Australian Transport Safety Bureau

Annual Review 2002

Safe Transport

Department of Transport and Regional Services

Australian Transport Safety Bureau

ATSB Annual Review 2002

Published by the Australian Transport Safety Bureau

ISSN 1444-4798
ISBN 1 877071 22 6

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Design and desktop publishing by David Hope
Edited by Paul Porter

Printed by Union Offset Printers, Fyshwick ACT

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Executive Director's message

The Australian Transport Safety Bureau has made significant progress since it began on 1 July 1999 as an operationally independent body within the Commonwealth Department of Transport and Regional Services (DOTARS).

During 2001–02, the ATSB assisted the Minister for Transport and Regional Services to develop new legislation that would enable the Bureau to investigate rail accidents on the increasingly important interstate system. The legislation also updates and harmonises the Bureau's aviation and marine investigative powers. Introduced into parliament on 20 June 2002, the Transport Safety Investigation Bill 2002 (TSI Bill) passed the House of Representatives with bipartisan support on 24 September and is currently before the Senate. The Bureau is also involved with the drafting of associated Regulations and proposed memoranda of understanding with key stakeholders.

The Bureau revised its investigator work-level standards and developed an internal competency-based Diploma in Transport Safety Investigation, for which national tertiary accreditation has been granted for five years. The Diploma will help validate that ATSB investigators have reached a minimum competency standard before assuming more senior responsibilities.

The federal industry minister asked the ATSB to investigate, under the *Space Activities Act*, an accident involving the first HyShot rocket launch at Woomera. The launch was to test a University of Queensland 'scramjet', a world-leading project in the race for faster passenger transport. The Bureau's investigation of the October 2001 launch and its final report and recommendations led to important changes before a reportedly highly successful second launch.

The ATSB has 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). It has worked closely with state and territory transport agencies, and other major stakeholders, through the National Road Safety Strategy Panel. Toward the end of the financial year, the Bureau, aided by a panel of distinguished road safety experts, formed a task force to

develop an Action Plan for 2003 and 2004. The national road fatality rate, which stood at nine deaths per 100 000 population in calendar year 2001, has plateaued since about 1997 and the new Action Plan will seek to substantially cut the road toll. ATC approved the Plan on 8 November 2002.

The Parliamentary Secretary, Senator the Hon. Ron Boswell, released several ATSB research reports and a number of other road safety publications throughout the year. Two important studies concerned speed risks. ATSB research findings on the links between travel speed and road trauma have been widely cited in policy papers produced by other agencies (both in Australia and overseas) and have supported a number of major public education campaigns on speed. The Bureau also released reports on motorcycle fatalities and on driveway deaths. ATSB researchers have a special interest in fatigue issues and are working to improve national injury data as well as data on heavy-vehicle safety.

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 nine investigations. Most of these were in Victoria, but others have involved WA, NSW, Queensland and SA. Investigations have brought about important safety changes, including to operational practices and to legislation. In cooperation with state rail regulators, the Bureau has also created a national rail occurrence database with a concise set of key statistical rail safety indicators for the calendar year 2001. Ongoing discussions with state rail regulators are directed to extending the database's coverage of safety occurrences, harmonising definitions and incorporating pre-2001 data.

In 2001–02, marine reports released included investigations of groundings and collisions between ships and fishing vessels. Recognising the international nature of the shipping industry, the ATSB has continued to actively support the work of the International Maritime Organization, where it has addressed topics such as lifeboat safety and vessel fires, and to provide marine investigation and safety training. Captain Kit Filor continued as chair of the Marine Accidents International Investigators Forum (MAIIF).

The ATSB released 118 final air safety investigation reports in the past financial year thereby reducing its investigation report backlog from 125 to 90. Major reports included:

- the Whyalla Airlines VH-MZK Piper Chieftain accident with eight fatalities

- the Beech Super King Air 200 VH-SKC 'ghost flight' fatal accident which followed the incapacitation of the pilot and seven passengers
- a serious incident involving loss of control during 'one engine inoperative' training in a Beech 1900D airliner.

The Bureau continued to investigate maintenance problems involving Ansett's 767 fleet and Class A aircraft, as well as a fatal accident involving the WA Police AirWing at Newman. It also helped the Aviation Safety Council of Taiwan investigate a major Singapore Airlines SQ006 747 fatal accident. The President of Taiwan acknowledged the Bureau's contribution when he opened the International Society of Air Safety Investigators (ISASI) forum in October 2002. Aviation outputs also included CAIR reports, recommendations and safety notices, as well as articles in magazines such as *Flight Safety Australia*. The Bureau further developed its website **www.atsb.gov.au** and now receives more than four million 'hits' each year.

When the Secretary reorganised the Department in January 2002, the Bureau's previous federal Black Spot and vehicle recall functions transferred to more appropriate divisions within DOTARS. I thank the staff involved for their contributions to the ATSB. I particularly wish to acknowledge Adrian Beresford-Wylie, who left the Bureau for a senior DOTARS position in September 2002. As a branch head, Adrian made a great contribution to the Bureau and to Australian road safety. I am pleased to welcome Joe Motha who has taken on Adrian's former role.

I am 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. The ATSB is passionate about its role in contributing to safe transport and on behalf of the ATSB's hardworking staff, I affirm that the Bureau looks forward to meeting the challenges of 2002–03 and beyond in all four transport modes.

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.

Our environment and values

The ATSB operates in an environment where transport activity is increasing and the government, parliament, media and the public expect increasing standards of transport safety, particularly for fare-paying passengers. ATSB is a bureau within the Federal Department of Transport and Regional Services that is operationally independent and has a clear organisational separation from transport regulators and other bodies that may need to be investigated. ATSB undertakes investigations and analyses safety data without fear or favour and in conveying the results with any necessary recommendations, helps to improve future safety and maintain public confidence that the safety of the transport system is not being compromised.

We believe in the importance of 'Investors in People' and work within the framework set by the Australian Public Service Values and Code of Conduct and the DOTARS Corporate Plan and Portfolio Budget Statements. Of particular importance to us are clear and ethical leadership; professionalism and judgement; risk manage-ment; accountability and responsiveness; and encouragement of diversity, teamwork and trust.

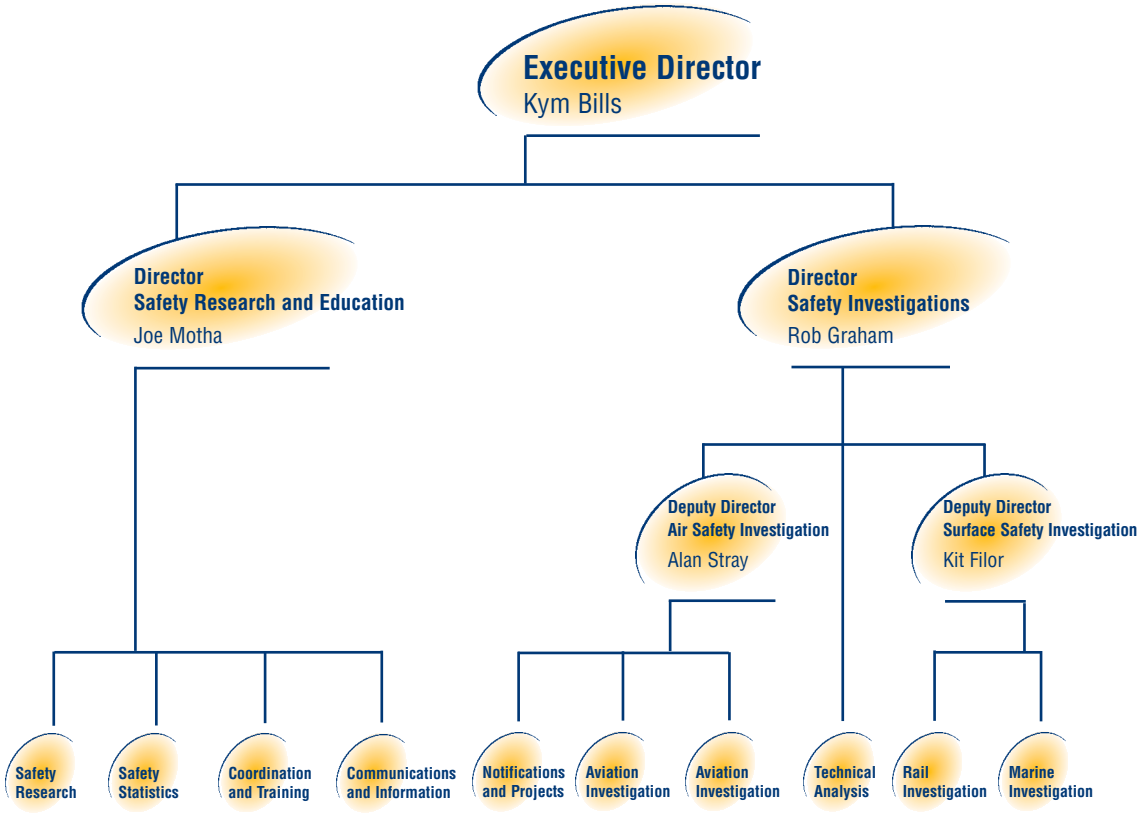
Our strategy

We will pursue our mission by:

- focussing on occurrences, unsafe situations and data where the greatest safety benefit can be gained within our given budget through timely investigation, safety analysis and research
- better matching the delivery of our outputs to the needs of our stakeholders and maximising safety education, including through the use of the Internet
- working within and helping to develop legislation, regulations and guidance material to better apply our skills consistently across all transport modes except where differences are justified by safety data or our constitutional role.

Building on our values and strengths, training our people, using our resources to best effect, and working closely with stakeholders, we will produce the professional safety outputs outlined in the Portfolio Budget Statements. This will optimise the safety knowledge, attitudes, behaviour and results from our allocated budget and thereby contribute to 'A better transport system for Australia'.

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. Prior to his current position with ATSB, Mr Bills was First Assistant Secretary of the Department's Maritime Division from 1994 to 1998 and subsequently 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 including the Australian Institute of Management, the Australian Institute of Company Directors and the Chartered Institute of Logistics and Transport of Australia.

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.

Previously, 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.

Mr 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 operations and from January to June 2001, acted as Director of Safety Investigations. In recent years, his work has involved increasing engagement with government and aviation industry agencies in countries of Asia-Pacific Region.

Deputy Director Alan Stray

Between 1992 and 1994, Mr Stray was an exchange officer with the Transportation Safety Board of Canada. During that time he was a management investigator in the Investigation Branch and developed *Reflexions*, a multimodal series of safety magazines designed around the successful *BASI Journal*, which he had produced for a number of 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 management and aviation qualifications.

Captain Kit Filor, PSM

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

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.

Deputy Director Kit Filor

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.

Mr Adrian Beresford-Wylie

Adrian Beresford-Wylie was Director of the Safety Research and Education Branch for the financial year 2001–02 and until September 2002. Mr Beresford-Wylie made a major contribution to the establishment of the ATSB, particularly in the area of road safety. He was also the Austroads Road Safety Programme Manager.

Director
Adrian Beresford-Wylie

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 communication, education and information services.

Key safety activities and results

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. Towards the end of the financial year, it formed a task force to develop, with the help of an expert panel, an Action Plan for 2003 and 2004.

The Bureau released several research reports, including two important studies on speed risks. Its findings on the links between speed and road trauma have been cited in numerous Australian and overseas policy papers and have underpinned several major public education campaigns on speed. Community attitude surveys commissioned by the ATSB revealed a public increasingly aware of speed risks and less tolerant of speeding.

Safety programmes

National Road Safety Strategy and Action Plans

In November 2000, the ATC approved the *National Road Safety Strategy for 2001–2010* 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. It aims to reduce the yearly

number of road fatalities per 100 000 population by 40 per cent—from 9.3 in 1999 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 2001–02, the ATSB:

- convened and chaired two Panel meetings
- coordinated the preparation of a progress report for the ATC
- established, on behalf of the Standing Committee on Transport (SCOT), a task force to review the current Action Plan and develop a revised Plan for 2003 and 2004.

National road safety statistics

The Bureau collects, analyses and reports national statistics on road fatalities and other data to help develop or evaluate road safety measures. Among these are monthly releases of national road safety statistics and annual publications that draw comparisons with other OECD countries. Work under way in 2001–02 will lead to important new datasets to supplement these existing collections:

- *Australian Truck Crash Database.* 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 Bureau is analysing and evaluating the data provided for the year 2000.
- *Heavy vehicle crashes.* In cooperation with NTI Insurance and the Australian Trucking Association, ATSB has begun to analyse insurance industry information on major truck crashes. The study details heavy vehicle crashes from an industry viewpoint.
- *National Coroners' Information System.* Established national statistical collections mainly draw on police reports and coroners' records. ATSB contractors currently manually code much of this data into a computer database. But since mid-2001, selected information from coroners' records has been available online through Monash University's National Coroners' Information System (NCIS). ATSB has provided financial support and comments on data coverage for the development of this system. When fully operational, the NCIS is intended to provide more timely and convenient access to information.

- *National road injury statistics.* For some time, there has been a need for consistent data on serious road injuries. An Adelaide workshop on road injury statistics chaired by the ATSB in November 2001 recommended that the Bureau and Flinders University's National Injury Surveillance Unit (NISU) consider using hospital data to produce consistent national road injury statistics. A feasibility study was completed in August 2002 and results were presented to the National Road Safety Strategy Panel.

Road safety research programme

Input from the 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 Transport Regulation Division 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. In 2001–02, it released the entire road safety research library as a set of fully text-searchable CD-ROMs.

Major research reports released in 2001–02 included:

- *Driver Fatigue: A Survey Of Long Distance Transport Companies In Australia* (CR 209)
- *Reanalysis Of Travelling Speed And The Risk Of Crash Involvement In Adelaide South Australia* (CR 207)
- *Travelling Speed And Risk Of Crash Involvement On Rural Roads* (CR 204)
- *Driver Fatigue: A Survey Of Long Distance Heavy Vehicle Drivers In Australia* (CR 198)

Statistical research reports released included:

- *Driveway Deaths: Fatalities Of Young Children In Australia As A Result Of Low-Speed Motor Vehicle Impacts* (Research Report 208)

- *Australian Bus Safety*
- *Level Crossing Accidents* (Monograph 10)
- *Fatal Four Wheel Drive Crashes* (Monograph 11)

Heavy vehicle driver fatigue management: This research examines how improved schedule planning can help manage fatigue in the road transport industry.

In 2001–02, the ATSB funded two studies to evaluate approaches being trialled under the Fatigue Management Pilot Programme, which implements in part the Australian Driving Hours Reform Package. The pilot involves several operators. Fatigue management programmes are approved by a panel (chaired by Queensland Transport) of transport agency officials, police and technical experts.

The ATSB also contributed, with the National Road Transport Commission, to a project comparing the fatigue levels of day and night heavy-vehicle drivers.

Speed: In recent years, speed has been a priority issue in Australian road safety and a major focus of the research programme. Ongoing ATSB research has examined:

- the risks of speeding on urban and rural roads
- the use of relatively inexpensive road markings to influence traffic speeds
- public awareness of, and attitudes towards, various speeding and speed enforcement issues.

Vehicle safety and occupant protection: ATSB research complements the regulatory work on vehicle standards managed by the Department's Transport Regulation Division. In 2001–02, the Bureau:

- commissioned a project to assess the costs and benefits of fitting assertive seat-belt reminder systems to Australian vehicles under various regulatory approaches
- continued the development of a prototype headband for car occupants (based on previous research showing that occupant protective headwear could provide major safety benefits)
- assessed with other agencies the safety performance of various passenger car models, based on recorded injuries in real-world crashes.

Seeding grants: Each year, the ATSB provides several small competitive research grants. The scheme invites researchers and community groups to submit innovative research ideas. Appendix 7 lists seeding grants awarded in 2001–02.

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.

The sample population size (about 1600) is stratified to allow comparisons between the different states and territories.

Indigenous road safety scoping study: The Bureau conducted a preliminary study of indigenous road safety issues. This involved a literature review, analysis of crash statistics and consultation with stakeholder organisations.

Participation in safety forums

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

ATSB's participation in the Austroads Road Safety Programme allows the Bureau to influence and contribute to the national road safety agenda. Throughout 2001–02, 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 advises the National Road Safety Strategy Panel and the Austroads Road Safety Programme Manager on research priorities, and coordinates road safety research in Austroads' jurisdictions.

Austroads road safety publications released in 2001–02 under ATSB guidance included:

- *Austroads Road Safety Audit Guide* (second edition)
- *Drugs And Driving In Australia*
- *Speed Enforcement In Australasia* (2 volumes)
- *Increasing Seat Belt/Restraint Use On Remote Area Roads*

National Road Safety Strategy Panel: 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:

- coordinates 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, ATSB participates in:

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

Fleet safety: The ATSB, state and territory road safety agencies and other researchers participate in a Fleet Safety Forum to explore the possible road-safety benefits of workplace-based fleet safety programmes.

Indigenous Road Safety Working Group and Forum: The ATSB chairs this 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 2001–02, the ATSB:

- convened two meetings of the Working Group
- organised a one-day Indigenous Road Safety Forum. Participants shared information about existing indigenous road safety programmes and identified gaps in current policy.

Rail

Role

The ATSB investigates rail occurrences when requested by a state or the Northern Territory and coordinates a national rail safety occurrence database.

Key safety activities and results

The ATSB continued to participate in rail safety investigations at the invitation of state governments. It completed three investigations in 2001–02.

The Bureau also established a national rail occurrence database in cooperation with state rail regulators initially covering the calendar year 2001.

Development of a rail investigation capability

The Bureau continued to assist the Minister for Transport and Regional Services with legislation that would allow it to conduct independent rail investigations on the Defined Interstate Rail Network.

In September 2001, it sent an exposure draft of the Transport Safety Investigation (TSI) Bill to all key rail industry stakeholders and invited stakeholders to a TSI Bill workshop. The Bureau also offered to meet separately, on request, with any stakeholders wishing to discuss the Bill further. Stakeholder comments led to several changes.

On 20 June 2002, the TSI Bill was introduced into the House of Representatives. The Rail Safety Consultative Forum and the Bureau subsequently met to clarify their respective roles and to seek to simplify their dealings with the rail industry. The Bureau and state/territory rail regulators are now finalising with the rail industry a memorandum of understanding that describes the roles and responsibilities of affected parties once the Bill becomes law.

Participation in state government investigations

The ATSB completed three investigations in 2001–02 and one remains in progress:

- It led an investigation into the derailment (25 April 2001) of an XPT train on the interstate line at Wodonga, Victoria. The Bureau presented its report to the Victorian Government in June 2002. Victoria had not released the report by the close of the 2001–02 financial year.
- It led an investigation into a rear-end collision (5 June 2001) of two passenger trains on the intrastate passenger line at Footscray, Victoria. The Victorian Government released the report in November 2001. Its findings led to a review and overhaul of the medical system serving Victoria's train drivers. Involved were legislative changes affecting reporting requirements for over-the-counter, prescription and other drugs. Such drugs may prevent a driver from properly carrying out his or her duties.
- At the request of the Queensland Government, it led an investigation into a loaded coal train derailment (1 July 2001) on the intrastate coal and freight line on the Connors Range near Mackay. The derailment followed a partial brake failure (linked to a displaced O-ring) during a steep and winding descent. Radio signal to the train's central Locotrol unit had been absent for some time beforehand.

Queensland released the report in November 2001. Its findings brought changes to maintenance procedures and a review of driver training for abnormal and emergency situations. A transmitting repeater was also installed on the Connors Range to reduce radio signal interruptions in the area.

- At the invitation of the Victorian Government, the ATSB is leading an investigation into a side-impact collision on the intrastate passenger line at Epping, Victoria. The collision (18 June 2002) involved an empty passenger train and a train carrying 16 passengers. Although there were no serious injuries, the potential for serious injury was significant.

Development of an accident and incident database

The ATSB, in cooperation with state rail safety regulators, established a National Rail Safety Occurrence Database (NROD). The database contains a concise set of key rail safety occurrence statistics for the calendar year 2001. 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.

Several rail safety statistical publications, including an analysis of level-crossing fatalities, are now available on the Bureau's website.

Participation in safety forums

During 2000–01, the ATSB participated in several rail safety forums. Participation helps the Bureau communicate the safety message, renew its industry contacts and stay informed on relevant policy and technical issues.

The ATSB met with the state governments several times throughout the year to discuss the Commonwealth's proposed investigation legislation, developing a national accident and incident 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. The Australian Transport Council did not meet during 2001–02.

The ATSB continued to advise the Standards Australia Committee ME/79, which was developing a government and industry standard for rail safety investigators. Some Committee members opposed certain details of the standard and its introduction as part of the Railway Safety Management Series, AS 4292. As a compromise, the Committee asked Standards Australia to produce a guideline document only. The guideline was approved on behalf of the Council of Standards Australia on 31 July 2001 and published on 14 September. The Bureau understands that several operators and state/territory regulators are using the guideline.

The Bureau spoke on best-practice safety investigation at the Australian Rail Safety 2002 conference. Carrying the title 'Implementing the Codes of Practice', the conference was the Australasian Railway Association's second annual safety summit.

Training for rail industry personnel

Seven rail industry staff representing operators, track access providers and rail accreditation authorities completed an ATSB human factors training course in Canberra from 2 to 6 July 2001. A further eight attended from 18 to 22 March 2002.

Research

In February 2002, the Seventh International Symposium on railroad-highway grade crossings took place in Australia. (In the previous financial year, ATSB had paid $5000 to Monash University to help meet the setup costs of the Symposium.)

Prior to the Symposium, the Bureau published on its own website its analysis of level crossing accidents. The study used data from its Fatality Crash Database, which details Australian road fatalities since 1988.

The ATSB also helped the Bureau of Transport and Regional Economics begin a study to estimate the cost of rail accidents. The proposed methodology was similar to that used for aviation and road studies.

Marine

Role

To enhance safety of life at sea and the protection of the marine environment, the Bureau's Marine Investigation Unit investigates incidents involving:

- Australian-registered ships anywhere in the world
- foreign-flag ships within Australian waters.

The Unit may also investigate when evidence relating to an accident is found in Australia. The Unit usually conducts 10 to 12 investigations each year.

From 1999 to 2002, over 80 per cent of investigations involved foreign-flag ships.

Part 3 of the Navigation (Marine Casualty) Regulations (formed under the *Navigation Act 1912*) allows the Inspector of Marine Accidents to appoint investigators, as appropriate, to investigate marine incidents.

Incidents may include:

- loss of life or serious injury aboard a ship
- the loss of a ship
- fires, collisions and groundings
- damage to, or caused by, ships
- serious damage to the environment caused by a ship.

Owners and masters of Australian-registered vessels or foreign-flag vessels in Australian waters must, under the Navigation (Marine Casualty) Regulations, report occurrences as soon as practicable to the Inspector of Marine Accidents and by the quickest possible means. Often this will be through a report to the Australian Maritime Safety Authority, including its Australian Search and Rescue Coordination Centre.

Once notified of an incident, the Inspector decides what action to take. Depending on the type and severity of the occurrence, the Inspector may:

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

Investigations seek to:

- determine and report on the circumstances and causes leading to an occurrence
- alert industry to the underlying factors.

To help prevent similar occurrences in the future, the Unit publishes reports of all the accidents it investigates. Reports do not seek to assign fault or determine civil or criminal liability. The results of an investigation are not binding on the parties to any legal, disciplinary or other proceedings.

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 Bureau's website.

Key safety activities and results

In 2001–02, the Unit received notifications of 47 incidents.

The Unit investigated 10 new occurrences and released six final reports. The reports concerned two groundings, three collisions between ships and small vessels, and one loss of stability. The Unit also supported the ATSB's rail investigations.

During the year, members of the Unit:

- chaired the Marine Accident Investigators International Forum annual meeting at Pusan, South Korea
- attended the International Maritime Organization (IMO) Flag State Sub-committee meeting in London and participated in the working group on casualty analysis
- conducted the IMO's marine accident investigators' training course in Hong Kong.

Small vessel safety

A number of collisions involving ships and fishing vessels highlight the importance of adequate manning and fatigue management.

One such incident, in clear weather, involved the bulk carrier *Handymariner* and the fishing vessel *Lipari*.

At 0300 hours local time, on 18 January 2001, *Handymariner* was 26 nautical miles off the coast of Western Australia, en route to Bunbury.

The same morning, the fishing vessel *Lipari* left Port Bouvard to check its lobster pots. On board were the skipper and two deckhands. Shortly after leaving port, the two deckhands went below to sleep. The skipper stayed on the vessel's fly bridge for the first six miles and then went down to the wheelhouse and engaged the autopilot. He remained in the wheelhouse listening to some music.

At 0410, the mate on watch on *Handymariner* saw that *Lipari* was ahead and to port of his ship, and began to track the vessel on radar.

The radar showed that *Lipari*'s range at its closest point of approach was going to be small, so the mate tried several times to call the fishing vessel on VHF channel 16. Unknown to him, *Lipari*'s VHF radio was not working. The mate then used an Aldis lamp and the ship's forward whistle to warn the boat, but still received no response. *Lipari* maintained a steady course and speed.

At about 0435, *Lipari* and *Handymariner* collided.

The report noted that the lack of a functioning VHF radio on Lipari on the morning of 18 January directly contributed to the collision. It also concluded that:

- The loud music playing in *Lipari*'s wheelhouse made it difficult for the skipper to maintain an effective lookout prior to the collision.
- *Lipari*'s skipper was probably affected by chronic fatigue on the morning of the collision. This may explain his poor look-out and poor situational awareness, particularly with regard to the ship's navigation lights.

The report recommended that:

- all state- and territory-registered commercial vessels operating offshore be required to carry an operational VHF radio capable of maintaining a continuous watch on 156.8 MHz (channel 16)
- state and territory authorities review the minimum manning, crew certification and work practices on Australian fishing vessels with a view to establishing guidelines for the management of crew fatigue.

Accidents involving ships' lifeboats

Papers submitted to the International Maritime Organization by Australia, the UK and other countries show an alarming number of seafarers have been killed or seriously injured during lifeboat exercises.

Lifeboat accidents have occurred during training exercises, testing, or Port State Control inspections, even though experienced, qualified seafarers were performing or supervising the operations.

In an Australian summary of nine lifeboat accidents occurring between 1991 and 1998, over one-half of those investigated involved design, equipment and training problems.

Since 1994, two lifeboat accidents in Australian waters have occurred during Port State Control inspections. Four other accidents have occurred during lifeboat drills.

The most recent lifeboat accident in Australian waters (12 October 2001) occurred off Dampier, Western Australia, during a drill aboard a bulk carrier. The port lifeboat had been lowered to the water while

the bulk carrier was at anchor. In the boat were five crew members, including the mate. The remote hoist failed to function when it was time to recover the boat. The boat was raised by manually depressing the main contactor for the motor. The limit switches were bypassed and, when the davits came up to the stops with the winch still running, the falls parted. The boat fell about 20 metres to the water, seriously injuring three of its crew, including the mate. It is fortunate that there were no fatalities.

The Bureau has since published a safety bulletin on lifeboat accidents for the maritime industry.

Policy and legislation

The Transport Safety Investigation (TSI) Bill, which was introduced into parliament on 20 June 2002, provides a legislative framework for investigating marine accidents and incidents. The TSI Act is proposed to replace the Navigation (Marine Casualty) Regulations although the principles of the Regulations will remain unchanged.

Participation in safety forums

Marine Accident Investigators' International Forum (MAIIF)

Australia is a founding member, and is the current chair, of the Marine Accident Investigators' International Forum (MAIIF), which was established in Canada in 1992. In 2002, the tenth meeting of MAIIF took place in Pusan, Republic of Korea. Thirty-five delegates representing 26 authorities from 24 countries and a number of observers took part.

The Forum identified several problems common to all administrations, particularly with regard to fishing vessel safety. These included:

- fatigue
- unauthorised vessel modifications
- failing to keep a lookout
- vessel stability.

IMO Flag State Implementation Sub-committee

The ATSB participated in the tenth meeting of the IMO Flag State Implementation Sub-committee (London, 8 to 12 April 2002). Of particular interest to the ATSB were the terms of reference for the Working Group on Casualty Statistics and Investigations. These were:

- to draft guidelines on the recovery of ownership of data from voyage data records
- to prepare interim guidelines to assist flag and other States with substantial interest in the investigation of marine casualties
- to establish and maintain an effective framework for consultation and co-operation
- to review the method of working of the Working Group on Casualty Statistics and Investigations.

To help identify trends, Australia is coordinating a Correspondence Group that will explore ways of improving electronic data entry into an IMO database. The Group will also review the categorisation of 'casualty types' and other fields.

Safety at Sea and Marine Electronics Conference and Exhibition (SASMEX 2002)

In April, the ATSB represented Australia at the Safety at Sea and Marine Electronics Conference and Exhibition (SASMEX 2002) in Amsterdam. The Bureau's delegate at the conference referred to:

- Australia's record in the field of Port State Control detentions
- Australia's leading role (along with the UK, the USA and Canada) at the IMO in promoting measures to improve ship safety
- Australian papers recently submitted to various IMO sub-committees
- ATSB experiences with lifeboat accidents and also with fires caused by escaping fuels and oils under pressure.

Maritime training

From 21 to 25 January 2002, the ATSB conducted a training course for the Australian Navy.

From 3 to 7 June 2002, the Bureau helped the Marine Department of Hong Kong conduct the second marine casualty investigation course under the IMO – Hong Kong Memorandum for Technical Cooperation. The course brought together senior investigators representing administrations from Iran, India, the Maldives, Sri Lanka, Bangladesh, Myanmar, Thailand, Vietnam, Cambodia, the Philippines, China and North and South Korea, as well as officers from Hong Kong.

Presentations

The Marine Unit presented papers to:

- the maritime industry conference 'Pacific 2002' (Sydney)
- a workshop on excellence in technical ship management (Mumbai, India)
- a series of advanced marine pilot training courses (Sydney)
- the Bureau's human factors course.

Aviation

Role

As a federal government body, the ATSB investigates accidents, incidents and safety deficiencies involving civil aircraft in Australia. It does so under Annex 13 to the Convention on International Civil Aviation (Chicago Convention 1944), which has legal force through Part 2A of the *Air Navigation Act 1920*.

All aircraft accidents and incidents (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.

The *Air Navigation Act 1920* also allows for the investigation of safety deficiencies.

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 Incident Reporting (CAIR) Programme and conducts safety studies.

ATSB recommendations are purely advisory.

The Bureau publicises its aviation-safety results through:

- CAIR alert bulletins and information circulars
- aircraft accident/incident reports

- safety advisory notices and recommendations
- articles in magazines such as CASA's *Flight Safety Australia*.

Specified ATSB senior managers exercise statutory powers delegated by the Executive Director, who has been designated the Director of Air Safety Investigation to investigate air safety occurrences and safety deficiencies under Part 2A of the *Air Navigation Act 1920*.

The Secretary of the Department of Transport and Regional Services has delegated to the Bureau's Executive Director his functions and powers under the Act to receive reports on investigations (section 19CT) and to approve and publish investigation reports (19CU(1) and (2)). The Director of Air Safety Investigation and delegates also have the power to release air safety information under section 19HA.

Key safety activities and results

The ATSB received notifications of 179 accidents and 5468 incidents in 2001–02. It also released 118 final occurrence investigation reports, which are available on the ATSB website and are listed at appendix 3.

Major reports included:

- the Whyalla Airlines Piper Chieftain accident (VH-MZK) with eight fatalities
- the Beech Super King Air 200 fatal accident (VH-SKC) following the incapacitation of the pilot and seven passengers
- a serious incident involving the loss of control of a Beech 1900D airliner (VH-NTL) during 'one engine inoperative' training
- an Airbus A340-300 serious incident at Sydney following a hydraulic system failure
- a Boeing 777-300 engine failure on takeoff
- the fatal crash of a Bell Longranger helicopter near Marlborough, Queensland.

The ATSB also completed the 'HyShot' rocket launch accident investigation for the Minister for Industry, Tourism and Resources.

The ATSB continued to investigate:

- maintenance problems with Class-A aircraft and 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.

The ATSB issued 42 recommendations and 10 safety advisory notices. (Some recommendations were issued under the same number to various agencies.)

The Bureau's recommendations and safety advisory notices included the following issues:

- training and operational handling procedures
- Boeing escape slide maintenance
- component manufacturing standards
- air traffic controller recency
- the effects of sleep inertia and the need to improve fatigue management systems
- the use of potentially harmful airconditioning refrigerant
- helicopter powerline operations
- regulatory classification of operations
- flight recorder requirements
- piston engine detonation, pre-ignition and deposits
- cabin safety
- balloon gas cylinder fitting safety
- the electrical isolation of starter generators from engines
- parachute exit techniques.

The ATSB conducted an internal desktop exercise to assess its preparedness for a major aviation accident. It also began work to further improve the Occurrence Analysis and Safety Information System (OASIS) database's analytical function and its link to the Bureau's website.

Occurrence investigations

Occurrences reported in the last five years under part 2A of the *Air Navigation Act 1920* show a steady increase from 3962 reported in 1996–97 to 5478 in 1999–2000 and 6132 occurrences (216 accidents, 5916 incidents) in 2000–01. In 2001–02, a total of 5647 occurrences (179 accidents and 5468 incidents) were reported to the Bureau (see table 19).

The slight decrease in the number of occurrences reported in 2001–02 may be due to:

- the effects of the terrorist attacks in the USA on 11 September 2001 (for example, through a decline in tourism)
- the collapse of Ansett
- statistical variation.

Table 19:
Air safety database occurrences reported to the ATSB, 1 July 1996 to 30 June 2002

Occ. Type	1996–97	1997–98	1998–99	1999–00	2000–01	2001–02
Accident	251	244	226	203	216	179
Incident	3711	3990	5687	5275	5916	5468
Total	3962	4234	5913	5478	6132	5647

Financial years

Significant recommendations released during 2001–02 included:

1. *Whyalla Airlines fatal accident (Air Safety Recommendations R20010254, R20010255, R20010256, R20010257, R20010258)*

The ATSB recommended:

- the review of the certification requirements of piston engines with respect to the operating conditions under which combustion chamber deposits, that may cause pre-ignition, are formed
- the review of the practice during assembly of applying anti-galling compounds to the backs of connecting rod bearings inserts with respect to its effect on the safety margin for engine operation of the bearing insert retention forces achieved

- that CASA review the operating and maintenance procedures for high powered piston engines fitted to Australian registered aircraft to ensure adequate management and control of combustion chamber deposits, pre-ignition and detonation and educate industry on procedures and techniques that may maximise the chances of survival of a ditching event. Part of that education programme should include the development of formal guidance material of the type contained in the UK CAA General Aviation Safety Senses leaflet 21A 'Ditching'.

2. *Boeing 737 aircraft breakdown of separation standards accident recommendations (Air Safety Recommendations R20000301, R20000302)*

The ATSB recommended that:

- Airservices Australia review the documentation in relation to air traffic controller recency requirements, in particular, the methodology of how individuals can meet the requirements
- CASA review the requirements for air traffic controller recency and specify the number of hours required, shifts that do or do not qualify for such recency, and documentation for recording such recency.

Because related issues have been found in several investigation reports, the Bureau is developing recommendations that address the effect of personal stress on controllers.

3. *Beech 1900D Airliner loss of control recommendation (Air Safety Recommendation R20010072)*

The ATSB recommended that CASA publish information for the guidance of operators and pilots regarding correct procedures for simulating engine failures in turbo-propeller aircraft.

4. *Boeing 737-476 in flight engine failure recommendation (Air Safety Recommendation R20010121)*

The ATSB recommended that General Electric Aero Engines:

- review the suitability of using Inconel 625 alloy consumables during the weld repair of high-pressure turbine blades
- review the life estimate and inspection intervals for high-pressure turbine blades repaired under the procedures using Inconel 625 alloy consumables

- notify all operators using CFM56-2C, CFM56-2A/2B, CFM56-3 or similar engines of the possibility of catastrophic engine failure due to failure of high-pressure turbine blades repaired using Inconel 625 alloy consumables.

5. *Bell Helicopter accident recommendations (Air Safety Recommendations R20000189, R20000191)*

The ATSB recommended that:

- the maintenance manual for the Bell 206B III series helicopter be revised to require the lubrication of the hydraulic pump drive splines on a calendar basis regardless of the time in service of the helicopter
- the FAA note the findings and alert all operators of the deficiency in the maintenance manual.

For a summary of all recommendations released in 2001–02, see appendix 4.

Reduction in investigation backlog

During the past year, the ATSB released 118 aviation investigation reports. Their median completion time was 317 days. The number of outstanding investigation reports dropped from 125 at the beginning of the year to 90 at the end. The number of outstanding reports on occurrences more than 12 months old dropped from 29 to 16.

By reducing its backlog of investigations and providing more timely reports of investigations and recommendations, the ATSB has more effectively focused the attention of operators, manufacturers, regulators and service providers on the need for safety changes. Further improvements are being sought in 2002–03.

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.

An ATSB investigation into Ansett's B767 maintenance problems began in January 2001. Among other things, it is considering aspects of the systems within Ansett, CASA, Boeing and the US Federal Aviation Administration relevant to the continuing airworthiness of Class A aircraft.

As at 30 June 2002, the ATSB investigation was continuing.

Confidential Aviation Incident Reporting (CAIR) Programme

Established in 1988, the Bureau's Confidential Aviation Incident Reporting (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.

While the ATSB receives most of its incident reports through the mandatory open reporting system under the *Air Navigation Act 1920*, it also receives about 300 CAIR reports each year. Pilots, engineers, air traffic service officers, flight attendants, maintenance workers, passengers and others can report to the programme, confident that their identity will not be revealed.

The number of CAIR reports received over the last five years shows good industry support (see table 20). In 2001–02, CAIR issued 183 'For Your Information' notices and four Alert Bulletins.

Table 20:
CAIR incident reporting 1 July 1997 to 30 June 2002

1997–98	287
1998–99	326
1999–2000	265
2000–01	357
2001–02	321

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 5 lists articles published during 2001–02)
- maintaining safety programmes such as CAIR and INDICATE.

INDICATE

The INDICATE safety programme has been well received by the aviation community both in Australia and overseas. INDICATE's simple guidelines show operators how to implement a safety management programme at all organisational levels. INDICATE encourages companies to identify safety hazards before they lead to accidents or incidents.

Since it launched the programme in late 1997, the Bureau has sent over 500 INDICATE packages to individuals and organisations. Although most packages have gone to the aviation industry, many have also gone to organisations from other transport modes and even to other industries. The safety principles embodied in the programme are generic.

The current INDICATE package includes a CD-ROM software application, which is also available online at the Bureau's website **www.atsb.gov.au**

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 at:

- aero clubs and flying training schools
- aerial agriculture conferences
- regional airlines conferences
- the Regional Airspace Users Advisory Committee
- state government disaster management planning committees
- airport emergency planning committees
- flight safety and other forums.

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 2001–02, Bureau staff attended:

- the Fifty-fourth Flight Safety Foundation Annual International Air Safety Seminar, Athens, October 2001
- the International Society of Air Safety Investigators Annual Training Seminar, Vancouver, October 2001
- the Nineteenth International Cabin Safety Symposium, Los Angeles, January 2002
- the Meeting of Human Performance Investigators at the NTSB, Washington DC, April 2002
- the International Transportation Safety Association Meeting, Helsinki, May 2002
- the Recovery Analysis & Presentation (RAPS) User Conference, Ottawa, June 2002.

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 local aviation operations worldwide.

Unless a difference is filed with 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 Part 2A of the *Air Navigation Act 1920* and has filed differences (shown in italics) against the following paragraphs:

- Paragraph 5.1 ('State of Occurrence'): *Selective investigation priority is given to the safety of the fare-paying public and sport aviation fatal accidents may not be investigated.*
- Paragraph 5.6 ('Investigator-in-charge'): *The Investigator-in-charge has unhampered access to ensure the effective conduct of the*

investigation. However, at times this may be exercised jointly with Police or Coronial agencies.

- Paragraph 5.25 ('Participation'): *Australia will endeavour to comply with the standard to the extent necessary to make the participation effective.*
- 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.*

ATSB is a corporate member of the international Flight Safety Foundation (FSF), one of the world's most important and 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 Bureau 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 Malaysia, Indonesia, Papua New Guinea, and New Zealand.

At the request of the Aviation Safety Council of Taiwan, the ATSB helped investigate an accident involving a Boeing 747 aircraft during takeoff on a scheduled flight from Taipei. Australia appointed a senior Bureau investigator as an accredited representative. The Bureau's involvement covered the areas of investigation management, operations, air traffic control and human factors (including management and organisational issues).

Inquests

State coroners sought the attendance of transport safety investigators at eight coronial inquests.

Aviation safety research

The ATSB developed a small safety research programme in 2001–02 to examine aviation safety issues and to promote safety within the industry. The programme drew on safety data and knowledge held by the Bureau as well as input from industry stakeholders.

Projects begun in 2001–02 included:

The hazards posed to aircraft by birds. This study analysed Australian data concerning bird-strike rates, species involvement and hazard potential, the time of day and the phase of flight. Recorded bird strikes 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.

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.

Transport industry survey of safety health. This longer term project will seek to measure the 'safety culture' of the aviation, marine and rail systems. It will establish a baseline measurement of safety culture for tracking changes over time and will evaluate the effectiveness of any safety interventions or recommendations. It may also improve industry safety standards by identifying potentially vulnerable areas for further study.

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 problem in Australia. While fuel exhaustion accident rates have decreased, they still account for an unacceptable percentage of all aviation accidents. Raising awareness of fuel-related issues within the aviation industry should reduce the number of fuel-related accidents.

Runway incursions. This study is analysing runway incursion data for the years 1997 to 2001. The report will examine trends in Australian rates, how they compare internationally, why incursions occur and whether runway incursion poses a significant risk to Australian aviation safety.

Communications and Information

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

The Unit:

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

Communications and Information also has particular oversight of:

- the ATSB supplement in *Flight Safety Australia*
- media releases
- issues likely to provoke national media interest
- corporate graphic standards and style
- materials in support of larger public communication events and launches.

Media

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

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

The Unit organised major media conferences to mark the release of the following high-profile investigation reports:

- the Whyalla Airlines accident of 31 May 2000,
- the Beech Super King Air accident of 4 September 2000
- the Mount Archer accident of 29 August 2001.

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

The Unit developed several information brochures to inform stakeholders about the ATSB and its various functions and to reinforce the message that the Bureau is an operationally independent multi-modal safety organisation within the Department of Transport and Regional Services.

Website

The Communications and Information Unit develops and maintains the Bureau'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:

- accident and other reports
- research publications
- public education material (advice on drink driving, speeding, learner driver and motorcycle safety)
- accident and incident statistics
- media alerts and releases
- speeches
- 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 free road safety education material and teaching resources, or purchase online other ATSB safety information products such as the *Ride On* motorcycle safety video.

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

In 2001–02, the site attracted more than four million hits. The number of hits increased markedly following the release of high-profile road-safety information or reports such as the Whyalla Airlines accident report.

The ATSB provides required online information and services. The Bureau 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 the past year, the Unit responded to 13 673 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 ATSB's safety resources.

The Unit updated and reprinted road safety resources as required: for example, the brochure *Do You Know When to Stop?* was revised to help drivers ensure that their blood alcohol concentration remains under 0.05 per cent.

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 2001–02, the Unit responded to 28 Freedom of Information requests within the statutory timeframes of the *Freedom of Information Act 1982*.

Challenged decisions were resolved by internal review following four of these requests. While no appeals were made to the Ombudsman, one was lodged with the Administrative Appeals Tribunal.

The Unit also attended to eight subpoenas within specified timeframes.

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.

Table 1:
Relative risk of fatal injury by Australian transport mode, 1993

Transport mode	Relative fatality rate based on passenger kilometres travelled (car travel =1.0)
Aviation	
High-capacity RPT	0.0
Low-capacity RPT	0.3
Fixed-wing General Aviation	6.8
Road	
Car	1.0
Motorcycle	26.7
Bus	0.2
Rail	0.2

Source: *ATSB.*
Note: *1993 is the latest year for which comparable data is available.*

Multimodal trends (fatalities)

Table 2 shows the number of fatalities in each of the major transport modes over the last decade. Between 1992 and 2001:

- The total number of fatalities decreased in all modes.
- The most substantial reduction was in road transport, where fatalities decreased from 1974 in 1992 to 1737 in 2001.
- Rail transport fatalities fluctuated from year to year but trended downward.
- Marine transport fatalities fluctuated substantially from year to year with an overall downward trend.
- Aviation fatalities fluctuated from year to year with no significant trend.

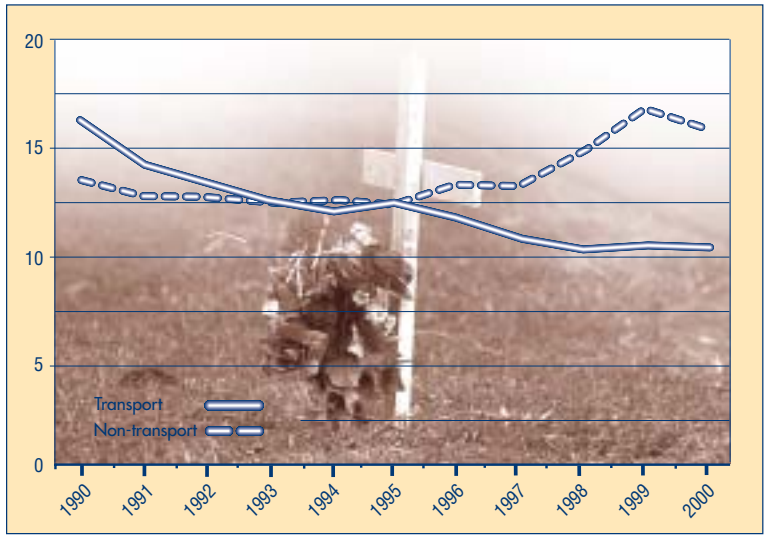
Table 2:
Australian transport fatalities by mode, calendar years 1992 to 2001

Year	Road	Rail	Marine	Aviation
1992	1974	61	80	49
1993	1953	52	69	53
1994	1928	43	58	51
1995	2017	46	55	39
1996	1970	30	60	43
1997	1768	43	46	28
1998	1755	43	46	46
1999	1765	41	51	40
2000	1823	34	38	37
2001	1737	..	..	41

Sources: *ATSB (road and aviation), Australian Bureau of Statistics (rail and marine).*
Note: *[..]Denotes data unavailable.*

Figure 1 compares transport and non-transport accident fatality rates for the latest available 10-year period. The transport fatality rate decreased substantially during the period 1990 to 2000 (from 16.7 to 10.5 fatalities per 100 000 of population), whereas the non-transport fatality rate increased from 13.8 to 16.3 fatalities per 100 000 population.

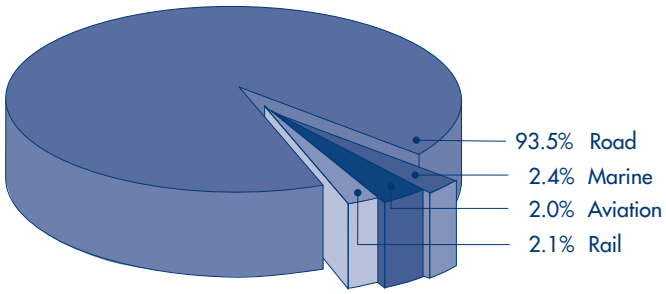
FIGURE 1:
Australian transport fatalities (all modes) and non-transport accident fatalities per 100 000 population, calendar years 1990 to 2000



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 93.5 per cent of total transport fatalities between 1997 and 2001.

FIGURE 2:
Australian transport fatalities by mode, calendar years 1997 to 2001

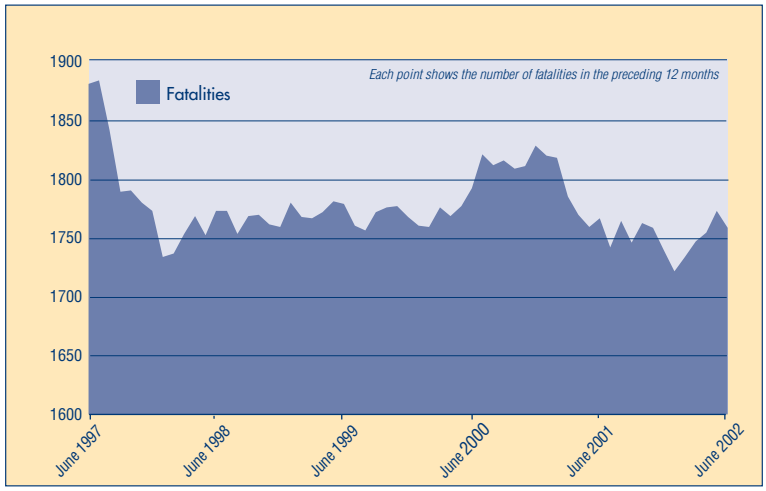


Source: *ATSB (road and aviation). Australian Bureau of Statistics (rail and marine). Marine and rail data were estimated for 2001.*

Road safety trends

Figure 3 shows the trend in Australian road fatalities for the five years ending June 2002. The period saw a 6.4 per cent fall in road fatalities, with road toll reductions most noticeable in 1997. The road toll fell that year by more than 200 against the previous three-year average. Net road safety gains, however, have plateaued since 1997. Although the calendar year 2001 recorded the lowest Australian road toll since 1950, there has been no significant decrease in the Australian road toll since late 1997. Fatalities increased by 2.1 per cent in the first six months of 2002 compared with the same period in 2001.

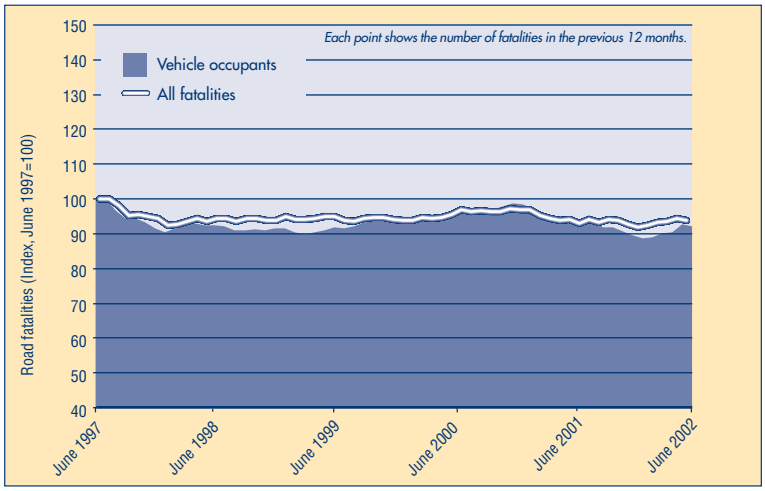
FIGURE 3:
Australian road fatalities, June 1997 to June 2002



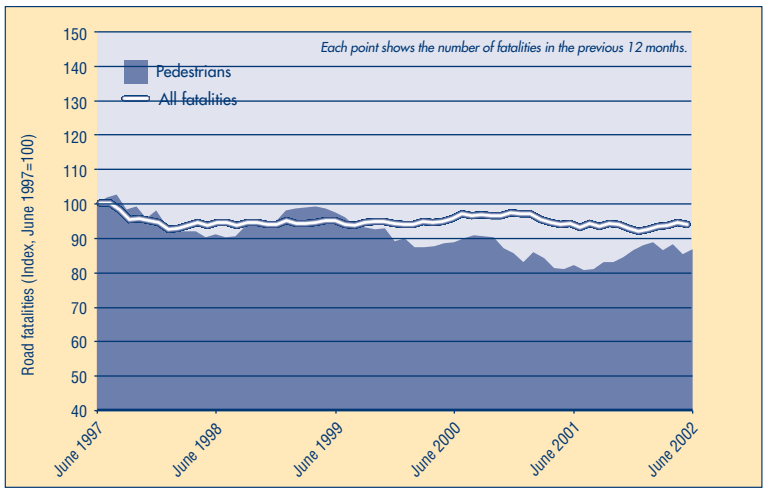
While fatalities among vehicle occupants, pedestrians and bicyclists have all decreased, they have not decreased substantially. In recent years, bicyclists have enjoyed the sharpest decline. Figure 4 shows bicycle fatalities decreased by 24 per cent in the five years to June 2002. Over the same period, pedestrian fatalities decreased by 13 per cent, while vehicle occupant fatalities decreased by 8 per cent. Motorcycle fatalities have trended substantially upwards, increasing by 31 per cent in the five years to June 2002.

FIGURE 4:
Australian road fatalities by road user group, June 1997 to June 2002

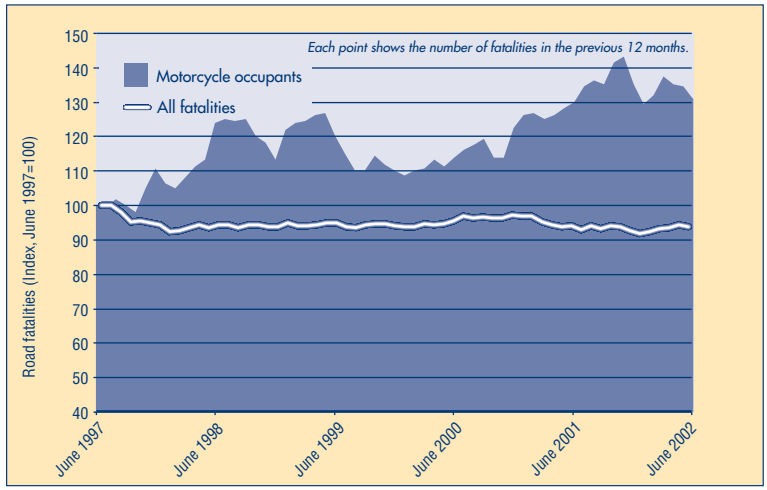
Vehicle occupants



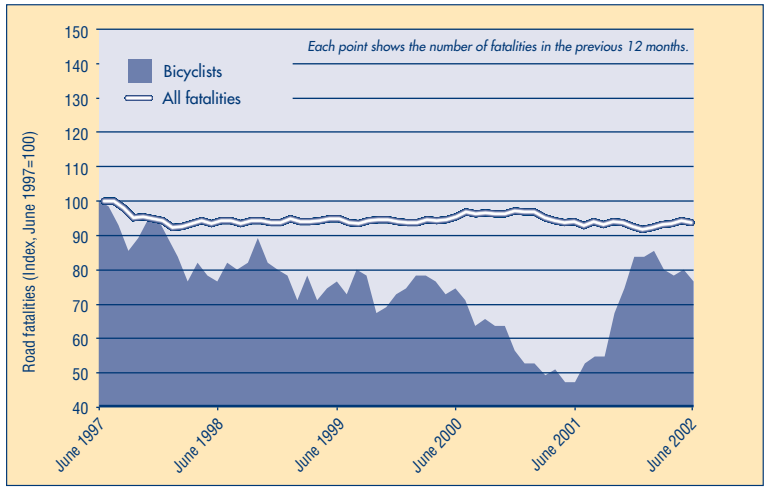
Pedestrians



Motorcycle occupants



Bicyclists



Turning to road fatality rates nationwide, Western Australia showed the largest per-cent decrease (39 per cent) in deaths per 100 000 population during the period 1996–2001 (see table 3). Victoria was the only state to record an increase in the number of road fatalities per 100 000 population.

Table 3:
Australian road fatalities per 100 000 population, calendar years 1996 and 2001

Year	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Australia
1996	9.4	9.1	11.5	12.3	14.0	13.5	39.6	7.5	10.8
2001	8.0	9.2	8.9	10.2	8.6	13.0	25.3	5.1	9.0
% change 1996 to 2001	-14.9	1.1	-22.6	-17.1	-38.6	-3.7	-36.1	-32.0	-16.7

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

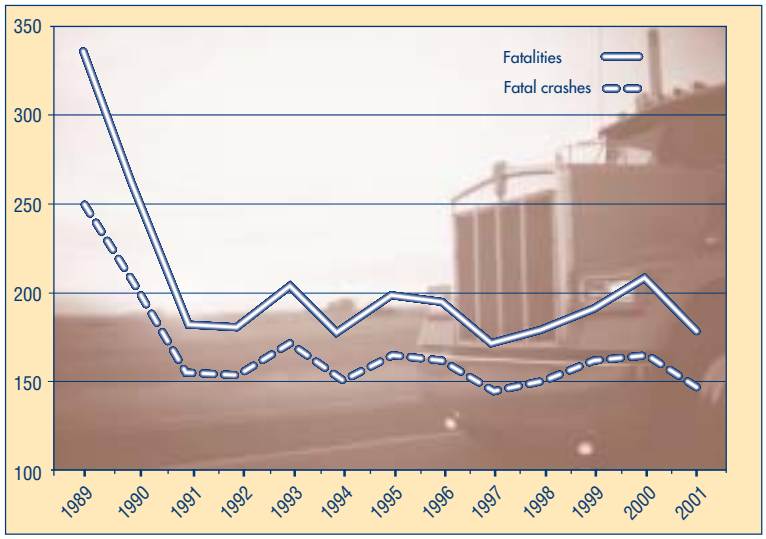
Truck safety trends

Table 4 shows that the number of fatalities involving articulated trucks in 2001 was lower than in the previous year. Despite this marginal improvement, the overall trend since the early 1990s has shown little change (see figure 5).

Table 4:
Australian road fatalities involving articulated trucks, calendar years 1997 to 2001

Year	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Australia
1997	71	27	35	18	14	4	2	0	171
1998	71	32	33	24	13	2	2	2	179
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

FIGURE 5:
Australian road fatalities and fatal crashes involving articulated trucks, calendar years 1989 to 2001

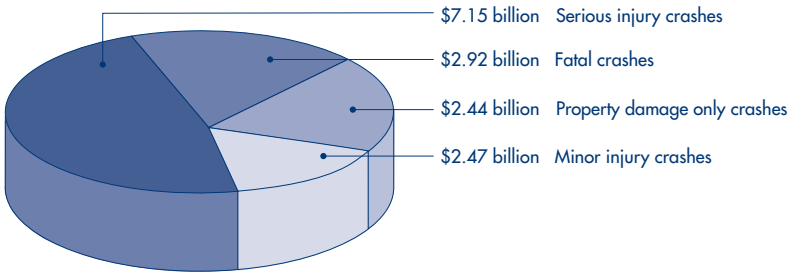


An Australian Truck Crash Database has been developed to investigate the full range of heavy-truck crashes that resulted in serious casualties.

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



Serious injury crashes are the largest contributor to the cost of road trauma.

Rail safety trends

Table 5 presents rail fatalities for the latest available 10-year period.

Table 5:
Australian rail fatalities, calendar years 1991 to 2000

Year	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Australia
1991	23	8	8	1	2	0	0	0	42
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	13	10	2	3	5	0	0	1	34

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

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

Marine safety trends

Tables 6 and 7 show database details of marine investigations from 1991 to 2002.

Table 6:
Australian marine investigations by incident type, 1 January 1991 to 30 June 2001, and 1 July 2001 to 30 June 2002

Incident type	1991–2001	2001–02	Total
Grounding	46	1	47
Collision	31	1	32
Fire	17	1	19
Foundering	8	0	8
Structure	5	0	5
Equipment	10	1	11
Berthing	6	1	7
Machinery damage	2	2	4
Accidents causing fatalities	15	2	17
Accidents causing serious injuries	8	1	9
TOTAL	148	10	159

Table 7:
Number of vessels involved in incident investigations by vessel type, 1 January 1991 to 30 June 2001 and 1 July 2001 to 30 June 2002

Vessel type	1991–2001	2001–02	Total
Bulk carrier	63	7	70
Tanker	22	0	22
Container	12	2	14
General	12	1	13
Roll on/roll off	5	0	5
Livestock	5	0	5
Supply/offshore	9	0	9
Tug	5	0	5
Training	4	0	4
Fishing vessel	20	1	21
Passenger	2	0	2
Pleasure	7	0	7
Other	6	0	6
TOTAL	172	11	183

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 in the country, with extremely low accident rates. And as table 8 shows, both high-capacity and low-capacity operations are very safe in terms of the number of accidents reported.

Accidents

Table 8 shows aviation accidents and fatal accidents over the 10-year period 1992 to 2001.

Table 8:
Accidents and fatal accidents involving Australian-registered aircraft by category, calendar years 1992 to 2001

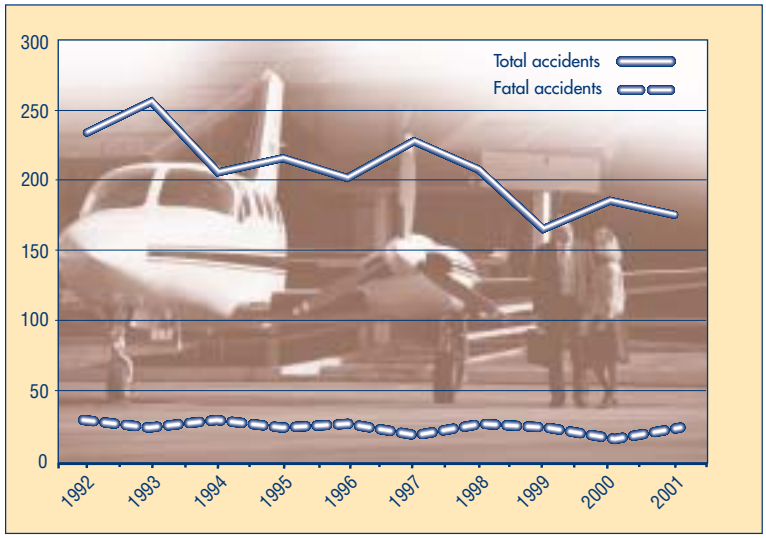
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
High-capacity										
All accidents	2	1	2	1	1	0	1	7[a]	3	3
Fatal accidents	0	0	0	0	0	0	0	0	0	0
Low-capacity										
All accidents	6	5	4	4[b]	2	0	2	3	3	3
Fatal accidents	0	1	0	1	0	0	0	0	1	0
General Aviation										
All accidents	234	257	206	216	203	229	208	166	187	176
Fatal accidents	26	22	25	22	23	17	23	21	16	22

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

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

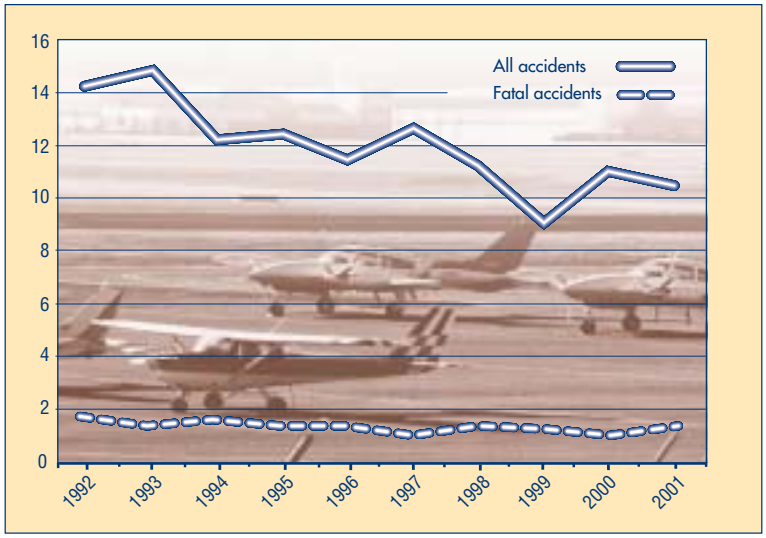
While caution needs to be exercised because of the small numbers involved, the table shows a low and stable pattern for accidents in both the high-and low-capacity Regular Public Transport categories. For the General Aviation sector, the number of accidents each year is larger and there is scope to examine trends with more confidence. Figure 7 shows all General Aviation accidents and fatal accidents over the decade to 2001.

FIGURE 7:
Fatal accidents and total accidents involving Australian-registered General Aviation aircraft, calendar years 1992 to 2001



The chart 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 shows accident rates for the General Aviation sector in Australia over the 10 years 1992 to 2001.

FIGURE 8:
Accidents involving Australian-registered General Aviation aircraft per 100 000 hours flown, calendar years 1992 to 2001



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

In addition to hours flown, accident rates can also be developed in terms of aircraft departures. Aircraft flying hours and departures are depicted in table 9 (high-capacity operations) and table 10 (low-capacity and charter operations). Information on charter operations is only available for hours flown.

Table 9:
Australian-registered high-capacity air transport traffic (departures and hours), calendar years 1992 to 2001

Year	Aircraft departures (thousands)	Hours flown (thousands)
1992	250.7	525.1
1993	258.5	553.5
1994	271.2	612.5
1995	293.4	666.1
1996	299.6	704.5
1997	295.1	718.2
1998	293.1	708.5
1999	293.4	709.5
2000	323.2	777.2
2001	339.9	798.8

Source: DOTARS Avstats

Table 10:
Australian-registered low-capacity and charter air transport traffic (departures, hours and charter hours), calendar years 1992 to 2001

Low-capacity

Year	Aircraft departures (thousands)	Hours flown (thousands)
1992	291.4	220.5
1993	305.1	230.4
1994	311.1	244.9
1995	310.1	248.1
1996	324.8	258.2
1997	325.0	276.7
1998	329.5	285.5
1999	331.3	285.4
2000	323.3	284.1
2001	274.5	245.4

Source: DOTARS Avstats

Charter

Year	Hours flown (thousands)
1992	407.0
1993	396.5
1994	427.2
1995	468.8
1996	483.3
1997	486.7
1998	497.5
1999	507.5
2000	479.7
2001	468.6

Sources: *DOTARS Avstats*

From 1992 to 2001, increased activity steadily raised the number of aircraft departures and hours flown in each aviation sector. The fall in low-capacity activity in 2001 can be attributed to reduced operations in the last quarter due to the collapse of Ansett, which limited the associated regional airlines' activity.

From 1992 to 2001, activity levels for the high-capacity airline sector increased while the low-capacity airline sector was relatively flat over more recent years. Charter activity has dropped over recent years.

Tables 11, 12 and 13 provide accident information for high-capacity, low-capacity and charter respectively, for the years 1993 to 2001. 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 has been a significant threat to public safety, while category 4 is used for occurrences where the facts do not indicate a serious safety deficiency. (For the current full definitions of the categories, see appendix 6.) 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 2001, 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 from 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 2001

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

(a) Includes five accidents while aircraft were on the ground; three of the seven were more serious.

Table 12:
Accidents involving Australian-registered low-capacity aircraft by investigation category, calendar years 1993 to 2001

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

Table 13:
Accidents involving Australian-registered charter aircraft by investigation category, calendar years 1993 to 2001

	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	0	9	24	1	34
1997	0	3	38	8	49
1998	1	3	37	0	41
1999	0	2	19	0	21
2000	1	3	7	15	26
2001	1	2	7	22	32

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 1992 to 2001

High-capacity

Year	Accidents per 100 000 departures	Accidents per 100 000 hours flown
1992	0.8	0.4
1993	0.4	0.2
1994	0.7	0.3
1995	0.3	0.2
1996	0.3	0.1
1997	0.0	0.0
1998	0.3	0.1
1999	2.4	1.0
2000	0.9	0.4
2001	0.9	0.4

Low-capacity

Year	Accidents per 100 000 departures	Accidents per 100 000 hours flown
1992	2.1	2.7
1993	1.6	2.2
1994	1.3	1.6
1995	1.3	1.6
1996	0.6	0.8
1997	0.0	0.0
1998	0.6	0.7
1999	0.9	1.1
2000	0.9	1.1
2001	1.1	1.2

Charter

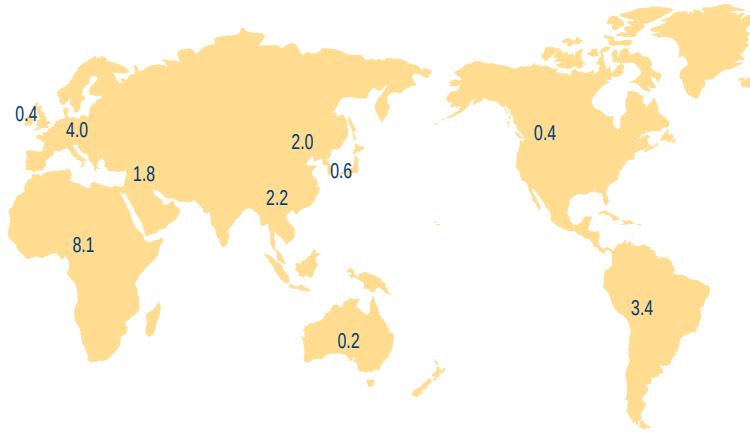
Year	Accidents per 100 000 hours flown
1992	9.1
1993	11.1
1994	11.5
1995	9.0
1996	7.0
1997	10.1
1998	8.2
1999	4.1
2000	5.4
2001	6.8

Note: Data for charter accidents per 100 000 departures 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 1.1 in 1998. 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.

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 2001

	Investigation category			
Year	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	34	1660	1704

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	0	12	44	297	353
1994	0	5	26	307	338
1995	0	0	26	294	320
1996	0	0	28	328	356
1997	0	4	156	277	437
1998	1	2	314	257	574
1999	0	2	289	382	673
2000	1	4	37	750	792
2001	0	3	16	715	734

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

	Investigation category			
Year	3	4	5	Total
1993	5	31	284	320
1994	2	15	290	307
1995	1	16	339	356
1996	0	21	342	363
1997	0	96	244	340
1998	1	187	218	406
1999	3	173	233	409
2000	0	16	414	430
2001	1	8	335	344

Although changes in investigation category definitions over time complicate comparisons, tables 15 and 16 show that over the period 1993 to 2001, the yearly number of reported incidents involving high-capacity and low-capacity air transport operations has steadily increased. The improvement in reporting suggests a growing safety culture within the airlines. The Bureau also contributed to the increase by adopting a more comprehensive incident recording policy during this period. To give one example, the Bureau now records all reported bird strikes instead of only those 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.

Table 18:
Incidents involving Australian-registered aircraft (high-capacity, low-capacity and charter), calendar years 1993 to 2001

High-capacity

Year	Incidents per 100 000 departures	Incidents per 100 000 hours flown
1993	260.3	121.6
1994	301.3	133.4
1995	264.5	116.5
1996	242.0	102.9
1997	285.6	117.4
1998	465.1	192.4
1999	548.8	226.9
2000	528.1	219.6
2001	501.4	213.3

Low-capacity

Year	Incidents per 100 000 departures	Incidents per 100 000 hours flown
1993	115.7	153.2
1994	108.7	138.0
1995	103.2	129.0
1996	109.6	137.9
1997	134.4	157.9
1998	174.2	201.0
1999	203.1	235.8
2000	244.9	278.8
2001	267.4	299.1

Charter

Year	Incidents per 100 000 hours flown
1993	80.7
1994	71.9
1995	75.9
1996	75.1
1997	69.9
1998	81.6
1999	80.6
2000	89.6
2001	73.4

Note: 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 has estimated that the cost of aviation accidents was close to $112 million in 1996 (see table 19).

Table 19:
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

The ATSB received funding of $12.407 million, including $0.273 million through revenue, to deliver its safety outputs in 2001–02. This funding included $0.500 million from Australian Land Transport Development (ALTD) administered funds for road safety public education and communication work.

Comparisons

	1999–00 ACTUAL $ million	2000–01 ACTUAL $ million	2001–02 ACTUAL $ million	2002–03 BUDGET $ million
ATSB Departmental expenses				
Employee expenses	7.421	9.137	8.236	8.642
Supplier expenses[1]	4.794	5.021	3.788	3.371
Depreciation/amortisation	0.119	0.156	0.240	0.181
Other expenses	0.287	0.277	0.144	0.000
Total Departmental expenses	12.622	14.591	12.407	12.194[2]
Revenue	0.163	0.256	0.273	0.200
Net cost to Department	12.459	14.335	12.134	11.994
Less DSU expenses[3]	-0.233	-0.233	0.000	0.000
Less Black Spot & Vehicle Recall expenses[4]	-0.586	-0.586	0.000	0.000
Revised net costs to Department	11.640	13.516	12.134	11.994
Plus devolution of corporate costs[5]	1.026	-0.203	-0.203	0.000
Comparable net costs to Department	12.666	13.313[6]	11.931	11.994
Capital expenditure				
Plant and equipment[7]	0.370	0.909	0.927	0.600
Staffing				
Average staffing level	116	114	105	95
Less DSU staff[8]	-4	-4	0	0
Less Black Spot & Vehicle Recall staff[9]	-8	-8	-8	0
Total comparable ASL	104	102	97	95

The 2002–03 Portfolio Budget Statements include the ATSB's Departmental expenses under Outcome Group 1 in three outputs. The Department's Business Services Division has provided corporate overhead and capital use charge funding to compare the ATSB's operating funding budget for 2000–01 and 2001–02 against the ATSB's budget for 2002–03.

ATSB funding by output ($ millions)

	2000–01 PBS	2001–02 PBS Revised	2002–03 PBS Revised
Output 1.1			
ATSB[10]	**1.798**	**1.169**	**1.093**
Corporate[11]	0.966	0.582	0.534
CUC[12]	0.016	0.016	0.016
Total	**2.780**	**1.767**	**1.643**
Output 1.3			
ATSB	**11.743**	**6.542**	**5.910**
Corporate	6.968	3.256	2.985
CUC	0.111	0.087	0.089
Total	**18.822**	**9.885**	**8.984**
Output 1.5			
ATSB		**4.992**	**5.191**
Corporate		2.485	2.278
CUC		0.067	0.068
Total		**7.544**	**7.537**
Total ATSB	**21.602**	**19.196**	**18.164**

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 *From the Department's viewpoint, the $0.5 million from ALTD was previously treated as 'revenue' whereas in 2002–03 it was an addition to operating funding provided to the ATSB.*

3 *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.*

4	*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.*
5	*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 in 2002–03. 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 subtract the IT funding. Other corporate costs that the Department manages and meets on behalf of the ATSB (such as legal, human resources and finance costs) are not included in these figures.*
6	*Actual funding in 2000–01 covered a number of one-off items.*
7	*ATSB agreed during 2001–02 to transfer responsibility for the management of all its current and future capital projects to the corporate group.*
8	*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.*
9	*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.*
10	*Direct funding to the ATSB.*
11	*Corporate overhead funding within the Department attributed to ATSB.*
12	*Capital use charge funding attributable to ATSB.*

Risk management

The ATSB's risk management plan describes key risks facing the Bureau and suggests how managers might respond to the more serious ones.

Major risks include:

- 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 or 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'.

Employees 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.

Due to the sensitive nature of their work, the Bureau's investigators have adopted extra policies on investigation ethics and conflict of interest (see *ATSB Annual Review 2000*, appendix 8).

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

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

Comparison of average staffing levels 2001–02 and 2002–03

Classification level	Actual 2001–02[1]	Projected 2002–03
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	7.3	6.5
Senior Transport Safety Investigator	37.2	40.0
Transport Safety Investigator	2.5	0.3
Executive Level 2	4.6	4.2
Executive Level 1	9.3	6.0
Australian Public Service Level 6	9.9	10.7
Australian Public Service Level 5	10.8	11.1
Australian Public Service Level 4	4.8	4.9
Australian Public Service Level 3	5.1	5.0
Australian Pubic Service Level 2	0.9	1.7
TOTAL	**97.4**	**95.4**

1 *The actual staffing level figure for 2001–02 excludes Black Spot and Vehicle Recall staff who transferred to other divisions following a restructure of the Department in January 2002.*

Training and development

Investors in People

The Bureau offers development opportunities to staff in accordance with the Secretary's Statement of Future Skills Requirements. It encourages employees to update their professional expertise and is committed to retaining its accreditation as an 'Investor in People'. As a knowledge-based organisation, the Bureau recognises that staff must continue to meet relevant work-level standards.

Training and development activities include:

- formal in-house courses
- on-the-job learning
- personal reading
- flight training
- external seminars and courses.

Diploma of Transport Safety Investigation

During 2001–02, the Bureau, with CIT Solutions, developed a Diploma of Transport Safety Investigation course to match the performance standards required of a level 2.1 transport safety investigator. The course will allow staff to develop their knowledge, skills and experience using formal structured learning, self-paced learning guides and on-the-job training. National accreditation was achieved in August 2002. Twelve staff expect to complete formal coursework leading to qualification at the Certificate IV level in Assessment and Workplace Training. This qualification is essential for trainers and assessors at the Diploma level.

In 2001–02, major accident preparedness remained a high development priority for aviation and surface safety. During the year:

- Selected investigators attended a gas turbine investigation course.
- Aviation staff participated in a major response and deployment exercise (Exercise Sprocket).

- The Melbourne Airport Airside Standards manager was invited to share information on how an emergency response centre operates. This has enabled the ATSB to clarify its procedures for operating the Major Accident Coordination Centre.

Human factors courses

The ATSB periodically offers an introductory, five-day course in human factors for transport safety investigators. The course provides a general overview of human factors in safety-critical systems and allows participants to improve their skills in accident analysis. Originally designed to meet the training needs of ATSB air safety investigators, the course is now available to a limited number of state and industry participants in aviation and other modes.

The ATSB held two courses in Canberra (2–6 July 2001 and 18–22 March 2002). About 25 participants attended each course. They included 10 ATSB investigators as well as defence staff and industry representatives.

The ATSB also held a human factors investigation methodology course for aviation safety investigators in Taipei (16–19 April 2002). The course showed participants how to handle human performance and organisation data.

Workforce planning

Replacing the Bureau's specialist staff is not always easy. To ensure that critical positions, such as those of transport safety investigators, remain filled, the ATSB monitors expected staff departures. Resources sometimes prevent duplicating or actively recruiting certain specialist positions ahead of time. The Bureau also keeps consultancy lists to augment Bureau staff if required.

Asset management

The ATSB has assets with a book value of $1.021 million,[1] including specialist computer equipment and software, a teleconferencing unit, and technical equipment such as microscopes. These assets are subject to depreciation. The write-down value of assets traded in or disposed of during the year was $0.059 million.

1 *Based on SAP book value information as at 30 June 2002.*

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 Bureau 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.

The National Road Safety Action Plan for 2001 and 2002 seeks to assist these groups. The ATSB helps apply the Strategy and the Action Plan by:

- conducting research and statistical programmes
- encouraging information exchange between jurisdictions.

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 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 Strategy and the Action Plan, the ATSB convened the Indigenous Road Safety Working Group and organised the Indigenous Road Safety Forum in 2001–02.

Disability strategy

The Department is also committed to the Commonwealth'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 Bureau provides online purchasing for relevant ATSB safety information products.

Other services and initiatives include:

- redeveloping the OASIS aviation occurrence database
- developing an online road fatality statistics database
- developing an online payment gateway for 'real-time' transaction processing
- developing a secure online Confidential Aviation Incident Report (CAIR) form.

Occupational health and safety

All ATSB investigators receive occupational health and safety training during their induction and are inoculated against possible field hazards.

In 2001–02, the Bureau provided blood-borne-pathogen training for 32 industry representatives considered likely to be asked to help with on-site ATSB accident investigations. The Bureau also addressed a number of deficiencies identified by an internal workplace health and safety inspection conducted throughout its offices and laboratories.

In 2001–02, the Bureau again offered influenza inoculations to staff. Thirty-four per cent of employees took up the offer.

Looking ahead

Projects to be undertaken in 2002–03 include:

- Develop the Commonwealth's role in rail safety data and investigation.
- Help the Minister progress the Transport Safety Investigation Bill and develop new regulations, updated policies and procedures, and memoranda of understanding with key stakeholders, and formalised investigator training to dovetail with the legislation.
- Investigate rail safety occurrences if commissioned by the states or the Northern Territory.
- Improve the targeting and timeliness of aviation and marine safety investigations.
- Implement and further improve the Transport Safety Investigator diploma course.
- Continue ATSB preparation for a possible major transport accident investigation.
- Monitor implementation of responsibilities under the National Road Safety Strategy and finalise a new Action Plan.
- Improve industry liaison to assess safety needs and the effectiveness of our outputs, convey key messages and receive feedback.
- Expand the Bureau's capacity to undertake aviation safety research and analysis.
- Continue improvements to the OASIS aviation database.
- Help further develop the Heavy Vehicle Safety Strategy and the Heavy Vehicle Crash Database and targeted research on fatigue.
- Complete the safety deficiency investigation of maintenance issues involving Ansett 767s and Class A aircraft.
- Complete the WA Police Air Wing Cessna 310 accident investigation.
- Assist in coronial inquests, including into the Burketown and Whyalla Airlines fatal accidents.

- Participate in industry safety forums.
- Produce a suite of information brochures for next-of-kin, the media, police, coroners and others.
- Develop an integrated Bureau website in cooperation with the Department. Provide online access according to government requirements and improve online access to ATSB safety material.

Because much of the Bureau's work is necessarily reactive, many investigations will be undertaken in 2002–03 that were unknown at the beginning of the new financial year.

For details of outcomes for which ATSB has primary responsibility under the 2002–03 Portfolio Budget Statements, see appendix 9.

Appendixes

Appendix 1: Performance against 2001–02 Portfolio Budget Statements

Output Group 1 – Policy Advice and Ministerial Services

Output 1.1 – Policy Advice and Legislation, Ministerial Services

Ministers and Ministers' offices satisfied with the quality of policy advice and legislation development, and Department meets standards for policy advice, legislation and ministerial services.

Activity	*Performance measures*	*Performance achieved*
Provide briefing material and responses to ministerial correspondence.	Provide up to 150 briefs (including Question Time briefs) and input for speeches covering release of high-profile reports and transport safety issues.	ATSB prepared 121 briefs, including Question Time briefs. Briefs on high-profile reports and transport safety issues were all considered satisfactory by the Minister's office.
	Prepare up to 180 draft replies to ministerial correspondence.	ATSB provided 122 draft replies to ministerial correspondence, 119 of which were considered satisfactory by the Minister's office.
	Provide up to 20 responses to parliamentary questions, and prepare briefs for parliamentary committees (including Senate Estimates hearings).	ATSB responded to 39 parliamentary questions including those from Senate Estimates hearings, and prepared 41 briefs prior to parliamentary committee hearings.

Output 1.3 – Safety Services

Publications to increase and improve stakeholder knowledge of transport safety, and to contribute to policies, strategies and action plans.

Stakeholder acceptance of safety messages, including consideration and implementation of recommendations, safety advisory notices and other safety actions

Publications are in accordance with Departmental standards.

Activity	*Performance measures*	*Performance achieved*
Issue notifications (Alert Bulletins and For Your Information notifications) as a result of Confidential Aviation Incident Reporting (CAIR) system investigations.	Issue up to 150 notifications resulting from CAIR reports (median processing time three days). Note: Target includes both Alert Bulletins and For Your Information notifications.	ATSB issued 187 CAIR notifications.
Issue Safety Recommendations and Safety Advisory Notices to relevant organisations, addressing safety concerns arising from investigations, data analyses and safety research.	Issue Safety Recommendations and Safety Advisory Notices (median processing time 180 days).	ATSB issued 86 Safety Recommendations (42 aviation, 12 marine and 32 rail) and 10 Safety Advisory Notices (median processing time 67 days). Significant safety action occurred during investigations, obviating the need to make recommendations.
Publish reports resulting from transport investigations.	Publish up to 100 aviation reports (median processing time 270 days) and up to 12 marine reports (median processing time 310 days).	ATSB published 118 aviation reports (median processing time 317 days) and six marine reports. The Bureau also published, or forwarded to clients for publication, three rail investigation reports (median processing time 178 days).
Publish findings from safety research.	Develop the road-safety research programme and publish research findings from approximately six research project reports. Develop an aviation safety research programme and publish approximately two reports as a result of conducting safety-related research projects.	ATSB published research findings from six road-safety research projects. ATSB launched five aviation-safety research projects but no final reports were published by 30 June 2002.

Activity	Performance measures	Performance achieved
Develop transport safety investigation legislation.	Assist in introducing a Bill in parliament with an appropriate explanatory memorandum and other supporting material. Prepare it in accordance with government and parliamentary requirements.	The Transport Safety Investigation Bill was introduced in parliament on 20 June 2002. Regulations are being developed.
Review the new National Road Safety Strategy and Action Plan.	Produce an annual review of the National Road Safety Strategy. Chair two road-safety panel meetings. Prepare annual reviews and two-yearly revisions to Action Plan for November meetings of ATC. Report on progress every six months.	ATSB chaired two road- safety panel meetings and a related Indigenous Road Safety Working Group, and submitted two progress reports on the National Road Safety Strategy and Action Plan to SCOT.
Provide safety-related policy advice.	Provide advice at up to six meetings of ATC/SCOT and its sub-structure. Chair or provide advice at up to four Austroads Road Safety Programme meetings. Provide advice at (or report on) up to 12 major international and national safety forums and advisory groups. Ensure advice is consistent with requirements of ATC and other relevant bodies. Report on progress quarterly.	ATSB attended and assisted at two SCOT and two Rail Group meetings, and provided relevant briefing within required timeframes for these meetings. The ATC did not meet during 2001–2002. ATSB chaired and advised at six Austroads Road Safety Programme meetings. ATSB attended the ITSA annual conference in Helsinki and ISASI's annual seminar in Victoria, Canada. The Bureau chaired the MAIIF annual meeting at Pusan, South Korea, participated in an IMO subcommittee in London, and conducted the IMO's marine accident investigators' training course in Hong Kong. ATSB also attended the RAPS flight recorder conference, the Flight Safety Foundation, a cabin safety symposium and a human factors symposium.

Activity	*Performance measures*	*Performance achieved*
Publish analyses of transport safety statistics and provide access to transport safety statistics.	Publish or provide: • at least two aviation sector safety bulletins • up to four aviation quarterly safety deficiency reports • up to 50 Weekly Summary of Occurrence reports • up to six Flight Safety Supplements for CASA's ***Flight Safety*** magazine.	ATSB published 48 Weekly Summary of Occurrence reports, and provided six Flight Safety Supplements for CASA's ***Flight Safety*** magazine.
Respond to requests for safety-related information and expert advice or assistance in safety-related matters.	Contribute to up to 15 investigations of international transport incidents and accidents. Provide up to 3000 responses to requests for information, 30 responses to FOI requests, and 10 responses to subpoenas and writs. Provide expert advice and evidence at up to five inquests and legal hearings.	ATSB contributed to 17 investigations of international transport incidents and accidents involving estimated direct costs of over $34 000. ATSB provided 13 673 responses to requests for information, 28 responses to FOI requests, and eight responses to subpoenas. ATSB provided expert advice and evidence at six inquests.
Promote safety-related information.	Deliver up to 100 presentations to industry and conferences. Deliver up to four training courses each financial year. Publish ***ATSB's Annual Review.***	ATSB delivered 83 presentations to industry and conferences and delivered nine training programmes. ATSB published its ***Annual Review 2001***.
Monitor domestic, overseas and flying training of ATSB staff.	Ensure ATSB staff receive adequate training.	ATSB spent $210 785 on domestic, overseas and flying training in 2001–2002 where this was identified. Other training occurred via Studybank, in-house courses and through attendance at conferences as well as on-the-job.

Appendix 2: Transport Safety Investigation Bill—Second Reading Speech

2002
THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA

HOUSE OF REPRESENTATIVES

TRANSPORT SAFETY INVESTIGATION BILL

SECOND READING SPEECH

(Circulated by authority of the
Minister for Transport and Regional Services,
the Honourable John Anderson, MP)

TRANSPORT SAFETY INVESTIGATION BILL

The provisions for transport safety investigation by the Australian Transport Safety Bureau contained in the Transport Safety Investigation Bill 2002 are important to maintain and improve aviation, marine and rail safety outcomes for the Australian transport industry and for fare-paying passengers and freight customers.

The Bill deals with the ATSB Executive Director's modal powers with respect to: mandatory reporting of and the conduct of independent safety investigations into transport safety matters; the making of safety action statements, including safety recommendations; and the publication of safety investigation reports and other safety material. The Bill reinforces the ATSB's role as a multi-modal safety body similar to the Canadian Transportation Safety Board and the National Transportation Safety Board (NTSB) in the United States.

The Bill replaces and aligns the existing legislative authority for ATSB aviation and marine safety investigations contained in Part 2A of the *Air Navigation Act 1920* and in the *Navigation (Marine Casualty) Regulations* under the *Navigation Act 1912*. It also provides for Australia's compliance with international aviation and shipping agreements, including Annex 13 to the Chicago Convention and International Maritime Organisation (IMO) resolutions.

Interstate rail safety investigation is also included in recognition of rail's growing importance. In recent years there has been tremendous change in the rail industry in Australia. This has included the change from predominantly state-based vertically integrated public ownership to increasingly commercialised and privatised entities trading across state borders. The Commonwealth has sold the Australian National Railways Commission and its share in the National Rail Corporation and is supporting the growing role of the Australian Rail Track Corporation in respect of national rail infrastructure.

The Government wishes rail reform to progress and to see rail's efficiency improve and its carriage of freight and passengers increase. But amidst rapid change, it is important that there be no diminution of safety. One proven means of maintaining and improving safety is to independently investigate accidents and incidents and publicly report on any necessary safety action. The Government has accepted the view of the House of Representatives Standing Committee on Communications, Transport and Microeconomic Reform that the Commonwealth through the ATSB should have an investigation role on the interstate rail system. This is consistent with the provisions of the 1996 Intergovernmental Agreement on Rail Safety, which encourages Commonwealth, State and Territory governments to enact legislation for rail safety. However, at this time the Government is not proposing to legislate to regulate interstate rail - regulation will continue to be managed at the state level.

There continues to be few truly independent state investigations of serious interstate rail occurrences and a number of state reports have not been made public. Most investigations continue to be conducted through State and Territory regulators and/or the operators involved in the occurrence which, as noted in the NSW Glenbrook inquiry, raises issues of real or perceived conflict-of-interest. NSW reports examined by the Glenbrook Commissioner also fell short of best practice in not getting to the root causes of why an accident occurred. An independent ATSB role in interstate rail investigation will foster better practice and safety across the industry. The ATSB may still undertake intrastate rail investigations if requested to do so under state legislation.

The key principles of best practice safety investigation reinforced by the Bill include operational independence free from external pressures and conflicts of interest along with professionalism, skill and objectivity. Without these, the transport industry may be less confident and willing to accept and act upon the recommendations

of an investigation. The public may insist on a much more expensive judicial inquiry.

Central, is ATSB's independence from parties or actions that may have been directly involved in the safety occurrence or that had some influence on the circumstances or consequences of that occurrence. For example, the ATSB must be free to investigate and comment on any significant role of the regulator in a particular occurrence and as such must not itself play a regulatory role in the industry. The Executive Director is also not subject to a direction by the Minister or the Secretary in relation to the exercise of powers under the Bill. The Minister can direct that an investigation be initiated.

More complex safety investigations, where a significant safety benefit is judged likely, will be conducted systemically. Looking beyond the proximal causes of an accident or incident to an understanding of underlying factors, such as organisational issues, has the potential to reveal aspects of broader safety issues that may need to be addressed. Professor James Reason's model of hazards and defences has been adopted by key international bodies such as International Civil Aviation Organization and the International Maritime Organisation as the recommended investigation methodology. According to Reason, most accidents and incidents involve human factors and in 90 per cent of such cases no malice is intended.

Often referred to as the 'no-blame' approach, it does not equate with 'no responsibility'. It simply means that disciplinary action and criminal or liability assessment are not part of an ATSB safety investigation and should, if necessary, be progressed through separate parallel processes. Witnesses, particularly operational crew who may be in possession of vital safety information, must be free to provide this information to the ATSB without fear of self-incrimination or retribution. The TSI Bill provides protection for these individuals to enable safety investigators to better understand causal factors in order that future accidents may be prevented. Placing restrictions on the disclosure and use of such information obtained under the provisions of the Bill is also consistent with Australia's international obligations.

For those few transport occurrences where malice may be involved, regulators, police and others may conduct a parallel investigation to ascertain blame or fault so that deliberate wrongdoing is not tolerated. This is an important part of a 'just culture'.

While maintaining a separate process, the Government wishes the ATSB under the Bill to continue its current practice of liaising with other agencies in order that, to the extent possible, the objectives of all agencies may be met. Cooperation and communication between federal agencies is the only way to work effectively. Lack of cooperation between agencies was a concern in the 1996 TWA 800 accident in the US in which a 747 crashed shortly after takeoff from New York with the loss of 230 lives. In the early stages of that investigation, it was not clear whether the crash was the result of an operational problem or of a criminal act. The NTSB experienced difficulties when the Federal Bureau of Investigation, conducting its own investigation, seized evidence without informing the NTSB. This action denied the NTSB, the technical experts in transport accident investigation, a timely opportunity to view and analyse evidence.

On 11 September 2001 the cause of the aircraft crashes was clearly terrorist activity. The NTSB immediately accepted a secondary role and provided expert assistance to the FBI in any way it was able. Following the American Airlines Airbus 300 accident in New York last November, in which 265 lives were lost, it was initially unclear whether criminal activity was involved. However, a public announcement was made early in the investigation stating that the NTSB would remain the lead agency until evidence of criminality was established. Based on this, the two agencies are currently seeking to conclude a Memorandum of Understanding covering future situations and this is also the model that the ATSB will follow with Australian police agencies.

In relation to liaison with other agencies such as regulatory authorities or occupational health and safety agencies, ATSB would maintain a primary investigation role but seek to cooperate where possible as covered in clause 10 of the Bill. In a case of terrorism, the ATSB would not seek to investigate and the Australian Federal Police would therefore have clear priority. The Bill acknowledges the legitimate activities of state coroners and other agencies in relation to investigation. The ATSB will seek to minimise unnecessary duplication of investigation activities through the revision and development of Memoranda of Understanding and related protocols with coroners and other agencies, for example, in relation to physical evidence.

While much of the Bill provides for the protection of information gathered during the course of an investigation, other provisions provide for its controlled disclosure for safety purposes. There is

provision for a 'directly involved party' process whereby a copy of a draft investigation report may be provided to persons or organisations with relevant knowledge. This process allows those persons to view the draft report and make submissions to ensure that it is factually correct. In some cases this is required under Annex 13. Severe penalties have been introduced for the unapproved disclosure of draft reports. This is because such disclosure, as occurred with the ATSB's Whyalla Airlines report, could be seriously misleading, unfairly tarnish reputations and could impede the crucial future free flow of safety information to the ATSB.

The Bill provides under clause 21 that the Executive Director has discretionary power to investigate unless the Minister directs that a particular investigation be initiated. In practice, a determination about whether to investigate and to what extent, will be influenced primarily by the potential safety value that may result from investigating a particular accident or incident in light of resources available for investigation. While final investigation reports must be published, if an investigation is terminated before it is finalised the reasons for doing so must be published.

The Bill contains specific provisions for the treatment of On-Board Recording or OBR information, covering cockpit voice recorders and like devices installed purely for safety purposes. OBR information may only be disclosed under limited circumstances. In recognition of the potentially vital evidence that it may contain, OBR information is generally admissible in criminal and coronial proceedings. However, consistent with existing aviation arrangements and international agreements, there can be no OBR use in proceedings against crew members.

The Government believes that genuine respect and cooperation between the ATSB and state and territory coroners' courts is extremely important given their overlapping roles and joint mission and should be enhanced through memoranda of understanding after the passage of the TSI Bill. Coroners provide the Bureau with often crucial autopsy and pathology evidence. The Bill provides coroners with greater certainty in relation to the disclosure by the ATSB of OBR information and physical evidence for the purposes of coronial inquiries. Final investigation reports may be admitted as evidence in coronial inquiries and, at the request of the coroner, ATSB investigators will be made available to provide expert opinion or factual information arising from their involvement in an investigation.

It is important that investigators have sufficient power to act quickly to access, preserve and collect evidence at accident sites and in transport vehicles that are referred to in the Bill as 'Special premises'. Delays could mean the loss of critical evidence because it has perished or has been removed, damaged or changed in some way. Those provisions are generally consistent with current legislation in the marine and aviation transport modes and reflect similar legislation in other countries. Sensitive information gathered in the course of a safety investigation conducted under the provisions of the Bill is referred to as 'Restricted Information'. Restricted Information cannot be disclosed for the purposes of a criminal investigation except for an offence against the Bill. These provisions reinforce the notion that safety investigation processes and those relating to criminal prosecutions should be separate.

Further guidance on Immediate and Routine Reportable Matters is to be provided in the regulations. Responsible persons for the purposes of mandatory reporting will normally include only those with an operational connection to the transport vehicle such as the crew, the owner or operator of the transport vehicle, or persons performing vehicle control duties such as Air Traffic Control. In marine and rail modes it may be more efficient and desirable in some instances to report through regulatory bodies.

ATSB recommendations arising from the identification of safety issues will usually be couched in broad terms that address the desired safety outcome but do not prescribe in detail the means to achieve it. This is generally better left to regulators and other organisations with the technical knowledge and consultative processes to make appropriate risk-based and cost-effective safety changes within their modes.

The Commonwealth Parliament and Royal Commissions are not bound by information restriction provisions within the Bill. Although it would be expected that inquiries would seek to maintain protection for sensitive ATSB safety information. Current arrangements under the *Freedom of Information Act 1982* do not provide certainty for the protection of ATSB records relating to investigations which, if made available, may adversely affect current or future investigations. This situation is to be rectified by amending the Freedom of Information Act at the same time as the TSI Act comes into force to exempt OBR and Restricted Information for FoI purposes.

The introduction of the TSI Act will serve to maintain and improve the already excellent safety outcomes of the Australian aviation, marine and rail transport industries. The Act will have a safety benefit for both industry and fare-paying passengers by providing the means for the ATSB to conduct best practice safety investigations in all three modes and thereby help to prevent future accidents. Consequential amendments are made in a short separate Amendment Bill.

Appendix 3: Investigation reports released in 2001–02 by mode

Rail

Report title	Date issued to client
Collision Between Suburban Electric Passenger Train 6369 And The Empty Express Electric Train 6371 Footscray Victoria 5 June 2001	Nov 2001
Derailment of Coal Train EG37 Connors Range 1 July 2001	26 Oct 2001
Derailment of Passenger train 8622, Sydney – Melbourne Daylight XPT Service, Wodonga, Victoria 25 April 2001	6 Jun 2002

Marine

Report number	Vessel(s)	Occurrence date	Location	Date released
150	*Sun Breeze*	21 Aug 1999	Off port of Bunbury, WA	6 Jul 2001
154	*Barents Sea* and *Sea Wasp*	09 Feb 2000	Off east coast of Australia	27 Jul 2001
158	*Al Deerah*	30 Apr 2000	Garden Island, in the Tamar River, Tas.	14 Sep 2001
155	*Hai Teng* and *Chester*	19 Mar 2000	East of Mooloolaba, Qld	20 Dec 2001
156	*Silver Bin* and *Chinderah Star*	25 Mar 2000	Off north Qld coast of Australia	14 Jan 2002
161	*Wyuna*	19 Oct 2000	Tamar River, Tas.	27 Mar 2002

Occurrence number	Occurrence date	Occurrence type	Registration	Location	State	Date released
199905037	27 Oct 1999	Accident	N62J	14 km W Hernani	NSW	03 Jul 2001
200000933	02 Mar 2000	Incident	VH-OGS	Atmap (IFR)	Other	13 Jul 2001
200005295	11 Nov 2000	Incident	VH-EWR	West Maitland VHF omnidirectional radio range	NSW	13 Jul 2001
200005967	12 Dec 2000	Incident	VH-MJV	Tamworth Airport	NSW	13 Jul 2001
200101782	23 Apr 2001	Incident	VH-XFX	83 km W Dalby authorised landing area	Qld	13 Jul 2001
200001153	03 Apr 2000	Accident	VH-SXK	Shepparton aerodrome	Vic.	16 Jul 2001
200100622	15 Feb 2001	Incident	VH-OJN	15 km SW Bangkok Airport	Other	16 Jul 2001
200003056	18 Jul 2000	Accident	VH-JWZ	4 km NW El Questro authorised landing area	WA	23 Jul 2001
200004914	26 Oct 2000	Incident	VH-EUB	Lilydale authorised landing area	Vic.	23 Jul 2001
200100741	22 Feb 2001	Incident	VH-OJJ	111 km E Los Angeles Airport	Other	26 Jul 2001
200101729	20 Apr 2001	Accident	VH-NKB	8 km WSW Goulburn non-directional beacon	NSW	26 Jul 2001
200101065	10 Mar 2001	Accident	VH-LPO	Evatt	ACT	09 Aug 2001
200001876	20 May 2000	Serious incident	VH-FNU	28 km E Cairns Airport	Qld	17 Aug 2001
199902419	06 May 1999	Incident	VH-TAG	9 km ENE Perth VHF omnidirectional radio range	WA	23 Aug 2001
200000520	09 Feb 2000	Incident	VH-OGN	AGAGO (IFR)	SA	23 Aug 2001
200102089	12 May 2001	Incident	VH-OGL	Singapore Changi Airport	Other	23 Aug 2001
199903995	09 Aug 1999	Incident	VH-CZB	Sydney Airport	NSW	05 Sep 2001
200101405	26 Mar 2001	Incident	VH-LTW	59 km WNW Devonport non-directional beacon	Tas.	10 Sep 2001
200003023	05 Jul 2000	Incident	VH-OLL	56 km S Maitland	NSW	12 Sep 2001

Occurrence number	Occurrence date	Occurrence type	Registration	Location	State	Date released
200003091	16 Jul 2000	Incident	VH-KDQ	13 km NNW Sydney Airport	NSW	14 Sep 2001
200003793	30 Aug 2000	Incident	VH-IRQ	Cairns Airport	Qld	14 Sep 2001
200101952	03 May 2001	Accident	VH-IMH	Cooma aerodrome	NSW	14 Sep 2001
200103089	13 Jul 2001	Incident	VH-DFQ	Warnervale authorised landing area	NSW	14 Sep 2001
200102697	18 Jun 2001	Incident	VH-UUN	Cooktown aerodrome	Qld	16 Sep 2001
200000893	13 Mar 2000	Accident	VH-ILM	15 km WNW Bankstown Airport	NSW	17 Sep 2001
200000932	18 Mar 2000	Accident	VH-DNP	2.5 km NNW Moorabbin Airport	Vic.	19 Sep 2001
200000868	10 Mar 2000	Accident	VH-EPE	11 km SW Warragul	Vic.	19 Sep 2001
200002700	27 Jun 2000	Accident	VH-TLO	Broome aerodrome	WA	19 Sep 2001
200004072	26 Aug 2000	Incident	VH-NOA	Amsterdam	Other	19 Sep 2001
200100905	15 Feb 2001	Incident	VH-CZX	56 km SW Sydney Airport	NSW	19 Sep 2001
199901073	12 Mar 1999	Accident	VH-CZL	Melbourne Airport	Vic.	24 Sep 2001
200004191	12 Sep 2000	Accident	VH-ADU	9 km NW Inverell aerodrome	NSW	24 Sep 2001
200003093	17 Jul 2000	Incident	VH-PRF	12 km SSW Alice Springs Airport	NT	25 Sep 2001
200100959	05 Mar 2001	Incident	B-HXI	139 km N Sydney VHF omnidirectional radio range	NSW	25 Sep 2001
199905646	25 Nov 1999	Incident	VH-STO	41 km NE Hayman Island helicopter landing site	Qld	27 Sep 2001
200003412	01 Aug 2000	Incident	VH-WGB	Tennant Creek	NT	27 Sep 2001
200006013	11 Dec 2000	Incident	VH-EXU	East Sale Airport	Vic.	04 Oct 2001
200100346	28 Jan 2001	Accident	VH-BZO	1.3 km NW Canberra Airport	ACT	05 Oct 2001

Occurrence number	Occurrence date	Occurrence type	Registration	Location	State	Date released
200103962	20 Aug 2001	Incident	VH-WAJ	Perth Airport	WA	05 Oct 2001
200104684	28 Sep 2001	Accident	VH-ECT	Latrobe Valley aerodrome	Vic.	15 Oct 2001
200002485	13 Jun 2000	Serious incident	VH-ANY	167 km NW Darwin Airport	NT	18 Oct 2001
200003847	30 Aug 2000	Incident	VH-XYF	9 km E Townsville Airport	Qld	18 Oct 2001
200002060	23 May 2000	Serious incident	VH-CZA	19 km S Gibraltar non-directional beacon	NSW	19 Oct 2001
200005030	01 Nov 2000	Serious incident	B-2380	Sydney Airport	NSW	24 Oct 2001
200100584	07 Feb 2001	Incident	VH-EXN	Longford helicopter landing site	Vic.	24 Oct 2001
200004707	14 Oct2000	Incident	VH-TJN	Hobart	Tas.	25 Oct 2001
200100035	02 Jan 2001	Incident	VH-HVA	Gunnedah aerodrome	NSW	25 Oct 2001
200101606	09 Apr 2001	Serious incident	VH-RMO	Sydney Airport	NSW	07 Nov 2001
200101866	22 Apr 2001	Incident	VH-EAA	Darwin Airport	NT	07 Nov 2001
200003267	29 Jul 2000	Accident	VH-LDR	30 km S Yarromere Station	Qld	12 Nov 2001
200101409	01 Apr 2001	Accident	VH-TJX	Melbourne Airport	Vic.	16 Nov 2001
200104707	29 Sep 2001	Accident	VH-XLX	Southport aerodrome	Qld	20 Nov 2001
200103430	02 Aug 2001	Incident	YJ-AV18	Melbourne Airport	Vic.	26 Nov 2001
200103923	17 Aug 2001	Incident	VH-TQX	Narrabri aerodrome	NSW	26 Nov 2001
200100135	15 Jan 2001	Incident	VH-OJT	106 km NE Maui (OGG) VORTAC	Other	29 Nov 2001
200103164	16 Jul 2001	Incident	VH-JOH	5 km NNW Cairns VHF omnidirectional radio range	Qld	30 Nov 2001
200004806	29 Jun 2000	Incident	VH-FYF	9 km S Williamtown Airport	NSW	04 Dec 2001

Occurrence number	Occurrence date	Occurrence type	Registration	Location	State	Date released
200102239	23 May 2001	Accident	VH-AID	60 km S Townsville Airport	Qld	04 Dec 2001
200001370	21 Apr 2000	Accident	VH-EBW	Rome Airport	Other	05 Dec 2001
200002644	10 Jun 2000	Incident	VH-KEQ	Wagga Wagga aerodrome	NSW	05 Dec 2001
200104092	29 Aug 2001	Accident	VH-SHP	Mount Archer	Qld	05 Dec 2001
200005684	29 Nov 2000	Incident	VH-TJP	Melbourne Airport	Vic.	06 Dec 2001
200003233	03 Aug 2000	Accident	VH-EFA	4 km NNE Cairns Airport	Qld	07 Dec 2001
200003949	02 Sep 2000	Accident	VH-IXG	24 km NNE Port Keats aerodrome	NT	07 Dec 2001
200003594	20 Jun 2000	Incident	VH-YAB	4 km NE Armidale non-directional beacon	NSW	07 Dec 2001
200005948	02 Dec 2000	Serious incident	VH-KFN	102 km W Southern Cross	WA	11 Dec 2001
200102544	09 Jun 2001	Incident	VH-TTX	4 km SE Bathurst Island aerodrome	NT	11 Dec 2001
200002157	31 May 2000	Accident	VH-MZK	28 km SE Whyalla aerodrome	SA	19 Dec 2001
200100477	03 Feb 2001	Incident	VH-AFR	19 km N Melbourne Airport	Vic.	20 Dec 2001
200102619	31 May 2001	Incident	VH-FFJ	Sydney Airport	NSW	09 Jan 2002
200103433	01 Aug 2001	Incident	VH-CZK	Canberra Airport	ACT	09 Jan 2002
200100347	28 Jan 2001	Accident	VH-SIS	Logan Village	Qld	09 Jan 2002
200000492	13 Feb 2000	Serious incident	VH-NTL	Williamtown Airport	NSW	11 Jan 2002
200103655	08 Aug 2001	Accident	VH-KAD	Mount Isa Airport	Qld	15 Jan 2002
200004791	19 Oct 2000	Incident	VH-KZL	278 km E Darwin Airport	NT	18 Jan 2002
200100889	25 Feb 2001	Incident	VH-CZE	46 km N Melbourne Airport	Vic.	21 Jan 2002

Occurrence number	Occurrence date	Occurrence type	Registration	Location	State	Date released
200101080	05 Mar 2001	Incident	VH-MIZ	2 km S Canberra Airport	ACT	22 Jan 2002
200101537	10 Apr 2001	Accident	VH-UJB	85 km N Cairns Airport	Qld	22 Jan 2002
200101747	18 Apr 2001	Incident	VH-TAX	5 km W Melbourne VHF omnidirectional radio range	Vic.	22 Jan 2002
200102326	29 May 2001	Incident	VH-TJR	Cairns Airport	Qld	22 Jan 2002
200103240	22 Jul 2001	Incident	VH-TAW	Christchurch Airport	Other	22 Jan 2002
200105273	02 Nov 2001	Incident	VH-AHV	9 km N Mareeba aerodrome	Qld	22 Jan 2002
200105351	04 Nov 2001	Incident	VH_BZI	Brisbane Airport	Qld	22 Jan 2002
200101999	05 May 2001	Incident	VH-EAB	Darwin Airport	NT	23 Jan 2002
200101996	06 May 2001	Incident	VH-NLH	GUTEV (IFR)	Other	24 Jan 2002
200100445	30 Jan 2001	Serious incident	A6-EMM	Melbourne Airport	Vic.	30 Jan 2002
200101776	24 Apr 2001	Incident	VH-OJJ	Sydney Airport	NSW	31 Jan 2002
200101788	11 Apr 2001	Accident	VH-SHK	8 km WSW Archerfield Airport	Qld	04 Feb 2002
200200022	07 Jan 2002	Accident	VH-UDG	Moruya aerodrome	NSW	07 Feb 2002
200105698	03 Dec 2001	Accident	VH-FIA	Kingscote aerodrome	SA	14 Feb 2002
200105518	20 Nov 2001	Incident	VH-OGN	2 km ESE Howard Springs Locator	NT	21 Feb 2002
200100252	18 Jan 2001	Accident	VH-PHG	3 km N Bencubbin	WA	25 Feb 2002
200105660	29 Nov 2001	Incident	VH-CUZ	130 km E Osborne Mine authorised landing area	Qld	25 Feb 2002
200102538	10 Jun 2001	Incident	VH-KAX	Jabiru authorised landing area	NT	04 Mar 2002
200003951	30 Aug 2000	Incident	VH-YDD	167 km SE Dili Airport	Other	05 Mar 2002

Occurrence number	Occurrence date	Occurrence type	Registration	Location	State	Date released
200102455	05 Jun 2001	Incident	VH-SWP	170 km E Darwin non-directional beacon	NT	05 Mar 2002
200003725	30 Aug 2000	Incident	VH-YDD	83 km SE Dili Airport	Other	06 Mar 2002
200003771	04 Sep 2000	Accident	VH-SKC	65 km ESE Burketown authorised landing area	Qld	07 Mar 2002
200105429	13 Nov 2001	Incident	VH-EAA	Abeam Moomba	SA	08 Mar 2002
200101903	29 Apr 2001	Accident	VH-MMV	4 km NW Nagambie	Vic.	22 Mar 2002
200103344	18 Jul 2001	Incident	VH-ZXA	28 km E Canberra VHF omnidirectional radio range	ACT	27 Mar 2002
200104881	09 Oct 2001	Incident	VH-TNG	106 km NNW Maleny VHF omnidirectional radio range	Qld	28 Mar 2002
200001434	25 Apr 2000	Accident	VH-YSG	13 km S Brooklyn Bridge VTC Check Point	NSW	03 Apr 2002
199905562	24 Nov 1999	Accident	VH-XGR	Near Sweers Island Gulf of Carpentaria	Qld	05 Apr 2002
200103079	13 Jul 2001	Incident	VH-ANA	46 km SE TASHA - IFR reporting point	Qld	05 Apr 2002
200105060	18 Oct 2001	Incident	VH-IMD	Brisbane Airport	Qld	18 Apr 2002
200105559	21 Nov 2001	Incident	VH-TJY	278 km ESE Alice Springs VHF omnidirectional radio range	NT	30 Apr 2002
200003130	24 Jul 2000	Accident	VH-FFI	'Kenela Park' 1 km NW Marlborough	Qld	03 May 2002
200105188	24 Oct 2001	Incident	VH-SWP	22 km SSE Timber Creek aerodrome	NT	07 May 2002
200004432	30 Sep 2000	Incident	VH-OGQ	Canberra Airport	ACT	13 May 2002
200103038	11 Jul 2001	Serious incident	VH-EXX	83 km E Longford helicopter landing site	Vic.	31 May 2002
200003399	13 Aug 2000	Incident	VH-SUM	74 km SW Maryborough aerodrome	Qld	06 Jun 2002
200005572	24 Nov 2000	Accident	ZK-VBC	53 km NE Oakey Airport	Qld	11 Jun 2002

Occurrence number	Occurrence date	Occurrence type	Registration	Location	State	Date released
200102216	18 May 2001	Accident	VH-RJH	Maroochydore/Sunshine Coast Airport	Qld	12 Jun 2002
200102467	31 May 2001	Incident	VH-NJR	Mackay Airport	Qld	19 Jun 2002
200103238	18 Jul 2001	Incident	VH-JJU	Perth Airport	WA	19 Jun 2002
200103696	07 Aug 2001	Incident	VH-NJA	Brisbane Airport	Qld	19 Jun 2002
200105636	30 Oct 2001	Incident	Unknown	35 km NW Woomera Airport	SA	21 Jun 2002

Appendix 4: Transport safety recommendations and safety advisory notices issued in 2001–02

This appendix provides detailed information on the status of safety recommendations and safety advisory notices issued by the Australian Transport Safety Bureau in 2001–02.

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 but 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 a response date being prior to the formal issue date.

In 2001–02, ATSB issued 42 recommendations and 29 of those received a response. Of the responses, four were 'closed–accepted', three were 'closed–partially accepted', 17 are being monitored, three remain open, and two were 'closed–not accepted'.

The Bureau also issued 10 safety advisory notices. Responses are not required for these.

Marine

Five investigation reports completed in 2001–02 contained safety recommendations that were released in 2001–02. There is no regulatory requirement for the shipping industry to respond to these.

Rail

The ATSB released three rail investigation reports, all of which included recommended safety actions.

The Bureau conducts rail investigations 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.

Summary of Australian Transport Safety Bureau recommendations issued to the aviation industry in 2001–02 (including responses received up to 30 June 2002)

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20000189 The ATSB recommends that Bell Helicopter Textron Inc. revise the maintenance manual for the Bell 206B III series helicopter to require the lubrication of the hydraulic pump drive splines on a calendar basis regardless of the time in service of the helicopter.	3 Dec 2001	Bell Helicopter Co	1 Feb 2002 No response at 30 Jun 2002	
R20000191 The ATSB recommends that the Federal Aviation Administration note the findings of this accident. It also recommends that the Federal Aviation Administration alert all operators of Bell 206B III series helicopters of the deficiency in the maintenance manual.	3 Dec 2001	United States Federal Aviation Administration	1 Feb 2002 No response at 30 Jun 2002	
R20000301 The ATSB recommends that Airservices Australia review the documentation in relation to air traffic controller recency requirements, in particular, the methodology of how individuals can meet the requirements.	19 Oct 2001	Airservices Australia	18 Dec 2001 Received 3 Oct 2001	Open
R20000302 The ATSB recommends that the Civil Aviation Safety Authority review the requirements for air traffic controller recency and specify the number of hours required, the shifts that do or do not qualify for such recency, and the documentation for recording such recency.	19 Oct 2001	Civil Aviation Safety Authority	18 Dec 2001 CASA response received 10 Oct 2001 Airservices Australia response received 3 October 2001	Open

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20010072 The ATSB recommends that the Civil Aviation Safety Authority publish information for the guidance of operators and pilots regarding the correct procedures for simulating engine failures in turbo-propeller aircraft.	20 Dec 2001	Civil Aviation Safety Authority	18 Feb 2002 Received 2 Jan 2002	Monitor
R20010085 The ATSB recommends that the Civil Aviation Safety Authority review the potential side effects on humans of the cocktail of HFC-134a refrigerant, in its gaseous form, and the associated lubricant. If that review finds the use of such materials is significantly adverse to human health, the use of HFC-134a refrigerant and its associated lubricant as an airconditioning refrigerant in pressurised aircraft should also be reviewed.	11 Dec 2001	Civil Aviation Safety Authority	9 Feb 2002 Received 22 Feb 2002	Closed – partially accepted
R20010086 The ATSB recommends that the Federal Aviation Administration of the United States review the potential side effects on humans of the cocktail of HFC-134a refrigerant, in its gaseous form, and the associated lubricant. If that review finds the use of such materials is significantly adverse to human health, the use of HFC-134a refrigerant and its associated lubricant as an airconditioning refrigerant in pressurised aircraft should also be reviewed.	11 Dec 2001	United States Federal Aviation Administration	9 Feb 2002 No response at 30 Jun 2002	
R20010087 The ATSB recommends that Raytheon Aircraft Company review the potential side effects on humans of the cocktail of HFC-134a refrigerant, in its gaseous form, and the associated lubricant. If that review finds the use of such materials is significantly adverse to human health, the use of HFC-134a refrigerant and its associated lubricant as an airconditioning refrigerant in pressurised aircraft should also be reviewed.	11 Dec 2001	Raytheon Aircraft Company	9 Feb 2002 No response at 30 Jun 2002	

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20010121 The ATSB recommends that General Electric Aero Engines: • review the suitability of using Inconel 625 alloy consum-ables during the weld repair of high pressure turbine blades • review the life estimate and inspection intervals for high pressure turbine blades repaired under the procedures using Inconel 625 alloy consumables • notify all operators using CFM56–2C, CFM56–2A/2B, CFM56–3 or similar engines of the possibility of catastrophic engine failure due to failure of high pressure turbine blades repaired using Inconel 625 alloy consumables.	25 Oct 2001	General Electric USA	24 Dec 2001 No response at 30 Jun 2002	
R20010122 The ATSB recommends that the US Federal Aviation Administration: • review the life estimate and inspection intervals for high pressure turbine blades repaired under the procedures using Inconel 625 alloy consumables • notify all operators using CFM56–2C, CFM56–2A/2B, CFM56–3 or similar engines of the possibility of catastrophic engine failure due to failure of high pressure turbine blades repaired using Inconel 625 alloy consumables.	25 Oct 2001	United States Federal Aviation Administration	24 Dec 2001 No response at 30 Jun 2002	
R20010123 The ATSB recommends that the Civil Aviation Safety Authority notify all operators using CFM56–2C, CFM56–2A/2B, CFM56–3 or similar engines of the possibility of catastrophic engine failure due to failure of high pressure turbine blades repaired using Inconel 625 alloy consumables.	3 Dec 2001	Civil Aviation Safety Authority	1 Feb 2002 Received 20 Mar 2002	Closed – accepted

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20010124 The ATSB recommends that the Civil Aviation Safety Authority advise the aviation industry of the potential side effects on humans of the cocktail of HFC-134a refrigerant, in its gaseous form, and the associated lubricant.	11 Dec 2001	Civil Aviation Safety Authority	9 Feb 2002 Received 22 Feb 2002	Closed – partially accepted
R20010133 The ATSB recommends that the Civil Aviation Safety Authority, in conjunction with appropriate specialist organisations, develop and promulgate requirements that specify which fuel cylinder fittings are suitable for use in balloons, and suitable configurations for those fittings.	13 Aug 2001	Civil Aviation Safety Authority	12 Oct 2001 Received 4 Mar 2002	Monitor
R20010134 The ATSB recommends that the Civil Aviation Safety Authority ensure that balloon owners and operators identify and remove gas tank fittings that are not suitable for balloon operations.	13 Aug 2001	Civil Aviation Safety Authority	12 Oct 2001 Received 4 Mar 2002	Closed – accepted
R20010168 The ATSB recommends the Civil Aviation Safety Authority conduct a review of all Boeing jet aircraft maintenance documentation to ensure completeness of main cabin door escape slide deactivation and activation to return to service following maintenance action.	7 Nov 2001	Civil Aviation Safety Authority	6 Jan 2002 Received 11 Sep 2001 2nd response 6 Mar 2002	Monitor
R20010185 The ATSB recommends that the Australian Parachute Federation advise its members of the need to use exit techniques and positions that avoid any contact between the parachute container and the aircraft.	22 Apr 2002	Australian Parachute Federation	21 Jun 2002 No response at 30 Jun 2002	

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20010186 The ATSB recommends that the Australian Skydiving Association advise its members of the need to use exit techniques and positions that avoid any contact between the parachute container and the aircraft.	22 Apr 2002	Australian Skydiving Association	21 Jun 2002 No response at 30 Jun 2002	
R20010187 The ATSB recommends that the Civil Aviation Safety Authority, the Australian Parachute Federation and the Australian Skydiving Association review the safety advantages of requiring pilots, where practicable, to wear parachutes during parachute operations.	22 Apr 2002	Australian Parachute Federation	21 Jun 2002 No response at 30 Jun 2002	
R20010187 The ATSB recommends that the Civil Aviation Safety Authority, the Australian Parachute Federation and the Australian Skydiving Association review the safety advantages of requiring pilots, where practicable, to wear parachutes during parachute operations.	22 Apr 2002	Australian Skydiving Association	21 Jun 2002 No response at 30 Jun 2002	
R20010187 The ATSB recommends that the Civil Aviation Safety Authority, the Australian Parachute Federation and the Australian Skydiving Association review the safety advantages of requiring pilots, where practicable, to wear parachutes during parachute operations.	22 Apr 2002	Civil Aviation Safety Authority	21 Jun 2002 Received 24 May 2002	Closed – accepted

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20010192 The ATSB recommends that the Civil Aviation Safety Authority assess the adequacy of the Turbomeca Arriel engine MO3 bearing lubrication installation to determine if it meets the applicable design standard requirements to ensure the continued airworthiness of relevant Australian registered aircraft.	18 Sep 2001	Civil Aviation Safety Authority	17 Nov 2001 Received 25 Feb 2002 2nd response received 22 Mar 2002	Closed – not accepted
R20010193 The ATSB recommends that the Direction Generale de l'Aviation Civile (DGAC) assess the adequacy of the Turbomeca Arriel engine MO3 bearing lubrication installation to determine if it meets the applicable design standard requirements.	18 Sep 2001	Direction Generale de l'Aviation Civile	17 Nov 2001 Received 15 Jan 2002	Monitor
R20010195 The ATSB recommends that the Civil Aviation Safety Authority consider proposing an increase in the operations' classification, and/or the minimum safety standards required, for organisations that transport their own employees and similar personnel (for example contractors, personnel from related organisations, or prisoners, but not fare-paying passengers) on a regular basis. This recommendation applies to all such operations, regardless of the take-off weight of the aircraft involved.	7 Sep 2001	Civil Aviation Safety Authority	6 Nov 2001 Received 4 Feb 2002	Monitor
R20010196 The ATSB recommends that the Civil Aviation Safety Authority take appropriate action to ensure the continued airworthiness of Australian registered aircraft fitted with Turbomeca Arriel engines incorporating modification TU204.	18 Sep 2001	Civil Aviation Safety Authority	17 Nov 2001 Received 25 Feb 2002	Monitor

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20010197				
The ATSB recommends that the Direction Generale de l'Aviation Civile take appropriate action to ensure the continued airworthiness of aircraft fitted with Turbomeca Arriel engines incorporating modification TU204.	18 Sep 2001	Direction Generale de l'Aviation Civile	17 Nov 2001 Received 15 Jan 2001	Closed – partially accepted
R20010202				
The ATSB recommends that the Civil Aviation Safety Authority review the need to develop and mandate competency standards for low-level aircraft operations, including powerline inspection by helicopters.	26 Feb 2002	Civil Aviation Safety Authority	26 Apr 2002 Received 17 May 2002	Monitor
R20010203				
The ATSB recommends that the Civil Aviation Safety Authority consider instituting an education program for the industry highlighting the impending changes to operational standards to be introduced under Civil Aviation Safety Regulation (CASR) Part 61 and its associated elements, in order to give sufficient lead time for early adoption and implementation.	26 Feb 2002	Civil Aviation Safety Authority	27 Apr 2002 Received 17 May 2002	Monitor
R20010204				
The ATSB recommends that Electricity Supply Association of Australia (ESAA) in conjunction with its members develop formal Operations and Procedures Manuals to be used by Australian Electrical Supply Businesses employing helicopters to accomplish low level power line inspection or maintenance tasks. These manuals should take into consideration appropriate elements of the guidelines laid down in the ESAA handbook: "Guidelines to Helicopter live power line work." These manuals should have an appropriate quality control audit procedure to ensure that industry accepted best practice is maintained.	26 Feb 2002	Electricity Supply Association of Australia	27 Apr 2002 Received 17 May 2002	Monitor

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20010205 The ATSB recommends that Electricity Supply Association of Australia (ESAA) in conjunction with its members and in consultation with helicopter operators identified as successful tenderers for low level power line survey work, adopt or purchase an acceptable training package to be undertaken by any power supply company employees prior to tasking on helicopter power line inspection. This training package should include but not be limited to: • safety hazards when working in and around helicopters • in flight communication procedures including crew resource management (CRM) • CRM to include hazard identification and crew alerting procedures • identification of fatigue in the workplace • re-currency training if appropriate.	26 Feb 2002	Electricity Supply Association of Australia	27 Apr 2002 Received 17 Apr 2002	Monitor
R20010206 The ATSB recommends that Electricity Supply Association of Australia (ESAA) in conjunction with its members and Standards Australia review the current standard on powerline marking. This review should consider identifying the location of low level flight hazards such as spur junctions on transmission lines by the fixing of markers to give visual warnings to aeroplanes or helicopters approaching from either direction while engaged in power line inspection or maintenance operations.	26 Feb 2002	Electricity Supply Association of Australia	27 Apr 2002 Received 17 Apr 2002	Monitor

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20010207				
The ATSB recommends that Electricity Supply Association of Australia (ESAA) in conjunction with its members develop a requirement for employees identified by Electrical Supply Companies as candidates for aerial low level power line inspection duties to undergo medical tests including eye tests. These tests should be of a standard commensurate with their expected duties to be performed as crew.	26 Feb 2002	Electricity Supply Association of Australia	27 Apr 2002 Received 17 Apr 2002	Monitor
R20010230				
The ATSB recommends that Rolls Royce Ltd expedite the development, trial and implementation of a suitable engineering solution to prevent the mis-installation of combustion fairings on RB211–524 and RB211–22B engines.	5 Feb 2002	Rolls Royce Ltd	6 Apr 2002 Received at 24 Apr 2002	Monitor
R20010251				
The ATSB recommends that the Civil Aviation Safety Authority ensure that all Boeing 717–200 aircraft on the Australian Register are fitted with a flight recorder system that complies with the requirements of all applicable Australian Civil Aviation Orders.	20 Dec 2001	Civil Aviation Safety Authority	18 Feb 2002 Received at 28 Feb 2002	Monitor
R20010252				
The ATSB recommends that the Civil Aviation Safety Authority review flight recorder start/stop logic for all types in the Australian fleet where a type acceptance certificate has been issued to ensure that the aircraft meets the requirements of the Australian Civil Aviation Orders.	20 Dec 2001	Civil Aviation Safety Authority	18 Feb 2002 Received at 28 Feb 2002	Closed – not accepted

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20010253 The ATSB recommends that the Civil Aviation Safety Authority ensure that all aircraft entering the Australian Register be subject to appropriate scrutiny to ensure that the aircraft complies with the requirements of the Australian Civil Aviation Regulations and Civil Aviation Orders.	20 Dec 2001	Civil Aviation Safety Authority	18 Feb 2002 Received at 28 Feb 2002	Closed – accepted
R20010254 The ATSB recommends that the Federal Aviation Administration (Piston Engine Certification Directorate) review the certification requirements of piston engines with respect to the operating conditions under which combustion chamber deposits that may cause preignition are formed.	19 Dec 2001	United States Federal Aviation Administration	17 Feb 2002 Received at 8 May 2002	Monitor
R20010255 The ATSB recommends that the Federal Aviation Administration (Piston Engine Certification Directorate) review the practice during assembly of applying anti-galling compounds to the backs of connecting rod bearing inserts with respect to its effect on the safety margin for engine operation of the bearing insert retention forces achieved.	19 Dec 2001	United States Federal Aviation Administration	17 Feb 2002 Received at 8 May 2002	Open
R20010256 The ATSB recommends that Textron Lycoming review the practice during assembly of applying anti-galling compounds to the backs of connecting rod bearing inserts with respect to its effect on the safety margin for engine operation of the bearing insert retention forces achieved during assembly.	19 Dec 2001	Textron Lycoming	17 Feb 2002 No response at 30 Jun 2002	

Recommendation	Issue date	Receiving organisation	Response due date	Status of response
R20010257 The ATSB recommends that the Civil Aviation Safety Authority review the operating and maintenance procedures for high powered piston engines fitted to Australian registered aircraft to ensure adequate management and control of combustion chamber deposits, preignition and detonation.	19 Dec 2001	Civil Aviation Safety Authority	17 Feb 2002 Received at 6 Mar 2002	Monitor
R20010258 The ATSB recommends that the Civil Aviation Safety Authority educate industry on procedures and techniques that may maximise the chances of survival of a ditching event. Part of that education programme should include the development of formal guidance material of the type contained in the UK CAA General Aviation Safety Senses leaflet 21A 'Ditching'.	19 Dec 2001	Civil Aviation Safety Authority	17 Feb 2002 Received at 6 Mar 2002	Monitor
R20020120 The ATSB recommends that the Civil Aviation Safety Authority continue to examine the circumstances of electrical discharge damage to the number–1 bearing of the Pratt and Whitney (Canada) PT6A engine models equipped with certain TRW Lucas starter-generators and develop an appropriate safety assurance strategy to ensure the continuing airworthiness of Australian registered aircraft fitted with similar engine and starter-generator combinations.	12 Jun 2002	Civil Aviation Safety Authority	11 Aug 2002 No response at 30 Jun 2002	
R20020121 The ATSB recommends that the United States Federal Aviation Administration examine the circumstances of electrical discharge damage to the number–1 bearing of the Pratt and Whitney (Canada) PT6A engine models equipped with TRW Lucas starter-generators and develop an appropriate safety assurance strategy.	12 Jun 2002	United States Federal Aviation Administration	11 Aug 2002 No response at 30 Jun 2002	

Summary of Australian Transport Safety Bureau safety advisory notices issued to the aviation industry in 2001–02[1]

Safety Advisory Notice	Issue date	Receiving organisation	
SAN20010222 The ATSB advises airlines that Passenger Entertainment Landscape Camera systems have the potential to cause passenger distraction during non-normal and emergency situations. Emergency procedures should ensure that the system is operated in a way that will not divert passengers' attention from instructions given by the flight or cabin crew in such situations.	5 Feb 2002	United States Federal Aviation Administration Joint Aviation Authority	
SAN20010223 The Civil Aviation Safety Authority note the safety deficiency identified in this report relating to single-engine Cessna aircraft seat stops and, as a matter of some urgency, alert aircraft owners, aircraft maintenance engineers and pilots to the potentially dangerous consequences of using other than the specified seat stops and to the importance of correctly locating those seat stops and ensuring that the seat pin securely engages a locating hole on the rail.	24 Oct 2001	Civil Aviation Safety Authority	Response received 12 Dec 2001
SAN 20010224 The Aircraft Owners and Pilots Association of Australia note the safety deficiency identified in this report relating to single-engine Cessna aircraft seat stops and consider communicating through the association's journal the potentially dangerous consequences described in this occurrence.	24 Oct 2002	Aircraft Owners and Pilots Association	

1 *Safety Advisory Notices do not solicit a response; however, the Bureau will publish, but will not classify, any response received.*

Safety Advisory Notice	Issue date	Receiving organisation	
SAN20010225 The Australian Licensed Aircraft Engineers Association note the safety deficiency identified in this report relating to single-engine Cessna aircraft seat stops and consider communicating through the association's newsletter the potentially dangerous consequences described in this occurrence.	24 Oct 2001	Australian Licensed Aircraft Engineers Association	
SAN20010244 The ATSB alerts all operators in the transport industry, particularly those involved in extended-hours operations, to the possibility of crew members suffering sleep inertia and suggests that operators take steps to mitigate the effects of sleep inertia. The steps should not include subjecting employees to sleep deprivation.	15 Apr 2002	Transport industry	
SAN20010245 The ATSB suggests that the Civil Aviation Safety Authority alert all aviation industry operators to the possibility of sleep inertia impairing performance, particularly that of flight and maintenance crews.	15 Apr 2002	Civil Aviation Safety Authority	Response received 14 May 2002
SAN20020035 The ATSB suggests that the Civil Aviation Safety Authority ensure that operators have strategies in place to mitigate the effects of sleep inertia as part of their fatigue management systems.	15 Apr 2002	Civil Aviation Safety Authority	Response received 14 May 2002

Safety Advisory Notice	Issue date	Receiving organisation
SAN20020122 The ATSB suggests that Transport Canada should note the deficiencies identified relating to electrical discharge damage to the number–1 bearing of the Pratt and Whitney (Canada) PT6A engine models equipped with TRW Lucas, model 23078 and 23085, starter-generators.	12 Jun 2002	Transport Canada
SAN20020123 The ATSB suggests that Pratt and Whitney (Canada) should note the deficiencies identified relating to electrical discharge damage to the number–1 bearing of the Pratt and Whitney (Canada) PT6A engine models equipped with TRW Lucas, model 23078 and 23085, starter-generators.	12 Jun 2002	Pratt and Whitney (Canada)
SAN20020124 The ATSB suggests that the United Kingdom Civil Aviation Authority should note the deficiencies relating to electrical discharge damage to the number–1 bearing of the Pratt and Whitney (Canada) PT6A engine models equipped with TRW Lucas, model 23078 and 23085, starter-generators.	12 Jun 2002	United Kingdom Civil Aviation Authority

Summary of Australian Transport Safety Bureau recommendations issued to the marine industry in 2001–02

Recommendation	Date of issue
Independent Investigation Into The Grounding Of The Kuwaiti Flag Product Tanker Al Deerah, ***Garden Island In The Tamar River, Tasmania On 30 April 2000***	14 Sep 2001
The ATSB recommended that the Port of Launceston Authority review the conditions, including tidal conditions, under which vessels enter and depart the port, consulting as appropriate with the owners and managers of such vessels.	
Independent Investigation Into The Collision Involving The Chinese Bulk Carrier Hai Teng ***And The Australian Recreational Vessel Chester East Of Mooloolaba, Queensland On 19 March 2000***	20 Dec 2001
The ATSB recommends that training establishments and authorities issuing certificates of competency, or boating or similar licences, place greater emphasis on training and examining candidates for full knowledge and proper understanding of the International Regulations for Preventing Collisions at Sea, 1972, as amended and in force for Australia.	
Examinees should be aware of the requirement to maintain the proper lookout on all vessels at all times. In addition, they should be aware that the Collision Regulations do not exonerate any vessel, the owner, master or crew from the consequences of any neglect to comply with the Rules.	
The ATSB also recommends that Australian shipowners, managers, pilots and agents take note of Safety Bulletin 02 attached to this report and available on the ATSB website, bringing it to the attention of as many vessels as possible. The bulletin points out that the only explanations for most collisions are the lack of a proper visual lookout, or an over- reliance on radar detection when the radar set has not been correctly set up, or has not been maintained properly.	
Independent Investigation Into The Collision Between The Liberian Flag Bulk Cargo Vessel Silver Bin ***And The Fishing Vessel*** Chinderah Star ***Off The North Queensland Coast Of Australia On 25 March 2000***	14 Jan 2002
The ATSB recommended that all fishing industry bodies, together with State and Territory authorities draw the attention of fishing vessel skippers and owners to ATSB Safety Bulletin No. 01 (Attachment 1) highlighting the risks to fishing vessels from large trading ships and to the limitations of ships' radar.	
That Australian ship managers, pilot services and Australian shipping agents note and distribute as widely as possible to vessels, ATSB Safety Bulletin No. 02 (Attachment 2). The bulletin draws attention to the dangers of over-reliance on radar, the possible shortcomings of radar, and the importance of maintaining a proper visual lookout in all conditions.	

Recommendation	Date of issue
Independent Investigation Into The Grounding Of The Australian Flag Training Vessel Wyuna ***In The Tamar River, Tasmania On 19 October 2000*** The ATSB recommended that: • the AMC document and implement an appropriate safety management system for the operation of ***Wyuna*** • the AMC review manning levels for the vessel • a roster of duties for ***Wyuna*** be maintained as well as a daily record of hours worked by each member of the ship's crew to facilitate the monitoring of fatigue levels of individuals • clear unambiguous written instructions are formulated as part of the safety management system to identify who has conduct of the vessel at any given phase of the voyage.	27 Mar 2002
Independent Investigation Into The Collision Between The Hong Kong Flag Bulk Cargo Vessel Handymariner ***And The Fishing Vessel*** Lipari ***Off The South Coast Of Western Australia On 18 January 2001*** The ATSB recommended that: • all State and Territory registered commercial vessels operating offshore be required to carry an operational VHF radio capable of maintaining a continuous watch on 156.8 MHz (channel 16) • the State and Territory marine regulatory authorities, via the National Marine Safety Committee, and in consultation with the Australian Seafood Industry Council, ensure the safety and welfare of fishing vessel crews by reviewing the minimum manning, crew certification and work practices on Australian fishing vessels with a view to establishing guidelines for management of crew fatigue.	12 Jun 2002

Summary of Australian Transport Safety Bureau recommendations issued to the rail industry in 2001–02

Recommendation	Date of issue to regulator	Target organisation
Derailment Of Coal Train EG37, Connors Range On 1 July 2001 Review the interface between accident investigation and recovery operations in order that all relevant evidence is collected and/ or recorded in a systematic manner and that potentially safety- critical evidence is not damaged or destroyed as a result of the recovery operation.	26 Oct 2001	Queensland Transport Queensland Rail
Derailment Of Coal Train EG37, Connors Range On 1 July 2001 Review the requirement of the two- hour timeframe for the conduct of drug and alcohol tests, as prescribed by the Transport Infrastructure Act 1994, in light of practical constraints that are often posed by the circumstances of rail accidents and incidents.	26 Oct 2001	Queensland Transport
Derailment Of Coal Train EG37, Connors Range On 1 July 2001 Continue to pursue and address the underlying reason/s for the extended loss of Locotrol radio communications on the Connors Range as was experienced by EG37. Evaluate whether there may be exposure to similar risks at other locations within the Queensland Rail (QR) network. Consider the development of threshold limits for both frequency and length of Locotrol radio communication interruptions, in conjunction with requirements for braking in the particular area, as part of an overall strategy to address any unacceptable exposure to risk within the QR network. Explore options that will allow real-time information about the status of train brake continuity to be communicated to the driver and/ or will provide a driver with other mechanisms or options that result in improved train braking efficiency in abnormal and emergency situations. A further review of train maintenance practices and procedures, taking into consideration human factors issues, to ensure safety-critical systems are subject to more rigorous quality control.	26 Oct 2001	Queensland Rail

Recommendation	Date of issue to regulator	Target organisation
Implement strategies that will reinforce the notion that drivers should operate, as far as is practicable, in accordance with prescribed procedures in order to avoid unnecessary exposure to increased operational risks. Clarify existing arrangements in relation to Authorised Persons to ensure that those personnel know their rights and obligations and that information about alcohol and drugs as a potential factor in an occurrence is collected in a timely fashion. Consider an expanded programme for the fitment of Dataloggers, or similar technology, to ELRC units and all locomotives in order to provide safety investigation personnel with additional and timely information about potentially safety-critical issues.		
Collision Between Suburban Electric Passenger Train 6369 And The Empty Express Electric Train 6371, Footscray, Victoria 5 June 2001 Medical standards should be reviewed to: • better monitor drivers' health and ensure a full past history and current medication regime is taken • include an appropriate assessment of the current physiological and psychiatric status of all drivers to ensure operators have all relevant information on which to base an informed decision on driver fitness • provide a system to monitor self- medication of over-the-counter and non prescription medicine medication • include a system to identify drivers 'at potential risk', with provision for monitoring ongoing fitness • ensure that medical examination periods are strictly adhered to and drivers suspended if not holding current medical license • include assessment of psychological and psychiatric fitness • require drivers to produce proof of medical fitness at any time • create an audit system that will allow confirmation of compliance with such standards. The medical examination procedures should be reviewed to ensure no perception of any conflict of interest may be present in future medical fitness system and whether such examinations should be conducted by a panel of doctors appointed by, and responsible, to the accreditation authority.	Nov 2001	Victorian Department of Infrastructure

Recommendation	Date of issue to regulator	Target organisation
Collision Between Suburban Electric Passenger Train 6369 And The Empty Express Electric Train 6371, Footscray, Victoria 5 June 2001 Australian Standard AS 4292 should be reviewed in respect of the monitoring of the health and fitness of rail safety staff.	Nov 2001	Victorian Department of Infrastructure State/territory rail accreditation authorities
Collision Between Suburban Electric Passenger Train 6369 And The Empty Express Electric Train 6371, Footscray, Victoria 5 June 2001 The anti-collision posts on motor cars on Com Eng trains should be investigated to identify any deficiency in their design. Rail accident response plans should be reviewed to provide procedures to ensure immediate safety of the track infrastructure, training for station staff at manned stations in immediate response procedures and rapid deployment of staff at unmanned stations.	Nov 2001	National Express
Collision Between Suburban Electric Passenger Train 6369 And The Empty Express Electric Train 6371, Footscray, Victoria 5 June 2001 The signalling system and overlap should be reviewed with a view to ensuring trains passing a signal at danger are stopped within a safe distance. In sections before a station this distance should ensure a train is brought to a halt before a possible collision with another train stopped at the station. The use of hand and foot pilot valves should be reviewed, given their limitations, to determine whether the system can be made more effective or whether an alternative, equivalent system might make a better safeguard. The train system radio network should be reassessed for radio reliability.	Nov 2001	Victorian Department of Infrastructure National Express

Recommendation	Date of issue to regulator	Target organisation
Derailment Of Passenger Train 8622, Sydney – Melbourne Daylight XPT Service, Wodonga, Victoria 25 April 2001 It is recommended that Australian Rail Track Corporation (ARTC) ensure that the Victorian track under their control meets the requirements of the PTC Civil Engineering Circulars with respect to the number of spring spikes fitted to sleeper plates on curves. It is recommended that ARTC ensure that the Victorian track under their control has ballast regulated to allow all track fastenings to be effectively inspected. It is recommended that ARTC track project management practice in future includes effective consultation and communication with line maintenance staff to ensure that contracted track rectification and maintenance activities are properly coordinated and completed. It is recommended that line maintenance practices in future include sufficient risk assessment to ensure that vulnerable sites are adequately monitored and maintained.	6 Jun 2002	Australian Rail Track Corporation
Derailment Of Passenger Train 8622, Sydney – Melbourne Daylight XPT Service, Wodonga, Victoria 25 April 2001 It is recommended that XPT maintenance practices are reviewed to ensure that their rolling stock in service meets the required standards with regard to wheel flange thickness. It is recommended that XPT maintenance practices are modified to improve the serviceability of the NHA bogie side bearer friction surfaces and ensure that the design X factor of the bogies is maintained.	6 Jun 2002	New South Wales State Rail
Derailment Of Passenger Train 8622, Sydney – Melbourne Daylight XPT Service, Wodonga, Victoria 25 April 2001 It is recommended that Countrylink implement their Emergency and Evacuation Preparedness Plan as a priority and provide the necessary training for their train crews.	6 Jun 2002	Countrylink

Appendix 5: Research, statistical, and other non-investigation publications released in 2001–02

ATSB released the following publications during 2001–02. 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

- *Driver Fatigue: A Survey of Long Distance Transport Companies in Australia* (CR 209)
- *Reanalysis of Travelling Speed and the Risk of Crash Involvement in Adelaide South Australia* (CR 207)
- *Further Development of a Protective Headband for Car Occupants* (CR 205)
- *Travelling Speed and Risk of Crash Involvement on Rural Roads* (CR 204)
- *Heavy Vehicle Seat Vibration and Driver Fatigue* (CR 203)
- *Driver Fatigue: A Survey of Long Distance Heavy Vehicle Drivers in Australia* (CR 198)

Road safety statistical reports

- Twelve issues of the monthly bulletin Road Fatalities In Australia
- Monograph 9 *Fatal Light Truck Crashes*
- Monograph 10 *Level Crossing Accidents*
- Monograph 11 F*atal Four Wheel Drive Crashes*
- Research Report 208 *Driveway Deaths: Fatalities Of Young Children In Australia As A Result Of Low-Speed Motor Vehicle Impacts*
- *Benchmarking Road Safety: The 1999 Report*
- *Road Fatalities Australia: 2000 Statistical Summary*
- *Australian Bus Safety*

Aviation Safety Articles in CASA's Flight Safety Australia *(ATSB supplement)*

July–August 2001

- *Recently completed investigations* (lists investigations from 4 April 1999 to 13 March 2001)
- *New air safety accident or incident reporting forms*
- *Safety briefs* (Fuel need underestimated; Electrical short circuit; Loss of control; Fractured fuel line; Main rotor failure)
- *Investigating complex factors*
- *Confidential Aviation Incident Reporting (CAIR)*

September–October 2001

- *Recently completed investigations* (lists investigations released July–August 2001)
- *Hot air balloon occurrence statistics 1980-2001*
- *Safety briefs* (Radio Failure; Fuel injector blockage; High pressure fuel leak; Go-round tragedy; GNSS awareness a saviour; Non-VMC fatality)
- *Got the right fuel system fitting in your balloon?*
- *Confidential Aviation Incident Reporting (CAIR)*

November–December 2001

- *Recently completed investigations* (lists investigations released September–October 2001)
- *You might learn about flying from this*
- *Safety Briefs* (Harness safety heightened; Maintenance fatigue issues; Centurion power loss mystery; Pilot incapacitation likely; Ground loop; Stall during climb fatality)
- *Safety first – aircrew, ground personnel and passengers*
- *Confidential Aviation Incident Reporting (CAIR)*

January–February 2002

- *Recently completed investigations* (lists investigations released November–December 2001)
- *Twin mechanical failure linked to leaning*
- *Helicopter accident highlights mountain wave dangers*
- *Safety Briefs* (Loss of control on dark night; Jabiru accident on approach in mechanical turbulence; Failed turbine blade caused extensive damage; Rotor blade life exceeded; Cessna 206 accident in Cairns in non-VMC and darkness; One-engine simulation risk from 'flight idle')
- *Confidential Aviation Incident Reporting (CAIR)*

March–April 2002

- *How does ATSB identify a safety problem in the aviation industry?*
- *Training operations: know your fuel usage.*
- *Safety briefs* (767 broken turbine blade; 737 fuel contamination mystery; Helicopter spraying ends in lake; Aural warnings to be fitted in aircraft; Multiple engine cowl accident factors; UN Hercules damaged on landing)
- *Breaking new ground: one man's reflection*
- *Confidential Aviation Incident Reporting (CAIR)*

May–June 2002

- *Main landing gear separation*
- *Recently completed investigations* (lists investigations released March–April 2002)
- *Pilot incapacitation*
- *Confidential Aviation Incident Reporting (CAIR)*

Non-Investigation ATSB Publications Released in 2001–2002

- *Do You Know When To Stop? A Driver's Guide To Staying Under 0.05 BAC*
- *Aircraft Accident Procedures for Police Officers and Emergency Services Personnel*

Appendix 6: Aviation occurrence categories

The first step in an incident or accident investigation is to categorise the occurrence according to the expected safety potential. Current aviation occurrence categories are as follows:

Category 1 occurrences involve high-capacity air transport operations where the facts indicate a significant threat to the safety of the travelling public and are the subject of widespread public interest.

Category 2 occurrences involve other than high-capacity air transport operations where the facts indicate a significant threat to the safety of the travelling public and are the subject of widespread public interest.

Category 3 occurrences are those where the facts indicate actual or potential serious safety deficiencies or there is significant concern for public safety. The category is used when there is a need for an in-depth investigation to determine the facts.

Category 4 occurrences are those where the circumstances are sufficiently complex to require detailed information from the pilot, operator, and/or other parties and may require examination of the accident site to gather evidence and verify the accuracy of the initially reported information. All non-sport aviation accidents involving fatalities are classified as category 4 as a minimum. The facts may or may not indicate a serious deficiency. This category may also include a selection of occurrences identified as involving characteristics, which from trend or safety analysis require investigation.

Category 5 occurrences are primarily of statistical interest and are generally not investigated.

Appendix 7: Road safety research grants 2001–02

Successful applications

Three grants were awarded for work to be undertaken under the Road Safety Research Grant Scheme funded by the ATSB:

1. Development of an anti-whiplash seat

Applicant: Dr Lynne Bilston of the University of New South Wales, Prince of Wales Medical Research Institute ($19 530).

The project proposes to develop a novel seat design that will automatically position the head restraint in the optimal position for the driver. It will also prevent the head's movement relative to the rest of body when 'whiplash' injuries might otherwise have occurred. Computer modelling will be employed to develop a concept vehicle seat design and sled testing used on a human-form test dummy.

2. Safe mobility of the older driver with dementia

Applicant: Ms Carol Snellgrove of the Repatriation General Hospital, South Australian Department of Rehabilitation and Aged Care ($13 509).

The researcher aims to further develop a general practitioner in-office screener of the driving capacity of dementia patients. She will also investigate, through a study group of dementia patients and their carers, the driving behaviour of such patients, with the emphasis on the effects that driving restrictions have on dementia drivers and their carers.

3. Implicit attitudes and simulated driving behaviour

Applicant: Dr Gavin Faunce of the Department of Psychology, University of Sydney ($24 576).

This research will examine the relationship between attitudes to speeding and driving behaviour associated with exposure to an 'audio-visual intervention'. The study will use a relatively new methodology, the Implicit Association Test, to explore attitudinal changes.

Appendix 8: Investigations under way as at 30 June 2002 by mode

Rail

Date of occurrence	Occurrence and location
18 Jun 2002	Collision between a suburban electric passenger train and an express electric train at Epping, Vic.

Marine

Date of occurrence	Vessel	Type	Occurrence and location
21 Jun 2000	*Sue M*	Fishing vessel	Collision with bulk carrier off Iluka, NSW
6 Aug 2000	*Washington Trader*	Bulk carrier	Lifeboat accident off Abbot Point, Qld
24 Jan 2001	*Alianthos*	Bulk carrier	Lifeboat accident at Geelong, Vic.
23 Feb 2001	*Spirit of Tasmania*	Passenger ferry	Fire in Bass Strait
16 Mar 2001	*Regal Princess*	Passenger	Grounding at Cairns, Qld
21 Apr 2001	*Devprayag*	Bulk carrier	Grounding at Portland, Vic.
21 Apr 2001	*Maksim Mikhaylov*	Container ship	Contact with beacon off Brisbane, Qld
28 Jun 2001	*Mirande*	General cargo ship	Grounding off Melbourne, Vic.
6 Aug 2001	*ANL Purpose*	General cargo ship	Disabled in Coral Sea
8 Aug 2001	*Maersk Tacoma*	Container ship	Disabled in Bass Strait
8 Oct 2001	*Captain Aysuna*	Bulk carrier	Engine room fire, Bass Strait
12 Oct 2001	*Cape Kestrel*	Bulk carrier	Lifeboat accident off Dampier, WA
18 Nov 2001	*Nego Kim*	Bulk carrier	Explosion at Dampier, WA
18 Feb 2002	*CSL Pacific*	Bulk carrier	Serious crew injury off Portland, Vic.
27 Mar 2002	*La Pampa*	Bulk carrier	Grounding at Gladstone, Qld
11 Apr 2002	*Forum Samoa II*	Container ship	Collision with fishing vessel off Cape Moreton, Qld
15 Apr 2002	*SA Fortius*	Bulk carrier	Contact with coal loader at Port Kembla, NSW
19 Jun 2002	*Western Muse*	Bulk carrier	Crew fatality at Port Kembla, NSW

Aviation

Date of occurrence	Investigation category	Aircraft model	Location
18 Sep 2000	4	G-115C2	Merredin authorised landing area, WA
13 Oct 2000	4	1900D	120 km NNE Canberra Airport, ACT
Dec 2000 & Apr 2001	Safety deficiency	767	Melbourne Airport, Vic.
18 Jan 2001	3	737-476	Brisbane Airport, Qld
26 Jan 2001	2	310R	3 km E Newman aerodrome, WA
24 Apr 2001	4	G-115C2	Merredin authorised landing area, WA
27 Apr 2001	4	407	Howard Patch, Swains Reefs, Qld
15 May 2001	4	SA227-AC	Sydney Airport, NSW
18 May 2001	4	402	Maroochydore/Sunshine Coast Airport, Qld
23 May 2001	3	PA-30	Archerfield Airport, Qld
23 May 2001	3	SF-340B	Canberra Airport, ACT
24 May 2001	3	BAe 146-100	Perth Airport, WA
27 May 2001	4	C24R	20 km W Louth, NSW
31 May 2001	4	BAe 146-100	Mackay Airport, Qld
18 Jun 2001	3	737-476	Perth Airport, WA
20 Jun 2001	4	47G-3B1	3 km S Kingsthorpe, Qld
25 Jun 2001	3	EMB-110P1	Cootamundra aerodrome, NSW
25 Jun 2001	4	DHC-8-102	15 km NNE Perth VHF omnidirectional radio range, WA
27 Jun 2001	4	1900D	4 km N Tamworth Airport, NSW
05 Jul 2001	4	M20J	12 km SSE Tamworth VHF omnidirectional radio range, NSW
18 Jul 2001	4	BAe 146-200	Perth Airport, WA
24 Jul 2001	4	737-376	Canberra Airport, ACT
24 Jul 2001	4	PA-31-350	7 km NE Kingscote aerodrome, Qld
07 Aug 2001	4	BAe 146-100	Brisbane Airport, Qld
12 Aug 2001	4	SA227-DC	Orange aerodrome, NSW
27 Aug 2001	4	A330-341	Melbourne Airport, Vic.
05 Sep 2001	4	767-336	Melbourne Airport, Vic.
24 Sep 2001	3	206B (III)	5 km W Kurrajong Heights, NSW
01 Oct 2001	4	767	Sydney Airport, NSW
04 Oct 2001	4	402B	59 km S Gove aerodrome, NT
07 Oct 2001	4	747-412	Pinav (IFR), WA
14 Oct 2001	4	SA227-AC	46 km ENE Melbourne Airport, Vic.

Date of occurrence	Investigation category	Aircraft model	Location
22 Oct 2001	3	737-376	Alice Springs Airport, NT
27 Oct 2001	4	DHC-8-315	Sydney Airport, NSW
06 Nov 2001	3	747-400	19 km SE Nyngan aerodrome, NSW
14 Nov 2001	4	210N	10.7 km ESE Kalgoorlie/Boulder aerodrome, WA
18 Nov 2001	3	777	Tindal Airport, NT
23 Nov 2001	4	717-200	Melbourne Airport, Vic.
27 Nov 2001	2	C90	Toowoomba authorised landing area, Qld
27 Nov 2001	3	767-238	56 km NE Melbourne Airport, Vic.
27 Nov 2001	4	767-338ER	Coolangatta Airport, Qld
02 Dec 2001	4	737-33A	19 km SE Thangool non-directional beacon, Qld
03 Dec 2001	4	737	93 km S Sydney VHF omnidirectional radio range, Other
04 Dec 2001	4	767-300ER	46 km ESE Sydney Airport, NSW
05 Dec 2001	3	SF-340B	93 km NE Trepell authorised landing area, Qld
06 Dec 2001	4	DHC-8-201	Lord Howe Island non-directional beacon, NSW
08 Dec 2001	4	PA-32-260	Rottnest Island aerodrome, WA
08 Dec 2001	4	717-200	30 km N Launceston Airport, Tas.
10 Dec 2001	3	B200C	5 km N Mount Gambier aerodrome , SA
14 Dec 2001	4	PA-31-350	83 km NE Warrnambool aerodrome, Vic.
17 Dec 2001	4	747-312	Perth Airport, WA
23 Dec 2001	4	A185F	Palm Beach authorised landing area, NSW
26 Dec 2001	4	767-338ER	159 km SW Sydney VHF omnidirectional radio range, NSW
27 Dec 2001	4	SF-340B	6 km NNW Sydney VHF omnidirectional radio range, NSW
29 Dec 2001	4	A185F	Strahan aerodrome, Tas.
04 Jan 2002	4	N22C	4 km N Porpoise Point VTC approach point, Qld
06 Jan 2002	4	SA227-AC	56 km NE Melbourne Airport, Vic.
08 Jan 2002	4	767-238	Sydney Airport, NSW
11 Jan 2002	4	U206F	9 km E Horn Island aerodrome, Qld
17 Jan 2002	4	76	93 km SE Melbourne Airport, Vic.
31 Jan 2002	4	747-4H6	111 km NNE PUMIS (IFR), Other
31 Jan 2002	4	441	222 km NW Perth VHF omnidirectional radio range, WA
08 Feb 2002	4	747-438	PUMIS (IFR), Other

Date of occurrence	Investigation category	Aircraft model	Location
14 Feb 2002	4	SF-340A	46 km SSW Sydney VHF omnidirectional radio range, NSW
16 Feb 2002	4	DH-82A	2 km SW Williamtown Airport, NSW
20 Feb 2002	4	737-800	22 km E Sydney Airport, NSW
22 Feb 2002	4	172P	Jandakot Airport, WA
01 Mar 2002	3	747-436	159 km NW Parkes VHF omnidirectional radio range, NSW
01 Mar 2002	4	AS.350B2	Williamtown Airport, NSW
09 Mar 2002	4	340A	11 km SE Cairns Airport, Qld
13 Mar 2002	4	500	130 km ENE Adelaide VHF omnidirectional radio range, SA
22 Mar 2002	4	747-338	FLAKE, WA
24 Mar 2002	4	210N	Groote Eylandt Airport NT
26 Mar 2002	4	SF-340A	83 km ESE Canberra VHF omnidirectional radio range, NSW
02 Apr 2002	4	747-338	741 km N Cairns Airport, Qld
08 Apr 2002	4	PA-31	Yam Island Airport, Qld
24 Apr 2002	4	737-376	130 km ESE Darwin VHF omnidirectional radio range, NT
25 Apr 2002	4	R22 ALPHA	7 km SSW Mount Isa Airport, Qld
05 May 2002	3	PA-28-161	2 km ESE Bankstown Airport, NSW
10 May 2002	4	200	Mount Hotham authorised landing area, Vic.
25 May 2002	4	172	Cairns Airport, Qld
28 May 2002	3	369E	Western Tiers, Tas.
05 Jun 2002	4	206B (II)	58 km SSW Lake Evella aerodrome, NT
09 Jun 2002	4	A330-341	185 km NE Melbourne VHF omnidirectional radio range, Qld
11 Jun 2002	3	737-800	Darwin Airport, NT
11 Jun 2002	4	737-376	93 km WSW Sydney VHF omnidirectional radio range, NSW
13 Jun 2002	4	DHC-8-314	22 km E Canberra VHF omnidirectional radio range, ACT
24 Jun 2002	4	601B	13 km SE Tamworth VHF omnidirectional radio range, NSW
28 Jun 2002	2	SF-340B	7 km ESE Bathurst non-directional beacon, NSW
29 Jun 2002	4	BAe 146-200A	37 km S Brisbane Airport, Qld

Appendix 9: ATSB performance measures in 2002–03 Portfolio Budget Statements

Performance information for achievement of Outcome 1 ('A Better Transport System For Australia')

Key strategies	Effectiveness – achievement of outcome
Improve targeting and timeliness of air and marine investigations	• Categorisation of aviation occurrences is carefully reviewed, backlog of older aviation and marine investigations is reduced, and more increased analysis of aviation safety data trends.
Develop the Commonwealth's role in rail safety and investigation	• Further development of a national rail safety occurrence database. Investigation of rail safety occurrences if commissioned by the States/NT. • The proposed Transport ***Safety Investigation Act*** and regulation are progressed to enable independent ATSB investigation on the interstate system.
Progress implementation of the Commonwealth's responsibilities under the National Road Safety Strategy and new Action Plan.	• Contribution to a demonstrable reduction in the road toll and other road crash costs. ATC agreement to a new National Road Safety Action Plan for 2003 and 2004.
Support safer aviation, shipping and land transport services.	• An improvement in transport safety standards, practices, knowledge and data.

Performance information for Departmental outputs

Output	Performance Indicators
1.1 Transport Policy Advice	Quality: • Ministers and Ministers' offices satisfied with the quality of policy advice and legislation development, and Department meets standards for policy advice, legislation and ministerial services. Target: • 90% level of satisfaction.
1.3 Transport Safety Investigation	• Stakeholder acceptance of safety messages, including consideration and implementation of recommendations, safety advisory notices and other safety actions.
1.5 Transport Research and Data	• Research and analysis outputs increase and improve stakeholder knowledge and improve safety outcomes. • Research and analysis activities contribute to policy development and programme delivery. • Research and analysis activities are in accordance with Departmental and appropriate peer and academic research standards.