apr 2003
71	200102083	27 Apr 2001	Accident	VH-WOQ	Howard Patch, Swain Reefs	QLD	22 Apr 2003
72	200104399	27 Aug 2001	Incident	PK-GPC	Melbourne, Aerodrome	VIC	02 May 2003
73	200300909	14 Mar 2003	Accident	VH-NAB	65 km SW Moree, Non Directional Beacon	NSW	29 May 2003
74	200201556	22 Mar 2002	Incident	VH-EBU	FLAKE	WA	03 Jun 2003
75	200105697	03 Dec 2001	Incident	VH-VGC/VH-OGF	93 km S Sydney, VOR	NSW	10 Jun 2003
76	200204836	18 Oct 2002	Incident	VH-TXH	Melbourne, Aerodrome	VIC	13 Jun 2003

No	Occurrence number	Occurrence date	Occurrence type	Registration	Location	State	Date released
77	200204444	04 Oct 2002	Serious Incid.	VH-VQC	11 km N Launceston, VOR	TAS	17 Jun 2003
78	200105769	10 Dec 2001	Accident	VH-FMN	5 km N Mount Gambier, Aerodrome	SA	18 Jun 2003

Appendix 4: Transport safety recommendations and safety advisory notices issued in 2002–03

This appendix provides detailed information on the status of safety recommendations and safety advisory notices issued by the Australian Transport Safety Bureau in 2002–03.

Aviation

Under existing memoranda of understanding, both the Civil Aviation Safety Authority and Airservices Australia have agreed to respond to the ATSB within 60 days of the date of issue of any safety recommendations. No other organisations are obliged to respond byt a nominal 60-day due date is listed and any response received is published.

On some occasions a response is made to a draft safety output. This situation may result in aa response date being prior to the formal issue date.

In 2002-03, ATSB issued 61 recommendations (including two recommendations to multiple organisations) and 52 responses were received. Of the responses 12 were closed-accepted, 2 were closed-partially accepted, 22 were being monitored, 16 remain open and none were closed not accepted.

Updated responses to prior year recommendations are avaliable at the ATSB website. The only significant outstanding response from Australian aviation authorities is CASA's response to the ATSB's avgas investigation where CASA has indicated that it is waiting for the Senate Committee to report before responding.

Marine

Thirteen investigation reports completed in 2002–03 contained safety recommendations that were released in 2002–03. There is no regulatory requirement for the shipping industry to respond to these.

Rail

The ATSB completed five rail investigation reports in 2002–03 at the request of state/territory authorities under state/territory legislation. While the Bureau provides the completed investigation report to these authorities, formal arrangements regarding responses to recommendations are a matter for the authorities concerned.

ATSB recommendations issued to the aviation industry in 2002–2003

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20020080 The Australian Transport Safety Bureau recommends that Airservices Australia ensure that procedures for parallel runway operations at Tamworth are in compliance with the Manual of Air Traffic Services.	03 Jul 2002	AirServices Australia	01 Sep 2002 Received 02 Dec 2002	Monitor
R20020101 The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority ensure the adequacy of the maintenance requirements for calibration, functional test and return to service of barometric pressure switches used to activate cabin altitude alerting systems in Australian registered pressurised aircraft engaged in the carriage of fare paying passengers.	03 Jul 2002	Civil Aviation Safety Authority	01 Sep 2002 Received 01 Oct 2002	Closed-Accepted
R20020102 The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority ensure the adequacy of the maintenance requirements for calibration, functional test and return to service of barometric pressure switches used to activate deployment of drop down passenger oxygen masks in Australian registered pressurised aircraft engaged in the carriage of fare paying passengers.	03 Jul 2002	Civil Aviation Safety Authority	01 Sep 2002 Received 01 Oct 2002	Closed-Accepted

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20020103 The Australian Transport Safety Bureau recommends that the US Federal Aviation Administration ensure the adequacy of the maintenance requirements for calibration, functional test and return to service of barometric pressure switches used to activate cabin altitude alerting systems in pressurised aircraft engaged in the carriage of fare paying passengers and type certificated in the United States.	03 Jul 2002	Federal Aviation Administration (FAA)	01 Sep 2002 Received 30 Jul 2002	Monitor
R20020104 The Australian Transport Safety Bureau recommends that the US Federal Aviation Administration ensure the adequacy of the maintenance requirements for calibration, functional test and return to service of barometric pressure switches used to activate deployment of drop down passenger oxygen masks in low capacity pressurised aircraft engaged in the carriage of fare paying passengers and type certificated in the United States.	03 Jul 2002	Civil Aviation Safety Authority	01 Sep 2002 Received 30 Jul 2002	Monitor
R20020105 The Australian Transport Safety Bureau recommends that the UK Civil Aviation Authority ensure the adequacy of the maintenance requirements for calibration, functional test and return to service of barometric pressure switches used to activate cabin altitude alerting systems in low capacity pressurised aircraft engaged in the carriage of fare paying passengers and type certificated in the United Kingdom.	03 Jul 2002	Civil Aviation Authority (UK)	01 Sep 2002 Received 12 Sep 2002	Closed-Accepted

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20020106 The Australian Transport Safety Bureau recommends that the UK Civil Aviation Authority ensure the adequacy of the maintenance requirements for calibration, functional test and return to service of barometric pressure switches used to activate deployment of drop down passenger oxygen masks in low capacity pressurised aircraft engaged in the carriage of fare paying passengers and type certificated in the United Kingdom.	03 Jul 2002	Civil Aviation Authority (UK)	01 Sep 2002 Received 12 Sep 02	Closed-Accepted
R20020107 The Australian Transport Safety Bureau recommends that the European Joint Aviation Authorities (JAA) ensure the adequacy of the maintenance requirements for calibration, functional test and return to service of barometric pressure switches used to activate cabin altitude alerting systems in low capacity pressurised aircraft engaged in the carriage of fare paying passengers and type certificated in accordance with the Joint Aviation Regulations.	03 Jul 2002	Joint Aviation Authority	01 Sep 2002 No Response At 30 June 2003	No Response
R20020108 The Australian Transport Safety Bureau recommends that the European Joint Aviation Authorities (JAA) ensure the adequacy of the maintenance requirements for calibration, functional test and return to service of barometric pressure switches used to activate deployment of drop down passenger oxygen masks in low capacity pressurised aircraft engaged in the carriage of fare paying passengers and type certificated in accordance with the Joint Aviation Regulations.	03 Jul 2002	Joint Aviation Authority	01 Sep 2002 No Response At 30 June 2003	No Response

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20020109				
The Australian Transport Safety Bureau recommends that the Australian Civil Aviation Safety Authority liaise with the United States Federal Aviation Administration, the United Kingdom Civil Aviation Authority and the European JAA on implementation strategies to address these safety deficiencies.	03 Jul 2002	Civil Aviation Authority	01 Sep 2002 Received 11 Dec 02	Closed-Accepted
R20020149				
The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority examine whether the potential safety benefits from devices such as those that monitor and record aircraft fuel and engine system operation are sufficient to warrant them being required in general aviation aircraft used in air transport operations.	10 Jul 2002	Civil Aviation Authority	08 Sep 2002 Received 16 Apr 2003	Monitor
R20020051				
The Australian Transport Safety Bureau recommends that the US Federal Aviation Administration review the adequacy of requirements covering protection of the engine fire detector loom wires in engine compartments.	11 Jul 2002	Civil Aviation Authority	09 Sep 2002 Received 22 May 2003	Closed-Accepted
R20020052				
The Australian Transport Safety Bureau recommends that the Joint Aviation Authority review the adequacy of requirements covering protection of the engine fire detector loom wires in engine compartments.	11 Jul 2002	Joint Aviation Authority	09 Sep 2002 Received 13 Aug 2002	Monitor

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20020053				
The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority review the adequacy of requirements covering protection of the engine fire detector loom wires in Boeing 767 engine compartments.	11 Jul 2002	Civil Aviation Authority	09 Sep 2002 Received 06 Sep 2002	Monitor
R20020082				
The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority review the requirements of Civil Aviation Order 20.11, with respect to the wearing of life jackets, to extend the requirements to the occupants of any aircraft that is standing, taxying, taking-off, landing or approaching to land, on water.	19 Aug 2002	Civil Aviation Authority	18 Oct 2002 Received 27 Sep 2002	Closed-Accepted
R20020036				
That Airservices Australia, in conjunction with airport owners, review the adequacy of equipment and procedures that allows drivers of all vehicles using airport runways to monitor the aerodrome controller radio frequency.	19 Sep 2002	AirServices Australia	18 Nov 2002 Received 03 Dec 2002	Monitor
R20020040				
That Airservices Australia, the Civil Aviation Safety Authority and the Australian Airports Association should jointly review airside vehicle operation with a view to establishing national operating standards and procedures (including vehicle colour, lights and procedures).	19 Sep 2002	AirServices Australia	18 Nov 2002 Received 03 Dec 2002	Monitor

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20020040 That Airservices Australia, the Civil Aviation Safety Authority and the Australian Airports Association should jointly review airside vehicle operation with a view to establishing national operating standards and procedures (including vehicle colour, lights and procedures).	19 Sep 2002	Australian Airports Association	18 Nov 2002 Received 10 Feb 03	Monitor
R20020040 That Airservices Australia, the Civil Aviation Safety Authority and the Australian Airports Association should jointly review airside vehicle operation with a view to establishing national operating standards and procedures (including vehicle colour, lights and procedures).	19 Sep 2002	Civil Aviation Safety Authority	18 Nov 2002 Received 24 Oct 2002	Monitor
R20020168 The Australian Transport Safety Bureau recommends that Airservices Australia review air traffic controller initial and periodic recurrent training programs to ensure they adequately address the effect of convective weather on aircraft performance and the limitations of airborne weather radar	20 Sep 2002	AirServices Australia	19 Nov 2002 Received 04 Feb 2003	Closed-Accepted
R20020169 The Australian Transport Safety Bureau recommends that Airservices Australia expedite the development of an integrated weather radar/air traffic control radar video display system capable of providing multiple weather echo intensity discrimination without degradation of air traffic control radar information.	20 Sep 2002	AirServices Australia	19 Nov 2002 Received 04 Feb 2003	Open

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20020170 The Australian Transport Safety Bureau recommends that Airservices Australia increase the emphasis in its controller training programs to ensure that all appropriate sources of weather information, such as meteorological forecasts, controller observations, radar information, and pilot reports are provided to flight crews.	20 Sep 2002	AirServices Australia	19 Nov 2002 Received 04 Feb 03	Open
R20020171 The Australian Transport Safety Bureau recommends that Airservices Australia develop a comprehensive convective weather refresher course as part of recurring training for all personnel actively engaged in the control of air traffic.	20 Sep 2002	AirServices Australia	19 Nov 2002 Received 04 Feb 2003	Closed-Accepted
R20020172 The Australian Transport Safety Bureau recommends that Airservices Australia in conjunction with the Civil Aviation Safety Authority and the Bureau of Meteorology develop a standard scale of thunderstorm intensity for use within the aviation industry.	20 Sep 2002	AirServices Australia	19 Nov 2002 Received 04 Feb 2003	Open
R20020173 The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority in conjunction with the Bureau of Meteorology and Airservices Australia develop a standard scale of thunderstorm intensity for use within the aviation industry.	20 Sep 2002	Civil Aviation Safety Authority	19 Nov 2002 Received 26 Apr 2003	Open

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20020174 The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority in conjunction with the Bureau of Meteorology review the meteorology syllabus for initial and periodic recurrent training of pilots and air traffic controllers to ensure that the syllabus includes comprehensive information on convective weather phenomena and its effects on aircraft performance.	20 Sep 2002	Civil Aviation Safety Authority	19 Nov 2002 Received 26 Mar 2003	Open
R20020175 The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority ensure that operators increase the emphasis in their initial and periodic recurrent training programs on the effective use of all available sources of weather information, such as pre-flight meteorological briefings, ATIS broadcasts, controller-provided reports, airborne weather radar, and visual observations, and provide detailed guidance to pilots regarding the degradation on aircraft performance during flight through intense convective weather, and operational decisions involving takeoff and landing operations which could expose a flight to hazardous weather conditions.	20 Sep 2002	Civil Aviation Safety Authority	19 Nov 2002 Received 26 Mar 2003	Open
R20020176 The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority in conjunction with the Bureau of Meteorology and Airservices Australia develop a standard scale of thunderstorm intensity for use within the aviation industry.	20 Sep 2002	Bureau Of Meteorology	19 Nov 2002 No response at 30 June 2003	Open

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20020177 The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority place greater emphasis on the hazards of low-level flight through thunderstorms and on the effect of windshear encounter during initial and periodic recurrent training programs for all pilots.	20 Sep 2002	Civil Aviation Safety Authority	19 Nov 2002 Received 26 Mar 2003	Open
R20020178 The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority coordinate the activities of the Civil Aviation Safety Authority, Airservices Australia and the Bureau of Meteorology in respect of implementation of the recommendations arising from ATSB report BO/200100213.	20 Sep 2002	Civil Aviation Safety Authority	19 Nov 2002 Received 26 Mar 2003	Open
R20020179 The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority ensure that operators of aircraft equipped with weather radar provide pilots with initial and periodic recurrent training on the use and interpretation of weather radar, and its limitations.	20 Sep 2002	Civil Aviation Safety Authority	19 Nov 2002 Received 26 Mar 2003	Open
R20020180 The Australian Transport Safety Bureau recommends that the Bureau of Meteorology ensure that all public weather warnings expected to affect the airspace of an air traffic control facility be transmitted to that facility by the most expeditious means possible.	20 Sep 2002	Bureau of Meteorology	19 Nov 2002 No response at 30 June 2003	No response

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20020181 The Australian Transport Safety Bureau recommends that the Bureau of Meteorology expedite the development, testing, and installation of advanced weather radar systems to detect hazardous wind shears in high risk airport terminal areas.	20 Sep 2002	Bureau of Meteorology	19 Nov 02 No response at 30 June 2003	No response
R20020182 The Australian Transport Safety Bureau recommends that the Bureau of Meteorology expedite the research and development program to examine wind shifts and wind shear, with the objective to improve the detection and forecasting of wind shifts and the detection of windshear in the vicinity of high risk airport terminal areas.	20 Sep 2002	Bureau of Meteorology	19 Nov 02 No response at 30 June 2003	No response
R20020183 The Australian Transport Safety Bureau recommends that the Bureau of Meteorology in conjunction with the Civil Aviation Safety Authority review the meteorology syllabus for initial and periodic recurrent training of pilots and air traffic controllers to ensure that the syllabus includes comprehensive information on convective weather phenomena and its effects on aircraft performance.	20 Sep 2002	Bureau of Meteorology	19 Nov 02 No response at 30 June 2003	No response

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20020184				
The Australian Transport Safety Bureau recommends that the Bureau of Meteorology expedite a program to record output data from all available wind sensors and Low Level Wind Shear Alert Systems, and to retain that data for a minimum period of 30 days for use in reconstructing pertinent windshear events and as a basis for studies to effect system safety and improvement.	20 Sep 2002	Bureau of Meteorology	19 Nov 2002 No response at 30 June 2003	No response
R20020185				
The Australian Transport Safety Bureau recommends that the Bureau of Meteorology in conjunction with Airservices Australia develop a position in major air traffic control locations, to be staffed with Bureau of Meteorology meteorologists, to be the focal point for weather information coordination.	20 Sep 2002	Bureau of Meteorology	19 Nov 2002 No response at 30 June 2003	No response
R20020186				
The Australian Transport Safety Bureau recommends that Airservices Australia in conjunction with the Bureau of Meteorology develop a position in major air traffic control locations, to be staffed with Bureau of Meteorology meteorologists, to be the focal point for weather information coordination.	20 Sep 2002	AirServices Australia	19 Nov 2002 Received 04 Feb 2003	Open
R20020030				
The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority review the adequacy of the continuing airworthiness requirements for seat belts and shoulder harnesses to ensure that they maintain applicable design standards throughout their service life, when installed in Australian registered aircraft and helicopters.	20 Sep 2002	Civil Aviation Safety Authority	23 Nov 2002 Received 30 Jun 2003	Closed-Partially Accepted

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20020193				
The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority review the general operational requirements, training requirements, flight planning requirements and guidance material provided to pilots conducting VFR operations in dark night conditions.	23 Oct 2002	Civil Aviation Safety Authority	22 Dec 2002 Received 13 Dec 2002	Monitor
R20020194				
The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority review the required qualifications and/or competencies for chief pilots, with particular reference to management and system safety issues.	23 Oct 2002	Civil Aviation Safety Authority	22 Dec 2002 Received 13 Dec 2002	Monitor
R20020205				
The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority review the provisions for planning a fixed fuel reserve and determine if this fuel should be contained in the fuel tanks that are to be used during the approach and landing.	23 Oct 2002	Civil Aviation Safety Authority	22 Dec 2002 Received 13 Dec 2002	Closed-Accepted
R20020054				
The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority review the location of fire bottles on aircraft to reduce the possibility of a premature discharge of fire retardant where the temperature in the area that contains the fire bottle rises above the setting of the fusible valve.	23 Oct 2002	Civil Aviation Safety Authority	03 Jan 2003 Received 06 Jun 2003	Closed-Partially Accepted

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20020055 The Australian Transport Safety Bureau recommends that the Federal Aviation Administration of the USA: a) Review location of fire bottles on aircraft to reduce the possibility of a premature discharge of fire retardant where the temperature in the area that contains the fire bottle rises above the setting of the fusible valve. b) Review the adequacy of the current requirements for fire-extinguishing systems to include a requirement that the pilot be provided with an in flight indication of an uncommanded discharge of fire retardant.	04 Nov 2002	Federal Aviation Administration	03 Jan 2003 No response at 30 June 2003	No Response
R20020056 The Australian Transport Safety Bureau recommends that the Departamento de Aviaco Civil - of Brazil review location of fire bottles on aircraft to reduce the possibility of a premature discharge of fire retardant where the temperature in the area that contains the fire bottle rises above the setting of the fusible valve.	04 Nov 2002	Departmento de Aviaco Civil - of Brazil	03 Jan 2003 Received 15 Mar 2003	Monitor
R20020057 The Australian Transport Safety Bureau recommends that Empresa Brasileira De Aeronautica consider development of a modification for the fire suppression system of its aircraft so that a pilot is provided with an in flight indication of an uncommanded discharge of fire retardant.	04 Nov 2002	Embraer-Empresa Brasileira De Aeronautica	03 Jan 2003 Received 15 Mar 2003	Open

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20020238 The Australian Transport Safety Bureau recommends that the International Civil Aviation Organization develop standards for States of Registry to ensure that there are appropriate performance measures for continuing airworthiness standards, that take into consideration: • the process defined in the standard • a defined outcome that the standard is intended to achieve.	15 Nov 2002	International Civil Aviation Organization	14 Jan 2003 Received 04 Feb 2003	Open
R20020239 The Australian Transport Safety Bureau recommends that the International Civil Aviation Organization develop standards for the classification and format of service information issued by aircraft, engine, and component manufacturers.	15 Nov 2002	International Civil Aviation Organization	14 Jan 2003 Received 04 Feb 2003	Open
R20020240 The Australian Transport Safety Bureau recommends that the US Federal Aviation Administration ensure that there is a defined and consistent understanding throughout the FAA as to the importance of airworthiness directives that mandate revisions of the Airworthiness Limitations Structural Inspections for damage tolerance aircraft types, and that such airworthiness directives are processed and released without undue delay.	15 Nov 2002	Federal Aviation Administration (FAA)	14 Jan 2003 Received 30 Apr 2003	Open

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20020241 The Australian Transport Safety Bureau recommends that the US Federal Aviation Administration ensure that adequate systems are in place to alert States of Registry of US-designed and/or manufactured aircraft types when delays in FAA rulemaking have the potential to compromise the continuing airworthiness assurance of those aircraft types.	15 Nov 2002	Federal Aviation Administration (FAA)	14 Jan 2003 Received 04 Feb 03	Open
R20020242 The Australian Transport Safety Bureau recommends that the US Federal Aviation Administration ensure that the process for determining grace periods for aircraft to comply with airworthiness directives is both systematic and transparent. Information about the methodology and results used to determine grace periods, including those associated with the Airworthiness Limitations Structural Inspections for damage tolerance aircraft types, should be included in the relevant Notice of Proposed Rule Making.	15 Nov 2002	Federal Aviation Administration (FAA)	14 Jan 2003 Received 04 Feb 03	Monitor
R20020243 The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority review the effectiveness of the system for the transmission of information on faults, malfunctions and defects to the organisation responsible for the aircraft's type design, in accordance with ICAO Annex 8, Part II, paragraph 4.2.5.	15 Nov 2002	Civil Aviation Safety Authority	14 Jan 2003 Received 04 Feb 03	Monitor

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20020244 The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority review relevant Australian civil aviation legislation and regulations to ensure that operators of Class A aircraft are required to have an acceptable system for receiving, assessing and actioning safety-related service documentation, in accordance with ICAO Annex 6, Part I, paragraph 8.5.2.	15 Nov 2002	Civil Aviation Safety Authority	14 Jan 2003 Received 30 Jan 2003	Monitor
R20020245 The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority develop and issue clear guidance material for, and review its surveillance of, Australian operators of Class A aircraft in relation to: • continuing airworthiness assurance activities, including the major defect reporting system • knowledge of mandatory continuing airworthiness requirements under Australian civil aviation legislation • the transmission of information to the organisation responsible for the type design • the receipt, assessing and actioning of safety-related service documentation.	15 Nov 2002	Civil Aviation Safety Authority	14 Jan 2003 Received 30 Jan 03	Monitor

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20020246 The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority, as a part of its oversight role, review the policies and procedures for carrying out, and responding to the findings of, risk assessments of organisations that operate Class A aircraft. The review should address the adequacy of methods for: • gathering and assessing information relevant to possible risks to safe operations • determining, carrying out, and reviewing the CASA response to the assessed level of risk.	15 Nov 2002	Civil Aviation Safety Authority	14 Jan 2003 Received 30 Jan 2003	Monitor
R20020247 The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority review the structure and procedures of the major defect reporting system to ensure that: • all relevant defect information is received from operators in a timely manner • defect information received is monitored, processed, and analysed • defect information and information derived from subsequent investigations is disseminated to all relevant parties and made publicly available.	15 Nov 2002	Civil Aviation Safety Authority	14 Jan 2003 Received 30 Jan 2003	Monitor
R20020248 The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority consider the introduction of a periodic Certification Maintenance Review requirement for Australian Class A aircraft.	15 Nov 2002	Civil Aviation Safety Authority	14 Jan 2003 Received 30 Jan 2003	Monitor

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20020134 The Australian Transport Safety Bureau recommends that the Australian Civil Aviation Safety Authority consider formalising a method to obtain and review the results of any foreign airworthiness authority audit of Australian Certificate of Approval holders.	12 Dec 2002	Civil Aviation Safety Authority	14 Jan 03 Received 30 Jan 03	Monitor
R20030002 The Australian Transport Safety Bureau recommends that Rolls Royce plc. revise service bulletin RB211-72-D516 to highlight the potential for cracking failure between the lever and connecting pin of the Variable Stator Vane lever assemblies, and ensure that inspections contained within this bulletin adequately address this mode of failure.	17 Feb 2003	Rolls Royce Ltd	18 Apr 03 No response at 30 June 2003	No response
R20030003 The Australian Transport Safety Bureau recommends that the United Kingdom Civil Aviation Authority review the Rolls Royce Plc, Trent 800 Engine inspection procedures for the Variable Stator Vane assemblies and service bulletin RB211-72-D516. To ensure that they adequately address and manage the potential for cracking failure of the lever assemblies.	17 Feb 2003	Civil Aviation Authority (UK)	18 Apr 2003 Received 12 May 2003	Closed-Accepted

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20030027 The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority review the inspection procedures with regard to the continuing airworthiness of wooden wings and propellers that were manufactured with the use of Casein adhesive.	26 Feb 2003	Civil Aviation Safety Authority	27 Apr 2003 Initial response to Draft Recommendation Received 08 Jan 2003 Final response 11 August 2003	Monitor
R20020232 The Australian Transport Safety Bureau recommends that the Rottnest Island aerodrome operator and the Bureau of Meteorology evaluate the feasibility of transmitting the one minute data from the Rottnest Island AWS on a discrete VHF radio frequency.	05 Mar 2003	Bureau Of Meteorology	04 May 2003 Receive 09 Jul 2003	Closed-Accepted
R20020232 The Australian Transport Safety Bureau recommends that the Rottnest Island aerodrome operator and the Bureau of Meteorology evaluate the feasibility of transmitting the one minute data from the Rottnest Island AWS on a discrete VHF radio frequency.	05 Mar 2003	Rottnest Island Authority	04 May 2003 No response at 30 June 2003	No Response

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20030032				
As a result of this investigation, the Australian Transport Safety Bureau recommends that the German Airworthiness Authority, Luftfahrt-Bundesamt issue an airworthiness directive to mandate compliance with Rolls-Royce Deutschland Ltd and Co KG Service Bulletin SB-BR700-73-900316.	30 Jun 2003	Luftfahrt-Bundesamt	29 Aug 2003 Only Issued 30 June 2003	No response
R20030037				
As a result of this investigation, the Australian Transport Safety Bureau recommends that the United States Federal Aviation Administration liaise with the German Airworthiness Authority, Luftfahrt-Bundesamt to develop and issue an airworthiness directive to mandate compliance with Rolls-Royce Deutschland Ltd and Co KG Service Bulletin SB-BR700-73-900316.	30 Jun 2003	Federal Aviation Administration (FAA)	29 Aug 2003 Only Issued 30 June 2003	No response

ATSB recommendations issued to the marine industry in 2002–03

Recommendation	Date of issue
Independent Investigation into the Contact Accident involving the Russian Flag vessel Maksim Mikhaylov in Moreton Bay, Queensland on 21 April 2001. The ATSB recommends: 1. Brisbane Marine Pilots Pty Ltd review its fatigue management procedures with a view to setting maximum scores allowable at the commencement of each duty including an allowance for the anticipated length of the proposed duty cycle. 2. Brisbane Marine Pilots Pty Ltd introduce some 'fine-tuning' to its current fatigue policy. An example of such fine-tuning is the '5/12 rule'. That is, if a pilot has had less than 5 hours sleep in the past 24 hours, or less than 12 hours sleep in the last 48 hours preceding the start of the shift, the pilot should notify the line manager and undertake a more detailed risk assessment. 3. Pilots and other conning officers should consider the use of hand signals to supplement verbal commands. This could help to reduce the possibility of misinterpretation of wheel orders during ship handling periods especially where language difficulties might be a problem. 4. Masters and pilots should review their information exchange process to include-information of importance contained in the vessel's hydrostatic or manoeuvring data, particularly the zig-zag test, which gives pertinent information regarding the steering ability of the vessel. This is especially important where a vessel is known to have poor handling characteristics and/or suspect margins of dynamic stability.	30 July 2002

Recommendation	Date of issue
Independent Investigation into the Lifeboat Accident involving the Panamanian Flag vessel Cape Kestrel at Dampier, WA on 12 October 2001. The ATSB recommends that: 1. Warning notices should be posted at the starter box for all lifeboat winches drawing attention to the hazard of operating the winch with the contactor, particularly if there are personnel in the boat. 2. Shipowners and operators should ensure that: - All appropriate documentation for the maintenance and adjustment of lifeboats, launching appliances and associated equipment is on board in accordance with section 11 of the ISM Code- Personnel undertaking inspections, maintenance and adjustment of lifeboats, launching appliances and associated equipment are fully trained and familiar with these duties in accordance with section 6 of the ISM Code - Maintenance of lifeboats, launching appliances and associated equipment is carried out in accordance with procedures established under section 10 of the ISM Code and - Lifeboat drills are conducted in accordance with SOLAS Regulation III/19.3.3 and procedures established under section 8 of the ISM Code for the purpose of ensuring that ship's personnel will be able to safely embark and launch the lifeboats in an emergency - Particularly in the case of vessels carrying no electrician, engineers be trained to a suitable standard of electrical knowledge to ensure the safety of all personnel when operating and maintaining electrical systems aboard ship. 3. Manufacturers of lifeboat launching systems should consider fitting self-latching cradle stoppers to prevent the davits dropping in the event of broken fall wires.	27 Aug 2002
Independent investigation into the Fire onboard the ferry Spirit of Tasmania in Bass Strait on 23 February 2001. 1. The licensed business areas on board Spirit of Tasmania should be subject to the same safety management policy, procedures and routine inspections as any other part of the vessel. 2. Consideration should be given to providing the staff of the licensed businesses on the vessel with the same safety training as received by regular crew members. 3. A smoke detector fitted in the store would improve the speed of detection and extinction of a fire in the photography shop store. 4. The audibility of the alarm and public address systems in some areas of the ship needs to be reviewed. 5. Consideration should be given to the inclusion of a final head count of passengers in the evacuation plan. 6. Passenger evacuation 'back flow' issues need to be addressed in crew evacuation training.	12 Sept 2002

Recommendation	Date of issue
Independent Investigation into the Grounding of the British Flag passenger vessel Regal Princess in Cairns Channel, Queensland on 16 March 2001. The ATSB recommends that: 1. Trials should be implemented to examine the effectiveness of tug, or other external assistance, for large vessels with limited manoeuvring characteristics and rudder effect that are required to use the Cairns port channel. 2. In view of the increasing size of cruise ships that may be expected to visit Australian ports, Queensland Transport should assist those responsible for assessing ships for access to Queensland ports by refining their Vessel Assessment Model or developing a suitable alternative quantitative model. Such a model should take into account the particular characteristics of any given ship and would build on the existing initiative to provide a quantitative bench mark to assist the decision makers. 3. Cairns Port Authority should assess the possible cost benefit of modelling the Cairns approach channel and harbour to accurately simulate the behaviour of large ships entering and sailing from Cairns. 4. Princess Cruises should undertake a risk assessment of the port of Cairns. 5. Ports Pilots Queensland, together with ships' agents and other interested parties, should review their communications procedures and practices and information gathering procedures, to ensure that all duty pilots have all available information on the ships they are to pilot.	18 Sept 2002
The independent investigation into the explosion and fire onboard the Hong Kong Flag carrier Nego Kim at Dampier, WA on 18 November 2001. The ATSB recommends that: 1. International Safety Management (ISM) manuals should include clear instructions for all operations in enclosed spaces, including the hazards of any operation and instructions regarding the wearing of appropriate clothing and protective equipment. 2. ISM manuals should provide guidance on the conditions under which work in enclosed spaces should be undertaken. 3. The Port of Dampier draft Emergency Response Plan should be reviewed to remove ambiguities and to ensure a consistent and appropriate approach to emergency situations within the port, including clear communications.	22 Oct 2002
Independent Investigation into the Grounding of the Indian Flag vessel Devprayag at Portland, Victoria on 21 April 2001. ATSB recommends that: 1. Mariners note the importance of using Sailing Directions when planning passages, when entering or leaving a port or anchoring in or near a port and; 2. That they be fully aware of weather conditions as well as the fact that inclement weather can alter a relatively safe anchorage into one that is unsafe.	26 Nov 2002

Recommendation	Date of issue
Independent Investigation into the Lifeboat Accident Involving the Panamanian Flag vessel Washington Trader at Abbot Point, Queensland on 06 August 2000. 1. Nishi-Nippon F.R.P Shipbuilding Company review the design and construction of their NS-Hook release system, in light of the similar incidents aboard Washington Trader and Pac monarch, with a view to minimising the risk of such an incident occuring again. 2. All ship operators should ensure that shipboard safety management system classify lifeboat on-load release operations as 'critical' with appropriate ship-specific operating and maintenance procedures. 3. All ship operators should ensure that personnel responsible for operating and maintaining on-load release equipment are provided with type-specific training.	10 Jan 2003
Independent Investigation into the Lifeboat Accident involving the Maltese Flag Vessel Alianthos off Geelong, Victoria on 24 January 2001. The ATSB recommends that: 1. Owners and operators of ships carrying Shigi lifeboats fitted with SZK-5 on loadrelease systems should seriously consider retrospectively fitting hydrostatic interlocks. 2. Indicators be fitted on Shigi lifeboats to clearly show crew when the on-load release hook mechanisms are fully reset. 3. Regular programmed planned maintenance and inspection of lifeboat on-load release systems by specifically trained and qualified personnel should be instigated.	10 Jan 2003
Independent Investigation of the crew injury onboard the Bahams Flag vessel CSL Pacific off Portland Victoria on 18 February 02. The ATSB recommends: 1. The ship management company ensures that cargo maintenance activities on board CSL Pacific include equipment isolation procedures which are adequate, consistent and rigorously applied on the vessel. 2. The ship management company monitors working hours on CSL Pacific with a view to ensuring that crew are adequately rested and are complying with the requirements of the STCW convention. 3. That ship management companies, classification societies and maritime administrations ensure that sound safety management practices are perpetuated through and after changes of vessel management.	17 Feb 2003

Recommendation	Date of issue
Independent Investigation into the Contact Accident involving the Bahamas Flag vessel SA Fortius at Port Kembla, New South Wales on 15 April 2002. *The ATSB recommends that:* 1. Pilots use the procedures as laid out in 'Standard Orders to Tugs' issued by the Port Kembla Port Corporation in December 1999, when directing tug manoeuvres. 2. Port authorities, where not otherwise equipped, should consider the introduction of an electronic aid, with track prediction capability, to assist pilots with the berthing of ships. 3. All ports should consider publishing their general port entry and berthing manoeuvre plans on the Internet. This would provide port users with direct access to port information (or indirect access through ship's agents), permitting masters and officers to plan passages as recommended in the International Chamber of Shipping's 'Bridge Procedures Guide'. 4. Periodic meetings between pilots and tug masters be reintroduced at an operational level. 5. When piloting ships, pilots should consider means by which they can verify all orders given by them.	18 Mar 2003
Independent Investigation into the Grounding of the Kerg Island Flag vessel Mirande in Port Phillip Bay on 28 June 2001. The Australian Maritime Safety Authority should seek legislation to allow suitably trained AMSA marine surveyors, where there are reasonable grounds to do so, to measure blood alcohol levels of ship's crews using breath analysis equipment. A positive test of a master or key operational crew should provide grounds for detaining the vessel. AMSA should also advise the relevant harbour master or marine authority of the situation. Ship's officers should ensure that they (and any appropriate seamen) are familiar with the emergency operation.	31 Mar 2003
Independent Investigation into the fatality involving the Panama Flag Bulk Carrier Western Muse at Port Kembla, New South Wales on 19 June 2002. ATSB recommends that: 1. In accordance with the objectives of the ISM Code, companies, in addition to documenting preventive maintenance procedures, also develop, document and implement associated safety procedures; 2. Procedures and precautions for personnel working aloft include warnings that loose clothing or personal safety equipment might become entangled in moving machinery.	1 May 2003

Recommendation	Date of issue
Independent Investigation into the Grounding of the Liberian Flag Container Ship ANL Excellence in Moreton Bay Queensland on 19 July 2002 The ATSB recommends that: Where port authorities use a buoy or other temporary aid to replace an established navigation aid, the shape and the light characteristics of the temporary aid should be consistent with those of the aid it replaces.	19 May 2003

ATSB recommendations issued to the rail industry in 2002–03

Recommendations	Date of issue	
Fatal level crossing accident involving the Ghan passenger train, a bus and a car at a level crossing at Salisbury in the north of Adelaide. RR20030001 Road traffic signals adjacent to level crossings be regularly monitored to ensure that all links and functions within the system are operational. RR20030002 Traffic flows through Park Terrace should be measured to assess the practicality of extending the timing on a link to force westbound traffic from Park Terrace to take account of the worst case timing scenario, while maintaining the existing timing of the boom barrier closing. RR20003003 Train speed restrictions introduced as a safety measure in the vicinity of level crossings should be objectively reviewed taking into account: • new traffic arrangements and safety measures • the different types and characteristics of trains on the standard and broad gauge tracks. RR20030008 Transport SA should review the provisions of the Road Traffic Regulations 1996 to determine whether or not any existing penalty covering the drivers of vehicles that stop or park within the boundary of rail level crossings is appropriate.	11 Mar 2003	Transport South Australia
Fatal level crossing accident involving the Ghan passenger train, a bus and a car at a level crossing at Salisbury in the north of Adelaide. RR20030004 The rail industry should attempt to devise a confidential hazard reporting system that embraces the whole industry in the one system. RR20030006 The rail companies and emergency services examine ways in which early effective site control and control of public access might be further improved.	11 Mar 2003	Rail industry and emergency services

Recommendation	Date of issue to regulator	Target organisation
Fatal level crossing accident involving the Ghan passenger train, a bus and a car at a level crossing at Salisbury in the north of Adelaide. RR20030005 ARTC and TransAdelaide review their notification and communication procedures when responding to accidents on the shared rail corridor, particularly between the train control centres and the accident site.	11 Mar 2003	Australian Rail Track Corporation and Trans Adelaide
RR.20030007 Standards Australia develop a standard for the marking of a 'do not enter unless clear' area across level crossings, with a view to providing appropriate cues to help road vehicle drivers assess the space available on the other side of the crossing.	11 Mar 2003	Standards Australia
RR 20030009 Transport SA, the rail industry and the Transit Services Branch of the South Australian Police should explore the desirability of any 'near hit' reporting system including SAPOL as an addressee.	11 Mar 2003	Transport SA, the rail industry and the Transit Services Branch of the South Australian Police
RR 20030009 Transport SA, the rail industry and the Transit Services Branch of the South Australian Police should explore the desirability of any 'near hit' reporting system including SAPOL as an addressee.	11 Mar 2003	Transport SA, the rail industry and the Transit Services Branch of the South Australian Police
Side -impact collision of two passenger trains on the interstate passenger line at Epping, Victoria RR20020001 The ATSB recommends that the Department of Infrastructure review the implementation of recommendations contained in the risk assessment conducted on the signalling system in the Melbourne Metropolitan rail network following the ATSB Footscray investigationreport. RR20020002 The ATSB recommends that the Department of Infrastructure review the design of the signalling system, including the safety margin and route interlocking, particularly on single line sections of track with only one signal protection from oncoming movements	25 Jul 2003	Victorian Department of Infrastructure

Recommendation	Date of issue to regulator	Target organisation
Side -impact collision of two passenger trains on the interstate passenger line at Epping, Victoria(cont'd) RR20020003 The ATSB recommends that the Department of Infrastructure review the train working procedures for trains operating on single linesections of track, to prevent unauthorised train movements entering a single line section of track. RR20020004 The ATSB recommends that the Department of Infrastructure review the design and/or application of hand and foot pilot valves. RR20020005 The ATSB recommends that the Department of Infrastructure review PTC medical fitness examination guidelines so that medical fitness to operate a train should only be determined by suitably trained, qualified and competent medical practitioners. RR20020006 The ATSB recommends that the Department of Infrastructure review and assess medical conditions that can impair or incapacitate a train driver. RR20020007 The ATSB recommends that the Department of Infrastructure revise the medical guidelines to provide clear details on the actions to be taken by authorised medical examiners when conditions such as migraine and medication are declared or detected at examination. RR20020008 The ATSB recommends that the Department of Infrastructure review specified medical conditions which are detected or declared during 'fitness for duty' medical assessments (e.g. migraine). Such conditions should be further referred to a designated independent reviewing medical authority for the ultimate decision regarding medical fitness to drive a train. RR20020009 The ATSB recommends that the Department of Infrastructure monitor the implementation of the recommendations in this report, and determine implications to other train operating companies.	25 Jul 2003	Victorian Department of Infrastructure

Recommendation	Date of issue to regulator	Target organisation
RR20020010 The ATSB recommends that Melbourne Transport Enterprises review driver sign-on procedures.	25 Jul 2003	Melbourne Transport Enterprises
RR20020011 The ATSB recommends that Melbourne Transport Enterprises review policy on sick leave generally, in particular, existing processes dealing with 'last-minute' declarations of unfitness and capability to deploy reserve crew to 'trouble-spots' when sudden illness affects a driver.	25 Jul 2003	Melbourne Transport Enterprises
RR20020012 The ATSB recommends that Melbourne Transport Enterprises review the emergency procedures to provide protection to the accident site as soon as possible including isolation of overhead power.	25 Jul 2003	Melbourne Transport Enterprises
RR20020013 The ATSB recommends that Melbourne Transport Enterprises assess the train radio system for radio reliability.	25 Jul 2003	Melbourne Transport Enterprises

Appendix 5: ATSB rail investigations underway at 30 June 2003

Occurrence date	Location	Description
13/10/02	Benalla, Vic.	Collision between steam train and B Double truck (ATSB led investigation)
3/02/03	Spencer Street Station, Vic.	Collision between trains (ATSB led investigation)
16/02/03	Chiltern, Vic.	Derailment and collision between trains (ATSB led investigation)
23/05/03	Aloomba, Qld	Collision at a level crossing between a scheduled passenger train and a private car.

Appendix 5: Marine investigations underway at 30 June 2003

Vessel	Incident Date	Type	Occurrence and Location
*Star Sea Bridge/ fv Sue M**	21Jun 2000	Fishing vessel	Collision with bulk carrier off Iluka, NSW.
ANL Purpose	06 Aug 2001	General cargo ship	Disabled in Coral Sea
Maresk Tacoma	08 Aug 2001	Container ship	Disabled in Bass Strait
Captain Aysuna	08 Oct 2001	Bulk carrier	Engine room fire, Bass Strait
La Pampa	27 Mar 2002	Bulk carrier	Grounding off Gladstone, Qld
Forum Samoa	11 Apr 2002	Container ship	Collision with fishing vessel off Cape Moreton, Qld
Tahoroa Express	11 Jul 2002	Fatality	Dampier
Doric Chariot	29 Jul 2002	Grounding	Piper Reef
Marion Green	28 Jul 2002	Fire	Off south coast of WA
Hanjin Dampier	25 Aug 2002	Grounding	Dampier
Tamara	01 Sep 2002	Foundered	150 nm off Qld coast
***Goliath*	22 Sep 2002	Machinery damage	Bass Strait
Ma Cho	09 Dec 2002	Lifeboat accident	Devonport
Golden Bridge	10 Dec 2002	Fatality	South of Norah Head
Tauranga Chief	17 Jan 2003	Grounding	Bradley's Head, Sydney
***Goliath*	12 Feb 2003	Machinery damage	SE of Jervis Bay, NSW
Pactrader	01 Mar 2003	Grounding	Thevenard, South Australia
Searoad Mersey	21 Mar 2003	Machinery damage	Bass Strait
Medi Monaco	17 May 2003	Explosion	Geelong
Asian Nova/ F.V.Sassenach	29 May 2003	Collision	Off Palm Islands, Qld

* *Report being held pending legal resolution.*

** *The two GOLIATH incidents are counted as a single investigation and will feature in a single investigation report.*

Appendix 5: Aviation investigations underway at 30 June 2003

Date of occurrence	Investigation category	Manufacturer	Aircraft model	Location
31 May 2000	2	Piper Aircraft Corp	PA-31-350	28k m SE Whyalla, Aerodrome, SA
06 Nov 2001	4	Boeing Co	747-400	19 km SE Nyngan, Aerodrome, NSW
27 Nov 2001	2	Beech Aircraft Corp	C90	Toowoomba, (ALA), QLD
02 Dec 2001	4	Boeing Co	737-33A	19 km SE Thangool, Non Directional Beacon, QLD
05 Dec 2001	3	Saab Aircraft AB	SF-340B	93 km NE Trepell, (ALA), QLD
22 Feb 2002	4	Cessna Aircraft Company/TL Ultralight	172P/TL-2000	Jandakot, Aerodrome, WA
01 Mar 2002	3	Boeing Co	747-436	159 km NW Parkes, VOR, NSW
01 Mar 2002	4	Aerospatiale	AS.350B2	Williamtown, Aerodrome, NSW
13 Mar 2002	4	Cessna Aircraft Company/Boeing Co	500/737-476	130 km ENE Adelaide, VOR, SA
24 Apr 2002	4	Boeing Co/Embraer-Empresa Brasileira De Aeronautica	737-376/EMB-120 ER1	30 km ESE Darwin, VOR, NT
05 May 2002	3	Piper Aircraft Corp/SOCATA - Groupe Aerospatiale	PA-28-161/TB-9	2 km ESE Bankstown, Aerodrome, NSW
11 Jun 2002	3	Boeing Co	737-800	Darwin, Aerodrome, NT
28 Jun 2002	2	Saab Aircraft AB	SF-340B	7 km ESE Bathurst, Non Directional Beacon, NSW
29 Jun 2002	4	British Aerospace Plc	BAe 146-200A	37 km S Brisbane, Aerodrome, QLD
08 Jul 2002	4	Boeing Co/Cessna Aircraft Company	737-476/500	324 km NNE Melbourne, VOR, VIC
29 Jul 2002	3	Cessna Aircraft Company/Cessna Aircraft Company	172R/172R	Moorabbin, Aerodrome, VIC
07 Aug 2002	4	Saab Aircraft AB	SF-340B	37 km WSW Sydney, Aerodrome, NSW
10 Aug 2002	3	Boeing Co	747-436	6 km N Sydney, Aerodrome, NSW

Date of occurrence	Investigation category	Manufacturer	Aircraft model	Location
25 Sep 2002	4	Aero Commander Div/Cessna	690-A/152	Bankstown, Aerodrome, NSW
26 Sep 2002	3	Piper Aircraft Corp	PA-32-300	Hamilton Island, Aerodrome, QLD
13 Oct 2002	4	Cessna Aircraft Company	182B	2 km W Bungendore, NSW
19 Oct 2002	4	de Havilland Canada	DHC-2 MK 1	Chance Bay, Whitsunday Island, QLD
20 Oct 2002	4	British Aerospace Plc	BAe 146-300	6 km E Karratha, Aerodrome, WA
01 Nov 2002	4	British Aerospace Plc	BAe 146-100	Perth, Aerodrome, WA
06 Nov 2002	4	Cessna Aircraft Company	441	Parafield, Aerodrome, SA
07 Nov 2002	4	Cessna Aircraft Company	207	4 km S Cradle Mountain (Valley), TAS
16 Nov 2002	4	de Havilland Canada/Boeing Co	DHC-8-315/717-200	Mackay, Aerodrome, QLD
16 Nov 2002	4	Boeing Co/de Havilland Canada	717-200/DHC-8-315	Mackay, Aerodrome, QLD
02 Dec 2002	4	Aerospatiale	AS.332L	Karratha, Aerodrome, WA
02 Dec 2002	4	British Aerospace Plc	BAe 146-100A	Perth, Aerodrome, WA
08 Dec 2002	3	Boeing Co	767-219ER	30 km ESE Brisbane, Aerodrome, QLD
15 Dec 2002	4	Boeing Co	737-476	Canberra, Aerodrome, ACT
15 Dec 2002	4	Boeing Co	747-438	Los Angeles, Aerodrome, Other
20 Dec 2002	4	Neico Aviation Inc	Lancair IV-T	6km NE Drysdale, VIC

Date of occurrence	Investigation category	Manufacturer	Aircraft model	Location
01 Jan 2003	4	Boeing Co	767-338ER	Satna, (IFR),
09 Jan 2003	4	Fokker B.V.	F27 MK 50	Southern Cross, (ALA), WA
13 Jan 2003	4	Bell Helicopter Co	206B (III)	Bendora Dam, ACT
16 Jan 2003	4	Boeing Co	737-7BX	Sydney, Aerodrome, NSW
16 Jan 2003	4	Saab Aircraft AB	SF-340B	Orange, Aerodrome, NSW
24 Jan 2003	4	Saab Aircraft AB	SF-340B	3 km ESE Orange, Aerodrome, NSW
31 Jan 2003	3	Ilyushin Design Bureau	IL-76	Baucau, Other
05 Feb 2003	4	de Havilland Canada/Boeing Co	DHC-8-315/727-277	Townsville, VOR, QLD
07 Feb 2003	4	Beech Aircraft Corp	76	Camden, Aerodrome, NSW
19 Feb 2003	3	Boeing Co	737-376	Darwin, Aerodrome, NT
21 Feb 2003	4	Cessna Aircraft Company	441	Lake Johnston, Named feature, WA
27 Feb 2003	4	Boeing Co	727-277	Natya, VOR, VIC
06 Mar 2003	4	de Havilland Canada	DHC-2	Whitehaven Beach, QLD
06 Mar 2003	4	British Aerospace Plc	HS 748-2A	Sydney, Aerodrome, NSW
07 Mar 2003	4	Boeing Co	747-422	Melbourne, Aerodrome, VIC
13 Mar 2003	4	Saab Aircraft AB/Aerospatiale	SF-340B/AS.350B2	19 km WSW Sydney, VOR, NSW
13 Mar 2003	4	Gates Learjet Corporation	45	Brisbane, Aerodrome, QLD
14 Mar 2003	4	Cessna Aircraft Company	172G	3 km SE Trefoil Island, (ALA), TAS
19 Mar 2003	4	Bell Helicopter Co.	47G-4A	Caboolture (ALA), Qld

Date of occurrence	Investigation category	Manufacturer	Aircraft model	Location
19 Mar 2003	4	Bell Helicopter Co	47G-4A	Caboolture, (ALA), QLD
25 Mar 2003	4	Cessna Aircraft Company	310R	Groote Eylandt, Aerodrome, NT
29 Mar 2003	4	Amateur Built Aircraft	Canadian Safari	4 km SW McLaren Vale, SA
04 Apr 2003	4	Airbus	A330-202	Sydney, Aerodrome, NSW
01 May 2003	4	de Havilland Canada	DHC-8-201	Emerald, Aerodrome, QLD
03 May 2003	4	Boeing Co	737-476	Melbourne, Aerodrome, VIC
05 May 2003	4	Boeing Co	717-200	Melbourne, Aerodrome, VIC
15 May 2003	4	Beech Aircraft Corp	B200C	6 km NE Coffs Harbour, Aerodrome, NSW
27 May 2003	4	Piper Aircraft Corp/Cessna Aircraft Company	PA-38-112/172P	Jandakot, Aerodrome, WA
29 May 2003	4	Boeing Co	717-200	13 km NNW Mackay, Aerodrome, QLD
02 Jun 2003	4	Boeing Co/	767-336/	Christchurch, Aerodrome, Other
12 Jun 2003	4	Boeing Co	717-200	Melbourne, Aerodrome, VIC
20 Jun 2003	4	Robinson Helicopter Co	R22 MARINER	13 km NW Camden, Aerodrome, NSW
22 Jun 2003	4	Cessna Aircraft Company	172M	Wedderburn, (ALA), NSW

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