

ICAO Universal Safety Oversight Audit Programme

**AUDIT REPORT OF THE
AUSTRALIAN TRANSPORT SAFETY
BUREAU (ATSB)
OF
AUSTRALIA**

(Canberra, 31 May to 4 June 2004)



INTERNATIONAL CIVIL AVIATION ORGANIZATION

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CONFIDENTIAL AUDIT REPORT OF THE AUSTRALIAN TRANSPORT SAFETY BUREAU (ATSB)

(Canberra, 31 May to 4 June 2004)

1. INTRODUCTION

1.1 List of ICAO documents related to the audit

Doc 7300	— <i>Convention on International Civil Aviation</i>
Annex 13	— <i>Aircraft Accident and Incident Investigation</i>
Doc 6920	— <i>Manual of Aircraft Accident Investigation</i>
Doc 8984	— <i>Manual of Civil Aviation Medicine</i>
Doc 9756	— <i>Manual of Aircraft Accident and Incident Investigation</i> <i>Part I — Organization and Planning</i> <i>Part IV — Reporting</i>
Doc 9422	— <i>Accident Prevention Manual</i>
Doc 9156	— <i>Accident/Incident Reporting Manual (ADREP Manual)</i>
Doc 9683	— <i>Human Factors Training Manual</i>
Doc 9806	— <i>Human Factors Guidelines for Safety Audits Manual</i>
Doc 9734	— <i>Safety Oversight Manual, Part A — The Establishment and</i> <i>Management of a State's Safety Oversight System</i>
Doc 9735	— <i>Safety Oversight Audit Manual</i>
Circ 298-AN/172	— <i>Training Guidelines for Aircraft Accident Investigators</i>
Circ 285-AN/166	— <i>Guidance on Assistance to Aircraft Accident Victims and</i> <i>their Families</i>
QMSF-007-06	— <i>Audit Protocols – Legislation and Regulations –</i> <i>Annex 13</i>
QMSF-007-07	— <i>Audit Protocols – Organization – Annex 13</i>
QMSF-007-09	— <i>Audit Protocols – Aircraft accident and incident</i> <i>investigations – Annex 13</i>
QMSF-007-11	— <i>State Aviation Activity Questionnaire (SAAQ)</i>
QMSF-007-13	— <i>Annex 13 Compliance Checklist</i>

1.2 List of documents related to the ATSB

- Australian Constitution 1901
- Transport Safety Investigation Act 2003, 11 April 2003.
- Transport Safety Investigation (Consequential Amendments) Act 2003, 11 April 2003
- Air Navigation Act 1920
- Air Services Act 1995
- Civil Aviation Act 1988
- Freedom of Information Act 1982
- Navigation Act 1912
- Public Service Act 1999
- Financial Management and Accountability Act 1997
- Occupational Health and Safety (Commonwealth Employment) Act 1991
- Transport Safety Investigation Regulations 2003, 11 April 2003

- ATSB Safety Investigation Policy and Procedures Manual, 27 May 2004
- ATSB Notifications Procedures Manual, 3 June 2004
- ATSB Major Accident Investigation Manual (aviation), 27 May 2004
- ATSB Investigation Occupational Health and Safety Manual, 28 May 2004
- The Code for the Preparation of Airline Family Assistance Plans amended 2003
- Training and Assessment Record Book for ATSB Investigators, 17 June 2002
- Work Level Standards Transport Safety Investigators amended 2002
- Handbook for participants of training programmes, 17 June 2002
- Guide to implementing work-based learning and assessment for investigators, 17 June 2002
- Civil and Military Aircraft Accident Procedures for Police Officers and Emergency Services Personnel, August 2003

1.3 Background

1.3.1 The aviation related activities of the Australian Transport Safety Bureau (ATSB) were audited from 31 May 2004 to 4 June 2004 by an ICAO audit team in accordance with the *Terms of Reference* agreed to on 3 May 2004 between the Australian Transport Safety Bureau and the Safety Oversight Audit (SOA) Section of ICAO and included in Attachment A to this report. The audit was carried out with the objective of ascertaining the capability of the ATSB of Australia and to ensure that it is in conformity with ICAO Standards and Recommended Practices (SARPs), as contained in Annex 13 to the *Convention on International Civil Aviation* (Chicago Convention), guidance material and relevant safety-related practices in general use in the aviation industry as referred to in such material.

1.3.2 On 24 August 2004, the ATSB submitted a corrective action plan addressing the findings and recommendations contained in the confidential audit interim report. The corrective action plan and the comments were reviewed by the SOA Section. Overall, they were found to be satisfactory and were taken into consideration in this report.

1.4 ICAO audit team composition

1.4.1 The ICAO audit team was composed of ICAO auditors experienced in accident and incident investigation and prevention: Mr. Henry Gourджи, team leader, Mr. Caj Frostell and Mr. Nicolas Rallo, team members.

1.5 ATSB officials contacted

Mr. Kym Bills	Executive Director
Mr. Rob Graham	Director Safety Investigations Branch
Mr. Alan Stray	Deputy Director Aviation Safety Investigation
Mr. Patrick Hornby	Legal Advisor
Mr. Lawrie Brown	Team Leader, Quality and Audit
Mr. Christopher Filor	Deputy Director Surface Safety Investigation
Mr. Ian Sangston	Senior Transport Safety Investigator
Mr. Phil Robertson	Senior Transport Safety Investigator
Mr. Julian Walsh	Acting Team Leader, Technical Analysis and Notification
Mr. Joe Hattley	Team Leader, Aviation Investigations
Mr. Greg Walsh	Notifications Officer
Mr. Steve Young	OASIS Data Administrator
Mr. Andrew Robertson	Senior Transport Safety Investigator

Mr. Rodney Newnham
Mr. William Fry

Senior Transport Safety Investigator
Senior Transport Safety Investigator

1.6 Acknowledgements

1.6.1 The ICAO audit team expresses its sincere appreciation for the assistance provided to it during the conduct of the audit. The professionalism of the staff of the ATSB greatly assisted the team in reviewing all relevant activities.

2. OBJECTIVES AND ACTIVITIES OF THE MISSION

2.1 The audit was carried out following the standard auditing procedures provided for in ICAO Doc 9735 — *Safety Oversight Audit Manual* with the objective of reviewing the relevant activities conducted by the ATSB to determine whether the SARPs of Annex 13 and associated guidance material were being followed. The objective was also to offer advice, as applicable, to the ATSB in implementing these provisions.

2.2 The ICAO audit team reviewed the ATSB compliance with the SARPs set out in Annex 13 and other relevant procedures, and adherence to guidance material and relevant safety-related practices in general use in the aviation industry, as referred to in such material. The ICAO audit team also reviewed whether the ATSB had the organizational structure and the legal status necessary to carry out its obligations.

2.3 The ICAO audit team also reviewed the ATSB's regulatory provisions, examined records and documentation and conducted interviews, in order to make its findings and recommendations, on the basis of safety oversight audit general requirements, as follows:

- a) consideration of existing national legislation enabling the ATSB to conduct accident and incident investigations in accordance with the provisions contained in Annex 13;
- b) a system in place, in particular with respect to:
 - 1) appropriately qualified accident and incident investigators supported by an adequate organizational and managerial structure;
 - 2) detailed records of training programmes and actual training given to professional staff in the areas of audit;
 - 3) availability of appropriate reference material, including ICAO documentation;
 - 4) evidence of overall system safety awareness and of a mechanism for accident and incident prevention;
 - 5) investigation methodology and practice (including the time taken to conduct and report on investigations); and
 - 6) appropriateness of existing ATSB facilities (including hangar, workshops and flight data/cockpit voice recorder section, as applicable).

- c) implementation of ICAO SARPs, procedures, as well as adherence to guidance material and relevant safety-related practices in general use in the aviation industry as referred to in such material, related to accident and incident prevention and investigation, in particular with respect to the requirements of an adequate organization, method of control and supervision of accident investigations and training programmes consistent with the nature and extent of the operations specified.

2.4 The findings and recommendations contained in this report reflect the capabilities and any limitations of the ATSB during the period of the audit. Thus, the report presents the results of the audit on the basis of evidence made available to the audit team, including results from interviews of the ATSB's technical experts and background information provided by such personnel, review and analysis of civil aviation legislation, specific regulations, related documentation and file records. Gathering of evidence was appraised by the audit team to complete the contents of this report. Considering the time that was available to conduct the audit and the fact that the audit team could only review and analyse information and documentation made available by the ATSB, it is possible that some safety concerns may not have been covered during the audit.

3. **AVIATION ACTIVITY RELATED TO AIRCRAFT ACCIDENT AND INCIDENT INVESTIGATION**

3.1 The following information related to the aviation activities with respect to aircraft accident and incident investigation in Australia was derived from the State Aviation Activity Questionnaire (SAAQ) and was confirmed by the ICAO audit team during the audit:

- a) number of regional offices: 2 (Brisbane, Perth)
- b) number of aviation investigators employed: 40 (35 in Canberra, 3 in Brisbane, 2 in Perth)
- c) accidents and incidents investigated by the ATSB:
 - 1) 2003: 27 accidents, 4 serious incidents, 24 incidents
 - 2) 2002: 21 accidents, 8 serious incidents, 34 incidents
- d) accidents and incidents notified to the ATSB:
 - 1) from 01 July 2002 to 30 June 2003: 151 accidents, 5797 incidents and serious incidents
 - 2) from 01 July 2001 to 30 June 2002: 179 accidents, 5468 incidents and serious incidents

4. **EXECUTIVE SUMMARY**

4.1 The ICAO audit team commended the positive and professional approach of the ATSB in proactively seeking the audit. The team was highly satisfied with the legislative and organizational framework established by Australia and the ATSB enabling the conduct of aircraft accident and incident

investigations. Nevertheless, the audit focussed on all areas related to accident and incident investigation and found possible areas of improvement.

4.2 The Transport Safety Investigation Act 2003 (TSI Act) is the legislative framework for transport safety investigations in aviation, marine and the interstate rail system. The TSI Regulations 2003, giving effect to the TSI Act, came into force at the same time as the TSI Act on 1 July 2003. Together, the TSI Act and the TSI Regulations comply with Annex 13 requirements and have the necessary provisions to enable the ATSB to effectively conduct or participate in aircraft accident and incident investigations. The ATSB has notified its differences to ICAO in respect of Annex 13. While section 17 of the TSI Act automatically endorses any amendments to ICAO SARPs and gives them the force of Australian law, the ATSB has not yet formalized its process for reviewing the SARPs and identifying its differences.

4.3 The ATSB has its headquarters in Canberra and two regional offices (in Brisbane and Perth). The ATSB is adequately organized and supported by appropriate technical and non-technical staff. However, the ATSB has not established a process for determining staff requirements needed to adequately complete all tasks in its area of responsibility. When establishing its *Business Plan*, the ATSB took into consideration the Department's Portfolio Budget Statements; however, the ATSB developed the performance indicators of its business plan based on the budget allotted to it. As a result, the number of smaller investigations and the scope of more complex investigations change depending on the availability of financial resources. Ideally, the number of accidents, serious incidents and associated safety issues should be used as a basis for the determination of the budget. Finally, the ATSB has not put in place a system for the control and integration of the regional offices into the functionality and organizational structure of the Canberra office. The ATSB has signed several Memorandums of Understanding (MOUs) with other organizations and authorities but some important MOUs have yet to be finalized.

4.4 The ATSB is commended for having developed a very comprehensive training policy and programme, which includes a diploma course entitled Transport Safety Investigation (TSI) Diploma Course. The ATSB training policy requires all personnel who joined the ATSB after 1 January 2000 to complete the TSI Diploma Course. Investigators who have taken or are currently taking this course maintain structured training files in accordance to the training programme followed. However, not all investigators have undergone the TSI Diploma Course. As a result, some investigators are not part of the formal diploma programme and do not maintain a documented record of all the types of training and briefings that they have been provided with.

4.5 The ATSB provides its staff with all the necessary facilities and equipment. However, the review of some of the equipment to be used by investigators revealed shortcomings in serviceability and record keeping. The ATSB has developed a new *Safety Investigation Policy and Procedures Manual* but has not yet formally approved it. The procedures established by the ATSB for the notification, investigation and reporting of aircraft accidents and incidents, found in several manuals, are comprehensive and in conformity with Annex 13 requirements. The ATSB focuses primarily on fare-paying passengers and on fatal accidents (unless they involve sport aviation), therefore some accidents that are considered to have little potential benefit for the prevention of re-occurrences may not be investigated in detail. In such cases, the ATSB does not necessarily attend the scene, conduct an in-depth investigation or produce an extensive report. Autopsy reports are obtained by the ATSB but are not always complete. By Australian legislation, medical examination and toxicological testing of surviving flight crew and aviation personnel cannot be performed after an accident.

4.6 Safety recommendations are issued by the ATSB in conformity with Annex 13 requirements. ADREP Preliminary Reports and Data Reports sent by the ATSB to ICAO were incomplete, partly due to the differences in the taxonomy format. Since the ATSB is in the process of

acquiring a new accident and incident data reporting system, it is recommended that the new database system be ADREP-ECCAIRS compatible in order to facilitate reporting and international exchange of data. Between 1988 and February 2004, the ATSB managed a voluntary incident reporting system named Confidential Aviation Incident Reporting (CAIR). A new voluntary non-punitive incident reporting scheme, entitled Aviation Self-Reporting Scheme (ASRS), replaced the CAIR on 21 February 2004 but has not yet been broadened to receive CAIR reports, pending further legislative measures. In addition to accident and incident investigation, the ATSB undertakes safety data analysis and research. All the ATSB reports, safety recommendations and key safety information are available on the ATSB website.

5. AUDIT RESULTS

5.1 Primary aviation legislation

5.1.1 General requirements

5.1.1.1 A State's primary aviation legislation should contain provisions to enable the Government and its administration to conduct or participate in aircraft accident and incident investigations which may be vested in an independent or separate body.

5.1.2 Primary aviation legislation in Australia

5.1.2.1 The Australian Constitution is the ultimate source of legal authority in Australia. It outlines the roles of the Parliament, Executive Government and the Judicature. The ATSB is responsible to the Government Ministers and the Governor General representing the Crown acts on advice of the Ministers who, in turn, are members of Parliament. Secretaries of departments are appointed to assist Ministers in relation to departmental responsibilities.

5.1.2.2 The *Transport Safety Investigation Act 2003* (TSI Act) was promulgated 11 April 2003 and is considered the legislative framework for transport safety investigations in aviation, marine and the interstate rail system. The TSI Act provides the Executive Director of the ATSB and delegates of the Executive Director with the powers related to the:

- a) reporting of transport safety matters;
- b) conduct of no-blame safety investigations;
- c) making of safety action statements, including safety recommendations to address safety issues;
- d) protection and dissemination of information; and
- e) publishing of investigation results.

5.1.2.3 All investigations of accidents and incidents occurring on or after 1 July 2003 are conducted in accordance with the TSI Act and the *Transport Safety Investigation Regulations 2003* (TSI Regulations). Investigations of accidents and incidents that occurred on or before 30 June 2003 are being conducted in accordance with Part 2A of the *Air Navigation Act 1920*. The repeal of Part 2A of the Air Navigation Act 1920 is properly stipulated in the *Transport Safety Investigation (Consequential Amendments) Act 2003*. The TSI Act has seven parts:

- a) Part 1- Preliminary: This part includes the objective of the Act, its application both inside and outside of Australia, the adoption of chapter 2 of the criminal code and its relationship with other laws;
- b) Part 2- Administration: This part provides for the creation of the office of the Executive Director of Transport Safety Investigation with the range of powers to conduct safety investigations, including the powers of delegation to appropriately qualified people and that the Executive Director is not subject to directions by the Minister or Secretary. This part also includes provision for Australia's compliance with Annex 13 to the *Convention on International Civil Aviation*;
- c) Part 3- Compulsory reporting of accidents etc.: This part provides an obligation on a responsible person to immediately report a serious reportable matter and to provide a written report within 72 hours as well as to report routine reportable matters within 72 hours;
- d) Part 4- Investigations and reports: This part provides for the Executive Director to investigate transport safety matters and provides for the publication of investigation reports;
- e) Part 5- Investigation Powers: This part provides the powers to the Executive Director to investigate, access relevant premises including accident sites, detain aircraft, issue of warrants, protection and penalties for non-compliance with certain provisions of the TSI Act;
- f) Part 6- Protection of on-board recording (OBR) information and restricted information: This part essentially deals with the use of OBR information collected (e.g. CVR data) as well as other sensitive information collected during an investigation; and
- g) Part 7- Miscellaneous: This part provides immunity for anything done or omitted to be done in connection with the exercise of powers under the Act in good faith. It provides a means to prevent ATSB staff members from having to appear as witnesses in criminal or civil proceedings other than coronial inquiries. Further, it authorizes ATSB staff members to exercise powers conferred on them under State and Territory Laws. Finally, section 71 of the TSI Act provides that the Governor General may make regulations for carrying out or giving effect to the Act.

5.1.2.4 Section 13.1 of the TSI Act provides ATSB transport safety investigators the ability to exercise statutory powers delegated by the Executive Director. The TSI Regulations (part 5.1) specify the criteria that a person must meet to be delegated powers under the TSI Act. A schedule is signed by the Executive Director and provided to each investigator and is used as the instrument for delegation. External investigators may be provided delegated powers under the TSI Act by signing an *External Investigator Agreement* that includes a schedule. The agreement must be signed by both the Executive Director and the external investigator.

5.1.2.5 Section 29 of the TSI Act and regulation 5.5 of the TSI Regulations provides the requirements for all investigators to be provided with identity cards (credentials) that confer them with the appropriate investigation powers when they are exercising their duties. In addition, all investigators hold another identity card that provides them the powers when exercising their duties under Part 2A of the *Air*

Navigation Act 1920. This would be the case of all accidents and incidents currently being investigated prior to Part 2A of the Air Navigation Act 1920 being repealed.

5.1.2.6 Section 7 of the TSI Act stipulates the objectives of the Act, which are to improve transport safety and are aimed at determining the factors that led to an accident or an incident so that lessons can be learned and transport safety improved in the future. The TSI Act ensures that the apportionment of blame for aircraft accidents and incidents is not the objective of the Act.

5.1.2.7 The TSI Act was found to comply with Annex 13 requirements and to have the necessary provisions to enable the ATSB to conduct or participate effectively in aircraft accident and incident investigations.

5.1.3 **Status of implementation and differences to Annex 13**

5.1.3.1 In practice, the ATSB is provided amendments to Annex 13 and other relevant ICAO documentation from the Department of Transport and Regional Services (DOTARS). The Deputy Director Aviation Safety Investigation reviews the amendments and advises the DOTARS if differences to Annex 13 exist. Australia has notified differences to ICAO in respect of Annex 13. However, while section 17 of the TSI Act automatically endorses any amendments to ICAO SARPs and gives them the force of Australian law, the ATSB has not yet formalized its process for reviewing the SARPs and identifying its differences (Appendix 1-1 refers).

5.1.3.2 In respect of the difference filed by Australia against paragraph 5.1, the audit team recalled that paragraph 5.1 is a fundamental paragraph in Annex 13, placing an obligation on the State of Occurrence to institute an investigation into the circumstances of an accident and to be responsible for the conduct of the investigation, with the objective of the prevention of (future) accidents and incidents (paragraph 3.1 of Annex 13). The accident investigation agencies in some other major aviation States, facing similar workload increases and budgetary decreases as ATSB, have elected to investigate all accidents in accordance with Annex 13, with the proviso that the investigation is continued to a point that it is evident that no further safety enhancements can be achieved. A decrease in workload is thus achieved by (severely) limiting the scope of the investigation of some (smaller) accidents as well as the size and format of the report.

5.1.3.3 Australia had filed a difference to paragraph 5.4 a) in respect of “gathering, recording and analysing **all** available information”. The ATSB commented that there were limited resources resulting in a prioritization depending on the likely safety value of the investigation.

5.1.3.4 The difference filed by Australia against paragraph 5.6 concerned the control of the bodies of the fatally injured flight crew and passengers which rested with the coronial authorities. The ICAO audit team recalled that the intent of paragraph 5.6 was to deal with the access and control by the investigator-in-charge of the wreckage and flight records and documentation. The handling and the autopsies of the bodies was dealt with in paragraph 5.9 which addressed “the State” (not the investigator-in-charge) to reflect the fact that the primary control of the handling of the bodies and the autopsies was the responsibility of other national authorities (usually coronial and police authorities).

5.1.3.5 Regarding paragraph 5.25, Australia had filed a difference reserving the right to remove a participant from an investigation if such a participant contravened the agreed conditions of participation. The audit team recalled that the spirit of Annex 13 was full cooperation between the States and the participants involved, and full adherence to Annex 13. Hence, Annex 13 did not deal with situations that might result from non-adherence to Annex 13 and it should not be necessary to file differences for such eventualities. The audit team noted that Note 1 to paragraph 5.25 appeared to cover the situation

envisaged by Australia. Regarding the envisaged situation, the audit team further noted that subject to a consultation with the State that appointed an accredited representative or an adviser, that State could be expected to replace or withdraw its appointed representative/adviser. In such a case, the State of Occurrence would not have a need to “remove” a participant from an investigation.

5.1.3.6 The difference filed by Australia against paragraphs 7.1 and 7.5 regarding Preliminary Reports and Data Reports to be sent to the ICAO Accident/Incident Data Reporting (ADREP) system introduced certain limitations to the reporting by Australia. The ICAO audit team reiterated that the ICAO ADREP system had been established by the 1974 ICAO Accident Investigation and Prevention Divisional Meeting. The States participating in the meeting considered it essential that a world accident data system be established and that ICAO be the custodian of the system. The States undertook to report their accidents to the system. The original ADREP system was developed in 1975 by an expert made available to ICAO by Australia. The requirements for States to report to the ADREP system are contained in Chapter 7 of Annex 13. The data in the ADREP system was essential in developing the world accident statistics, determining safety indicators for aviation, analysing causal factors in accidents and in determining and prioritizing safety initiatives.

5.1.4 **Specific findings and recommendations**

5.1.4.1 During the audit and in line with the procedures established on the basis of the *Terms of Reference* agreed to between the ATSB and ICAO, one (1) finding related to primary aviation legislation in Australia was identified. In this respect, one (1) recommendation has been developed to assist the ATSB. The finding and the recommendation are found in Appendix 1 of this report.

5.2 **Specific regulations in aircraft accident and incident investigation**

5.2.1 **General requirements**

5.2.1.1 A State should adopt regulations for accident and incident investigation to address, at a minimum, national requirements emanating from the primary aviation legislation and providing for standardized procedures, equipment, and infrastructure, in compliance with the Standards contained in Annex 13 to the *Convention on International Civil Aviation* and adhering to the requirements contained in the same Annex and related guidance material. The term “regulations” is used in a generic sense to include instructions, rules, edicts, directives, set of laws, requirements, policy, orders, etc.

5.2.2 **Aircraft accident and incident investigation regulations in Australia**

5.2.2.1 Section 71 of the TSI Act provides that the Governor General may make regulations for carrying out or giving effect to the TSI Act. Regulations giving effect to the TSI Act are the TSI Regulations. The TSI Regulations came into force at the same time as the TSI Act. The TSI Regulations were found to be comprehensive and prescribe the administrative arrangements in relation to a number of provisions within the TSI Act, including additional detail not covered by enabling legislation.

5.2.2.2 The TSI Regulations have been broken down into separate parts for matters that are relevant for the aviation, marine and rail modes of transport and an additional two parts that contain definitions and general matters relevant to the operation of the TSI Act that are applicable to all three modes of transport. Part 2 of the TSI Regulations only relates to matters involving aircraft operations and consists of the following:

- a) Application: identifies the type of aircraft that would be considered exempt from the reporting requirements of this part;

- b) Definitions: provides the list of definitions that are applicable and in use in this part of the regulations;
- c) Immediately Reportable Matters: provides the details of transport safety matters that are immediately reportable for aviation;
- d) Routine Reportable Matters: provides a list of transport safety matters that are routinely reportable. A routine reportable matter needs be reported within 72 hours;
- e) Responsible Person: provides a list of persons who, by the nature of their qualifications, experience or professional association with a particular aircraft, or a number of aircraft, would be likely to have knowledge of an immediately or routine reportable matter in aviation;
- f) Written Reports: sets out the information required to be reported in the form of a written report;
- g) Nominated Officials: identifies a list of staff members other than a special investigator to become a nominated official;
- h) Reports to be given to staff members: ensures that ultimately, a staff member, other than a special investigator, receives a report of an immediately or routine reportable matter; and
- i) On-Board Recording (OBR) information: identifies recordings that do not need to be protected in the same manner as an OBR under the TSI Act, but will be treated as restricted information.

5.2.2.3 If and when the TSI Regulations require amendments, the ATSB would initially draft the proposed amendment and when necessary consult with the industry by sending a copy of the draft to all industry contacts with an Explanatory Memorandum. The draft regulations would be presented to the Minister for approval through the Executive Council.

5.2.2.4 Regarding a family assistance programme to facilitate assistance to victims and the families of victims involved in an air carrier accident, the Commonwealth of Australia, through the DOTARS, has drawn up *The Code for the Preparation of Airline Family Assistance Plans*. The code provides guidance for the development of a family assistance plan to be funded and supported by all regular public transport and charter operations providing passenger services to, from or within Australia. Although adoption of this code is currently voluntary, the DOTARS advocates its use and requires written assurances from all applicable operators that such a plan has been developed.

5.2.3 **Specific findings and recommendations**

5.2.3.1 During the audit and in line with the procedures established on the basis of the *Terms of Reference* agreed to between the ATSB and ICAO, no findings related to specific accident and incident investigation regulations in Australia were identified. In this respect, no recommendations have been developed to assist the ATSB.

5.3 **ATSB structure and functions**

5.3.1 **General requirements**

5.3.1.1 The State should establish an investigation authority to be responsible for the conduct of aircraft accident and incident investigations. The investigation authority may be a permanent body, separate/independent or not from the civil aviation regulatory body, or a temporary ad-hoc committee constituted in the event of an aircraft accident, generally at ministerial level. The structure must be supported by the appropriate technical and non-technical staff and adequately provided with the necessary financial resources. The structure must have stated functions, objectives and policy.

5.3.2 **The organization and staffing of the ATSB**

5.3.2.1 The ATSB was officially established on 1 July 1999. Section 15 of the TSI Act provides independence to the ATSB by allowing the Executive Director to exercise the powers under the TSI Act without being subject to directions from the Minister or the Secretary.

5.3.2.2 The ATSB Executive Director is currently supported by a Director Safety Investigations Branch and a Director Safety Research and Education Branch. The Safety Investigations Branch (SIB) is currently supported by a Deputy Director Aviation Safety Investigation and a Deputy Director Surface Safety Investigation. Aviation investigation responsibilities are carried out by two teams referred to as the Green Team and the Red Team; each led by a team leader that reports to the Deputy Director Aviation Safety Investigation. It is envisaged that with the retirement of the Director Safety Investigations Branch, this position would no longer be filled and the ATSB would restructure by establishing a third Deputy Director position responsible principally for notifications, technical analysis and projects. In addition, the audit team was advised that a third team leader position would be established principally responsible for the quality and audits of all the functions and responsibilities related to aviation investigation.

5.3.2.3 The ATSB is located in Canberra with two regional offices (Perth and Brisbane), which are staffed with investigators to assist the Canberra office of the Safety Investigations Branch (SIB) to respond rapidly to aviation accidents and incidents. For aviation, there are thirty-five investigators located in Canberra, three investigators in Brisbane and two investigators in Perth. Team leaders and managers visit the regional offices from time to time. In addition, there are weekly telephone conferences to discuss issues and review workload and priorities. However, the ATSB has not established a fully documented system for the coordination and control of the regional offices to ensure that they are seamlessly integrated into the functionality and organizational structure of the Canberra office (Appendix 2-1 refers).

5.3.2.4 In accordance with the *Public Service Act 1999* and the *Financial Management and Accountability Act 1997*, the Executive Director of the ATSB is responsible to the Secretary for ensuring the ATSB manages its personnel and resources. Budget pressures have resulted in declining resources for the ATSB. Staffing has fallen from 102 full time staff in 2001 to 88.5 as at April 2004. The technical support staff has been reduced and the duties are now being accomplished by the investigators. As a result, investigators now spend approximately 75 per cent of their time on investigation duties and 25 per cent are spent on administrative functions.

5.3.2.5 With the reduced budget and reduced staff, aviation occurrence investigations decreased from 118 in the year 2000-2001 to 88 in the year 2001-2002, with a further decrease to 62 in the year 2002-2003. The audit team was informed that the budget for the year 2004-2005 had been increased to A\$ 16.24 million resulting in an increase of A\$2 million per annum for investigations. With the budget increase announced prior to the end of the 2003-2004 year, the 2003-2004 investigations commenced

were able to be increased to 73. As a result of the budget increase, it is envisaged that staffing can be increased by about 13 full time staff and that SIB will be able to recruit 10 more investigators.

5.3.2.6 The ATSB has not established a process for determining the staff requirements needed to adequately complete all tasks in its area of responsibility. When establishing its Business Plan, the ATSB takes into consideration the Department's Portfolio Budget Statements; however, the ATSB develops the performance indicators of its business plan based on the budget allotted to it. As a result, the number of smaller investigations and the scope of more complex investigations change depending on the availability of financial resources. The ATSB should endeavour to establish its budget based on its actual requirements to meet its international obligations under Annex 13 and its national obligations under the TSI Act (Appendix 2-2 refers).

5.3.2.7 Staff are recruited using a generic duty statement, and selection criteria have been developed for each position. The DOTARS receives all applications and forwards the applications to the ATSB. A nominated panel within the ATSB reviews the applications and produces a short list of candidates. The panel interviews candidates using select questions. A report is then finalized.

5.3.2.8 The ATSB has signed several MOUs in order to streamline workings with organizations and agencies external to the ATSB, however, some important MOUs with other national authorities within Australia, such as most Coroners and the Federal Police, have yet to be finalized. The ATSB envisages all key MOUs to be finalized by 24 December 2004 (Appendix 2-3 refers).

5.3.3 **Specific findings and recommendations**

During the audit and in line with the procedures established on the basis of the *Terms of Reference* agreed to between the ATSB and ICAO, three (3) findings related to the ATSB structure and functions were identified. In this respect, three (3) recommendations have been developed to assist the ATSB. The specific findings and recommendations are found in Appendix 2 of this report.

5.4 **Technical personnel and training**

5.4.1 **General requirements**

5.4.1.1 The investigation authority should have adequate and competent technical personnel to conduct aircraft accident and incident investigations and to carry out other technical tasks related to aircraft accident and incident investigation to the scope and level of complexity required.

5.4.2 **Technical personnel and training in the ATSB**

5.4.2.1 ATSB's aircraft accident and incident investigators have a variety of backgrounds. Investigators have experience as pilots, engineers, maintenance engineers (LAME), air traffic controllers or human factors practitioners. Some investigators combine several types of backgrounds (e.g. pilot and maintenance engineer). In addition, the ATSB has an investigator (a former flight attendant) specialized in cabin safety issues. Other ATSB technical investigator staff include flight recorder specialists and material failure analysis experts.

5.4.2.2 The ATSB has received national tertiary accreditation to provide to its staff the Diploma of Transport Safety Investigation. This diploma provides investigators of the ATSB national recognition as qualified ATSB investigators. The qualification is awarded to investigators who have demonstrated a level of competency based on standards established in the document entitled *Work Level Standards for Transport Safety Investigators (amended 2002)*. The competency standards describe the core range of

duties and skills required for all investigators within each level as well as describing the various associated specialized duties and skills required by investigators.

5.4.2.3 All training conducted under this diploma programme is recorded in a *Training and Assessment Record Book* which is updated by the investigators during their training. A review of various training records revealed that they were up-to-date and kept in accordance to the training requirements.

5.4.2.4 The ATSB training policy requires all personnel joining the ATSB after 1 January 2000 to complete the Transport Safety Investigation (TSI) Diploma Course. Investigators who have taken or are currently taking this course maintain structured training files in accordance to the training programme followed. However, not all investigators have undergone the TSI Diploma Course. As a result, some investigators are not part of the formal diploma programme and do not maintain a documented record of all the types of training and briefings that they have been provided with (Appendix 3-1 refers).

5.4.2.5 Seven investigators have already completed the training and nineteen are currently undergoing this training. The ATSB has indicated that the remaining staff will be encouraged to take this training.

5.4.3 **Specific findings and recommendations**

5.4.3.1 During the audit and in line with the procedures established on the basis of the *Terms of Reference* agreed to between the ATSB and ICAO, one (1) finding related to qualified technical personnel and training was identified. In this respect, one (1) recommendation has been developed to assist the ATSB. The finding and the recommendation are found in Appendix 3 of this report.

5.5 **Technical guidance, tools and the provision of safety critical information**

5.5.1 **General requirements**

5.5.1.1 It is essential that the accident investigation authority be supported by appropriate facilities and equipment to carry out its various functions.

5.5.1.2 States also need to develop and publish their own technical guidance material to assist their technical experts implement national regulations, procedures and practices. ICAO has developed and published technical guidance to assist States in implementing the provisions of Annex 13. The ICAO guidance material can be utilized in the preparation of such national technical guidance material.

5.5.2 **Facilities and equipment**

5.5.2.1 The ATSB's facilities in Canberra include offices, conference rooms, a flight recorder laboratory and a material failure laboratory. The flight recorder laboratory is well equipped for CVR and FDR read-out and analysis. In the last years, the ATSB has carried out an average of five CVR read-outs and fifteen to twenty FDR read-outs per year. The material failure laboratory, used for investigations in all modes of transport and for safety study purposes, has some space available to store small wreckage parts. To store bigger wreckage, the ATSB rents a hangar in the proximity of the accident site.

5.5.2.2 Aircraft accident investigators are provided with the equipment necessary to carry out investigations, including the equipment required by the *Occupational Health and Safety Act 1991*. Investigators are supplied with lockers to store their investigation field kits and other essential personal items. Special equipment such as digital cameras, satellite telephones and large items are kept locked in a store room. However, the audit team noted that the ATSB should develop a system to ensure that all

equipment to be used by investigators is properly maintained and stored and appropriate records are kept of their serviceability (Appendix 4-1 refers).

5.5.2.3 The ATSB has a resource library available to all technical staff. The ATSB maintains a subscription to Jeppesen documentation as well as the Aircraft Technical Publisher (ATP) microfiche for most general aviation aircraft. The investigators share the responsibility to maintain the documentation current and to enter all amendments. Many other manuals are available for information purposes; however, they are not kept up to date. When investigators require a manual for an aeronautical product, they rely on the operator or the product manufacturer to supply the latest manual.

5.5.3 **Procedures established for the investigation of accidents and incidents**

5.5.3.1 **Policy and procedures manual**

5.5.3.1.1 Following the promulgation of the TSI Act and the TSI Regulations, the ATSB has developed a new policy and procedures manual entitled *Safety Investigation Policy and Procedures Manual*, which contains 9 parts:

1. General
2. Notification and initial response
3. Protection of evidence
4. Personnel for ATSB and other investigations
5. On-site phase
6. Evidence collection – general
7. Analysis of evidence, including identification of safety issues
8. Production and release of investigation reports
9. Coronial process

5.5.3.1.2 This manual provides comprehensive instructions and guidance to the ATSB staff on how to complete the investigation tasks in accordance with the TSI Act and the TSI Regulations; however, the *Safety Investigation Policy and Procedures Manual* is still in draft form. The draft has been made available in electronic format to all ATSB personnel, in the Canberra office as well as in the two regional offices, but is not released as an approved and controlled document (Appendix 4-2 refers).

5.5.3.2 **Notification procedures**

5.5.3.2.1 The ATSB has implemented a system to receive reports of accidents and incidents and forward a notification to the relevant parties on a 24-hour basis. In addition to the legal and regulatory provisions concerning notification (TSI Act sections 18 to 20 and TSI Regulations parts 2.3 to 2.8), the ATSB has developed processes and procedures to be followed by its personnel, including management, investigators and notification officers, during office hours and out-of-office hours. The ATSB has a well-advertised 1-800 telephone number for the reporting of accidents and incidents. Another telephone number (published by ICAO) is specifically used to receive notifications coming from other States. Both telephone numbers are operational 24 hours a day.

5.5.3.2.2 The Australian legislation and regulations make a distinction between “immediately reportable matters” and “routine reportable matters”, defined for civil aviation in parts 2.3 and 2.4 of the TSI Regulations. The TSI Act (sections 18 and 19) requires that “responsible persons” report as soon as possible “immediately reportable matters”. Moreover, a written report is required within 72 hours for “immediately reportable matters” and for “routine reportable matters.”

5.5.3.2.3 The procedures outlined above are found in a manual entitled *ATSB Notifications Procedures Manual*. They are in compliance with Annex 13 and associated guidance material. The system in place is comprehensive and efficient, enabling the ATSB to initiate an investigation immediately when Australia is the State of Occurrence; and, when Australia is a participating State, to appoint an accredited representative and advisers rapidly and to provide the State of Occurrence with all the requested information.

5.5.3.3 Investigation procedures

5.5.3.3.1 As a tool to determine the depth of its investigations and the resources to be allocated to them, the ATSB has developed a system to assess occurrences as soon as they are notified. Occurrences are classified in 5 categories, from Category 1 to Category 5. Category 1 is for occurrences of the highest gravity or importance and Category 5 is for the occurrences that are allocated the least resources (basic data are compiled and filed in the ATSB database).

5.5.3.3.2 The ATSB's policy is to place the primary focus on fare-paying passengers and to investigate all fatal accidents (unless they involve sport aviation). However, accidents that are considered to have little potential benefit for the prevention of re-occurrences may not be investigated in detail. In such cases, the ATSB would not necessarily attend the scene, conduct an in-depth investigation or produce an extensive report (Appendix 4-3 refers).

5.5.3.3.3 The TSI Act has given the ATSB legal tools to protect the evidence in its investigations, in particular the "protection orders" provided for by section 43 of the TSI Act. Moreover, in addition to the MOUs signed with several authorities, the ATSB has produced a booklet containing procedures and information to police authorities, emergency services and other organisations and persons arriving at an accident site in order for them to undertake their essential actions in a manner that is safe and organised, while protecting the wreckage and the accident site for the ATSB's investigation.

5.5.3.3.4 The participation of the different States involved in investigations conducted by Australia is granted in accordance with Annex 13. The TSI Act (section 17) states that the ATSB Executive Director's powers are exercised "in a manner that is consistent with Australia's obligations under international agreement", which for civil aviation are identified by the TSI Regulations (part 5.3) as the *Convention on International Civil Aviation* and Annex 13.

5.5.3.3.5 In practice, and in order to guarantee the confidentiality of certain evidence (CVR recordings and other confidential information), the ATSB requires that accredited representatives, advisers, and observers sign an agreement entitled *External Investigator Agreement* or *Observer Agreement*. Not respecting the conditions of the agreement may cause the participant to be removed from the investigation.

5.5.3.3.6 The investigation tasks, such as the examination of the wreckage and the site and the conduct of interviews, are carried out by the ATSB investigators according to the ATSB procedures and in conformity with Annex 13 and the associated guidance material. The working methods and techniques are satisfactory and well applied by the investigators. However, as far as medical aspects are concerned, the ATSB investigators obtain autopsy reports but the autopsies are not performed in the presence of an aviation pathologist/physician or an ATSB accident investigator. As a result, it is possible that detailed evidence, such as direction of fractures and exact size and location of lacerations may not be available in all circumstances to determine situations such as who was at the flight controls and injury direction and sequence (Appendix 4-4 refers).

5.5.3.3.7 Medical examination and toxicological testing of surviving flight crew and other involved aviation personnel following an accident (Annex 13, paragraph 5.9.1) cannot be performed since the Australian legislation does not allow it (Appendix 4-5 refers). In view of the ATSB Research Reports published in March 2004 entitled “*Cannabis and its Effects on Pilot Performance and Flight Safety: A Review*” and “*Alcohol and Human Performance from an Aviation Perspective: A Review*”, toxicological testing of surviving flight crew and other involved personnel would appear to be essential. The research reports concluded that cannabis and alcohol use by pilots is a significant potential hazard to flight safety.

5.5.3.3.8 The compliance with occupational health and safety standards is achieved through the implementation of procedures developed by the ATSB and gathered in a manual entitled *ATSB Investigation Occupational Health and Safety Manual*.

5.5.3.3.9 Australia has not delegated any investigation to another State. However, nothing in the Australian legislation or regulations would prevent the full or partial delegation of an investigation by Australia to another State.

5.5.3.3.10 The ATSB participates by appointing an accredited representative and advisers to investigations conducted by other States when Australia is involved as per Annex 13, mainly when Australia is the State of Registry or State of the Operator. The ATSB may also provide assistance to another State upon request. The TSI Act applies not only to accidents and incidents occurring in the Australian territory but also to occurrences involving Australian-registered aircraft anywhere in the world. The TSI Act provides for the protection of the confidentiality of records and restricted information when the ATSB participates in an investigation conducted by another State or conducts an investigation delegated to it by another State.

5.5.3.4 **Procedures established for the production and release of the final report**

5.5.3.4.1 By law (TSI Act, section 25), the investigations carried out by the ATSB include the completion, release and publication of a final report. Exceptionally, when an investigation is discontinued by decision of the ATSB Executive Director, the final report is not completed. In this case, a statement setting out the reasons must be published by the ATSB.

5.5.3.4.2 For major occurrences, a preliminary report (factual) is released by the ATSB within 30 days of the date of occurrence. As for the completion of the final report, target dates are defined in the *Safety Investigation Policy and Procedures Manual* and range from 6 months from the date of occurrence for Category 4 occurrences to 24 months for Category 1 occurrences.

5.5.3.4.3 Before the completion of the final report, draft reports are made available to the participants. All parties involved in the investigation (the “Directly Involved Parties” or “DIPs” as defined in the Manual, part. 8.5) are normally given 28 days to provide their comments. The participating States are encouraged to provide their comments, if any, within 28 days; however, they are permitted to do so within 60 days.

5.5.3.4.4 Until the draft final report is ready, for Category 1, Category 2 and Category 3 occurrences, an interim factual report is released every 6 months commencing after the release of the preliminary report.

5.5.3.4.5 Final reports are placed on the ATSB website, providing for large dissemination of the information. Paper copies are provided to relevant individuals and organizations.

5.5.4 **Procedures used in selected accidents**

5.5.4.1 **General**

5.5.4.1.1 Two ATSB investigations were selected for review based on challenging circumstances in the investigations and the availability of the investigators who conducted the investigations. The purpose was not to review in any detail the circumstances of the accidents, but to examine the conduct of and the participation in investigations in order to determine whether the investigation tasks were conducted in accordance with the Australian legislation and regulations, and the ATSB policies and procedures, as well as ICAO standards. The reviews were conducted by examination of documentation and interviews with an investigator for each case. The cases were also discussed with the Deputy Director Air Safety Investigation.

5.5.4.2 **Raytheon Beech 200C accident at Mount Gambier, SA on 10 December 2001**

5.5.4.2.1 The investigator-in-charge (IIC) gave a detailed briefing of the notification of the accident, the ATSB response and dispatch of an investigation team, the field investigation, the conduct of interviews and the analysis of the information. The IIC highlighted the significant factors involved in the CFIT accident and the safety actions undertaken.

5.5.4.2.2 The ICAO audit team was satisfied that the accident had been investigated in accordance with the policies and procedures of the ATSB.

5.5.4.3 **Ilyushin IL-76TD accident at Baucau, Timor Leste on 31 January 2003**

5.5.4.3.1 The Government of the República Democrática de Timor-Leste (East Timor), requested the Government of Australia to provide assistance in the investigation of the accident at Baucau in East Timor involving an Ilyushin IL-76TD aircraft, registered RDPL-34141 in Laos.

5.5.4.3.2 In accordance with ICAO Annex 13, the ATSB appointed a Senior Transport Safety Investigator as Australia's accredited representative. He was assisted by advisers drawn from the ATSB, the Directorate of Flying Safety (DFS) - Australian Defence Force, and the Defence Science and Technology Organisation. The Australian accredited representative assisted the investigator-in-charge (who was also the director of the civil aviation division in East Timor), by conducting significant parts of the investigation, analysing the evidence and drafting the final report.

5.5.4.3.3 The Australian accredited representative briefed the ICAO audit team on all aspects of the investigation and the ATSB involvement. The CFIT accident investigation involved significant efforts in establishing the circumstances related to the registration of the aircraft, the air operator certificate of the operator and the safety oversight roles of the States involved. The ICAO audit team was satisfied that the participation of the Australian accredited representative and his advisers had been in accordance with the international standards in Annex 13 and the policies and procedures of the ATSB.

5.5.4.4 **Summary**

5.5.4.4.1 Based on the information presented, despite multiple difficult circumstances in each of the investigations reviewed, the investigators appeared to have managed the investigation tasks in a professional and efficient manner, consistent with the established standards and practices of the ATSB. Furthermore, it was noted that safety issues were properly addressed and the processing of reports of the investigations was generally accomplished in a timely manner.

5.5.5 **Specific findings and recommendations**

5.5.5.1 During the audit and in line with the procedures established on the basis of the *Terms of Reference* agreed to between the ATSB and ICAO, five (5) findings related to technical guidance, tools and the provision of safety critical information were identified. In this respect, five (5) recommendations have been developed to assist the ATSB. The specific findings and recommendations are found in Appendix 4 of this report.

5.6 **Resolution of safety concerns**

5.6.1 **General requirements**

5.6.1.1 The provision of processes and methodology to facilitate the resolution of deficiencies and safety concerns is at the core of a State's safety oversight system. A good system will provide for the identification, resolution and follow-up of deficiencies and safety concerns.

5.6.1.2 The accident investigation authority plays a crucial role in the identification of deficiencies and safety concerns. One of its abilities is to issue safety recommendations in the course or at the completion of an investigation. Another essential tool is the management of mandatory incident reporting systems as well as voluntary incident reporting systems (which should be non-punitive). The establishment of an accident and incident database and the analysis of the information contained in such a database is a means to identify safety concerns; a common taxonomy is essential to allow for the exchange of information between the users of the aviation system worldwide.

5.6.2 **Accident and incident prevention measures established by the ATSB**

5.6.2.1 **Safety recommendations**

5.6.2.1.1 As part of an investigation, the ATSB investigators are required to identify any safety issues involved. Guidance on how to determine the necessity, the type and formulation of a recommendation is provided in the *ATSB Investigation Policy and Procedures Manual* (parts 7.6, 7.7 and 8.3). The ATSB's policy is not to prescribe solutions but rather to state the safety issue that the recipient is asked to address and provide a solution to.

5.6.2.1.2 Each recommendation is accompanied by a written statement of the associated safety issue identified and supporting information that led to the recommendation being made. This information normally forms part of an investigation report but may be issued separately. Also, the ATSB generally consults with the relevant organization or individual prior to a safety recommendation being made.

5.6.2.1.3 In addition to formal written safety recommendations, the ATSB may provide other information directly affecting safety, at any time during an investigation, or as soon as such information is available to organizations or individuals that are considered to be in the best position to respond to and act upon those recommendations. The ATSB encourages organizations to take safety actions ahead of a final report, which reduces the need to make recommendations and leads to more timely improvements. In such cases, the text of the final draft includes safety actions taken by organizations.

5.6.2.1.4 The ATSB relies on its reputation and wide dissemination of the reports for the safety recommendations to be adopted. Most safety recommendations made led to positive safety actions. It is the prerogative of the addressee of a safety recommendation to determine and implement safety actions stemming from a recommendation.

5.6.2.1.5 The safety recommendations made by the ATSB, as well as the responses to them, are published on the ATSB website.

5.6.2.2 **ADREP reporting**

5.6.2.2.1 The procedures in place for the ATSB to report to the ICAO ADREP system, contained in the ATSB Notifications Procedures Manual (Section 8 – ADREP Reporting), meet the international reporting requirements of Annex 13, Chapter 7.

5.6.2.2.2 In practice, the ATSB has been reporting accidents and investigated incidents to the ICAO ADREP system as a result of a discussion between ATSB personnel and the ICAO ADREP system administrator some 18 months before this audit. The ICAO audit team was informed that no feedback had been received from ICAO as to the status and format of the reported data.

5.6.2.2.3 According to the ICAO ADREP system administrator, the data received from Australia constituted ADREP Preliminary Reports and no ADREP Data Reports had been received in the last few years. It is worthy to note that there was some confusion prior to the audit between the ATSB and the ICAO Secretariat, which meant that the ATSB was unaware of the ADREP reporting problems.

5.6.2.2.4 Since the ATSB is in the process of acquiring a new accident and incident data reporting system, it is recommended that the new database system be ADREP-ECCAIRS compatible in order to facilitate ADREP reporting and an international exchange of accident and incident data. It is envisaged that the ATSB may transfer accident data from its old system to the new system in due course, thus also facilitating the reporting to ADREP of older accident records in an ADREP-ECCAIRS taxonomy format.

5.6.2.2.5 It is also recommended that further discussions take place between the ATSB database system personnel and the ICAO ADREP system administrator in order to facilitate the reporting to the ADREP using the ATSB existing system before the new ATSB system becomes operational (Appendix 5-1 refers).

5.6.2.3 **Incident reporting systems**

5.6.2.3.1 The TSI Act contains a scheme for the mandatory reporting of occurrences that are classified as “immediately reportable matters” (accidents and serious incidents) and “routine reportable matters” (mandatory reporting of incidents). Detailed guidance on the processing and categorization of the reported occurrences is contained in the ATSB *Notifications Procedures Manual*.

5.6.2.3.2 Between 1988 and February 2004, the ATSB managed a voluntary incident reporting system named Confidential Aviation Incident Reporting (CAIR). A new voluntary non-punitive incident reporting scheme, entitled Aviation Self-Reporting Scheme (ASRS), replaced the CAIR on 21 February 2004 but has not yet been broadened to receive CAIR reports, pending further legislative measures, in particular with respect to the protection of individuals from administrative action (Appendix 5-2 refers).

5.6.2.4 **Database systems, analysis of data and exchange of safety information**

5.6.2.4.1 All data reported to the ATSB as notifications of accidents, serious incidents and incidents and as (mandatory) air safety incident reports are stored in the Occurrence Analysis and Safety Information System (OASIS). The OASIS also contains separate modules for the ASRS and for the Safety Deficiency Management System (SDMS).

5.6.2.4.2 In addition to accident and incident investigation, the ATSB undertakes safety data analysis and research. The ATSB makes a contribution to the safety of the Australian aviation industry through data analysis, open reporting and education on civil aviation matters.

5.6.2.4.3 All the ATSB reports, safety recommendations, and key safety information are available on the ATSB website (www.atsb.gov.au), which receives more than eight million “hits” each year.

5.6.3 **Specific findings and recommendations**

5.6.3.1 During the audit and in line with the procedures established on the basis of the *Terms of Reference* agreed to between the ATSB and ICAO, two (2) findings related to the resolution of safety concerns were identified. In this respect, two (2) recommendations have been developed to assist the ATSB. The specific findings and recommendations are found in Appendix 5 of this report.

6. **FOLLOW-UP ACTION**

6.1 In accordance with the *Terms of Reference* agreed to between the ATSB and ICAO, in the event that the ATSB requires any clarification or has a question concerning the findings and recommendations or the audit mission as a whole, it is encouraged to contact ICAO and the SOA Section, in particular, for clarification, information and/or advice, as required, at any time.

APPENDIX 1-1

FINDINGS AND RECOMMENDATIONS RELATED
TO PRIMARY AVIATION LEGISLATION

Auditee: ATSB	Finding and Recommendation Number:
Audit period: 31 May to 4 June 2004	CE-1/01
Document reference: - Chicago Convention, Articles 37 and 38; - Annex 13, paragraph 2.1	Audit protocol reference: AIG 6.030 LEG 1.151
Type of finding: <input checked="" type="checkbox"/> Non-compliance with Chicago Convention or State Regulations	
FINDING: Australia has notified differences to ICAO in respect of Annex 13, however, the ATSB has not formalized the process for reviewing the SARPs and amending the legislation and regulations to be in line with the amendments of ICAO SARPs or identifying the differences.	
RECOMMENDATION: The ATSB should develop a formal process for reviewing amendments to SARPs and for listing and notifying the differences, if any, to ICAO. In addition, with the recent promulgation (July 2003) of the <i>Transport Safety Investigation Act 2003</i> and the <i>Transport Safety Investigation (Consequential Amendments) Act 2003</i> which has strengthened the position of the ATSB by clarifying the roles and responsibilities and by providing for the establishment of the office of the Executive Director of Transport Safety Investigation with a range of powers under the TSI Act to conduct safety investigations, including powers of delegation and investigation, the ATSB should review the legislation and regulations against the Annex 13 SARPs and notify the differences, if any, to ICAO.	
CORRECTIVE ACTION PROPOSED BY THE ATSB: Section 17 of the <i>Transport Safety Investigation Act 2003</i> requires the ATSB to exercise powers in a manner consistent with Annex 13 (identified by Regulation) in the latest form that the Annex is in force. This means that there is no need to take separate action to ensure amendments to Annex 13 are reflected in Australian legislation – it happens automatically. However, the ATSB has revised the Safety Investigation Policy and Procedures Manual to include a procedure to formally review amendments to SARPs against the TSI Act, regulations, policies, procedures and resource capability of the bureau, and to list and notify any differences to ICAO. The ATSB has forwarded a notification to ICAO, through the Australian Council Representative, that Australia is removing differences filed against Annex 13 paragraphs 5.6 and 5.25. This action was taken as a result of the ICAO Audit Team noting that the intent of paragraph 5.6 and the spirit of Annex 13 in relation to paragraph 5.25 were being met by Australia.	
CORRECTIVE ACTION ACCEPTABLE BY ICAO: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Auditor: Henry Gourdji, Caj Frostell	
Date: 4 June 2004	
Team Leader: Henry Gourdji	

ACTION TAKEN BY THE ATSB:

Attachment A to the ATSB's Safety Investigation Guidelines Manual – General, outlines the procedure to formally review amendments to SARPs against the TSI Act, regulations, policies, procedures and resource capability of the bureau, and to list and notify any differences to ICAO. The Deputy Director Information and Investigations is responsible for this formal review and the drafting of differences, if any, for the approval of the Executive Director ATSB, before lodgement with ICAO via the Department.

STATUS: Completed

APPENDIX 2-1

**FINDINGS AND RECOMMENDATIONS RELATED
TO ATSB STRUCTURE AND FUNCTIONS**

Auditee: ATSB	Finding and Recommendation Number:
Audit period: 31 May to 4 June 2004	CE-3/01
Document reference: ICAO Doc 9734, paragraph 3.4	Audit protocol reference: ORG 2.112
Type of finding: <input checked="" type="checkbox"/> Non-adherence to guidance material	
FINDING:	
<p>The ATSB currently has two regional offices (Brisbane and Perth) to assist the Canberra office of the Safety Investigations Branch (SIB) to rapidly respond to aviation accidents and incidents. The regional offices are visited from time to time by team leaders and managers, however, the ATSB has not established a system for the coordination and control of the regional offices to ensure that they are seamlessly integrated into the functionality and organizational structure of the Canberra office.</p>	
RECOMMENDATION:	
<p>The ATSB should develop a system for the coordination and control of the regional offices to ensure that the functions of the regional offices as identified in the ATSB Safety Investigation Policy and Procedures Manual are carried out effectively.</p>	
CORRECTIVE ACTION PROPOSED BY THE ATSB:	
<p>Currently the five aviation investigators located at the two ATSB regional offices are treated the same as investigators in Canberra and work to Canberra-based team leaders who liaise with them by email, telephone and regular video-conferencing. Files are sent to and from the regional offices on a daily basis.</p> <p>However, the ATSB has revised the Safety Investigation Policy and Procedures Manual to include a procedure to ensure that the Regional Offices effectively meet the responsibilities required by that section.</p>	
CORRECTIVE ACTION ACCEPTABLE BY ICAO:	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Auditor: Henry Gourdji	
Date: 4 June 2004	
Team Leader: Henry Gourdji	
ACTION TAKEN BY THE ATSB:	
<p>The Safety Investigation Quality Systems (SIQS) Manual at pages 6 and 7 explains that the management processes that apply to staff in Canberra also apply to staff in the Regional Offices. Regional Office Staff participate in investigation teams led by a designated investigator-in-charge in the same manner as Canberra staff. Reviews of workload and project management and project planning, along with exchange of information and risk assessment of task assignment occur seamlessly as a part of the management of investigation teams. Further, Team Leaders are required to visit the regional offices at least biannually and Deputy Directors and the Executive Director visit the offices at least annually.</p>	
STATUS: Completed	

APPENDIX 2-2

**FINDINGS AND RECOMMENDATIONS RELATED TO
ATSB STRUCTURE AND FUNCTIONS**

Auditee: ATSB	Finding and Recommendation Number:
Audit period: 31 May to 4 June 2004	CE-3/02
Document reference: - ICAO Doc 9756, Part I, Chapter 2; - ICAO Doc 9734, paragraph 3.6.1.1	Audit protocol reference: AIG 6.215 ORG 2.203
Type of finding: <input checked="" type="checkbox"/> Non-adherence to guidance material	
FINDING: The ATSB has not established a process for determining the staff requirements needed to adequately complete all tasks in its area of responsibility.	
RECOMMENDATION: The ATSB should endeavour to establish its budget based on its actual requirements to meet its international obligations under Annex 13 and its national obligations under the TSI Act 2003.	
CORRECTIVE ACTION PROPOSED BY THE ATSB: The ATSB has incorporated detailed workforce planning for its staff requirements in its 2004-05 business plan. The plan also provides for revision of workforce planning, recruitment and organizational structures to take account of revised funding and pending retirements. Funding for aviation investigation is provided by the Federal Government through the Department of Transport and Regional Services and was increased by about A\$2 million from 2004-05. The new funding level will enable the ATSB to increase the annual number of new aviation accident and incident investigations commenced from about 60 to up to 100. This is approximately half the average number of accidents and serious incidents reported to the ATSB each year. All accidents and serious incidents involving international airlines are investigated as are all fatal accidents that do not involve sport aviation aircraft. The ATSB will, before the end of August 2004, advise the Deputy Prime Minister and Minister for Transport and Regional Services, the Departmental Secretary and the Department of Finance and Administration of the ICAO audit recommendation that budget funding for the ATSB should be based on a demand-driven approach based on the number of accidents and serious incidents each year and their severity, complexity and safety significance to enable the ATSB to investigate them all. However, the ATSB is not aware of many, if any, ICAO states that do not face a budget constraint that impacts the number and extent of accident and serious incident investigations.	
CORRECTIVE ACTION ACCEPTABLE BY ICAO: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Auditor: Henry Gourджи	
Date: 4 June 2004	
Team Leader: Henry Gourджи	

ACTION TAKEN BY THE ATSB:

The ATSB formally briefed the Deputy Prime Minister and Minister for Transport and Regional Services on the final ICAO Audit and its recommendations by Minute dated 22 October 2004. This Minute was also the formal mechanism for briefing the Department of Transport and Regional Services (DOTARS) Secretary and Deputy Secretaries. The ATSB briefed the Department of Finance and Administration (DOFA) at Division Head level on the ICAO Audit with a focus on recommendations CE-3/02 and CE-5/03 on 23 November 2004 via the Department of Transport and Regional Services's Chief Financial Officer. On 21 December 2004 the Department of Finance and Administration responded that any additional funding was a matter in the first instance for the Minister's consideration against other priorities in his portfolio. DOFA further stated that only proposals with specific authority from the Cabinet or the Prime Minister were eligible for budget consideration. In 2007-08 the ATSB was funded to undertake approximately 80 new aviation safety investigations of which about 30 are of the more comprehensive variety. Choice of the 80 from approximately 8000 accidents and incidents reported was based on published selection criteria. In addition, for the financial years 2007-08 to 2009-10 the ATSB was provided with additional budget funding to assist Indonesia with its transport safety improvement program.

STATUS: Completed (monitor)

APPENDIX 2-3

FINDINGS AND RECOMMENDATIONS RELATED TO
ATSB STRUCTURE AND FUNCTIONS

Auditee: ATSB	Finding and Recommendation Number:
Audit period: 31 May to 4 June 2004	CE-3/03
Document reference: ICAO Doc 9734, paragraph 3.4	Audit protocol reference: ORG 2118 AIG 6.248
Type of finding: <input checked="" type="checkbox"/> Non-adherence to guidance material	
FINDING:	
<p>The ATSB has signed several MoUs in order to streamline workings with organizations and agencies external to the ATSB, however, some important MoUs with other national authorities within Australia have yet to be finalized.</p>	
RECOMMENDATION:	
<p>The ATSB should finalize MoUs with other national authorities within Australia, such as the Coroners, Federal Police, State Police, Occupational Health and Safety (OH&S), Civil Aviation Safety Authority (CASA) and Directorate of Flying Safety-Australian Defence Force (DFS-ADF).</p>	
CORRECTIVE ACTION PROPOSED BY THE ATSB:	
<p>The ATSB has continued to work towards completing Memoranda of Understanding with these agencies.</p> <p>Coroners: Negotiation on a MoU with the Coroners has been coordinated through the Chief Magistrate of Tasmania who has been putting forward the interests of the other State and Territory Coroners. The ATSB reached agreement with the Chief Magistrate of Tasmania and a MoU was signed with Tasmania on 15 June 2004. Finalisation of the agreed content of the MoU is being pursued with the other State and Territory Coroners who in a number of cases need to first clear the MoU with their government officials.</p> <p>Australian Federal Police: Development of a MoU with the Australian Federal Police commenced in June 2003 when the ATSB provided the AFP with a draft MoU. The ATSB has persisted in seeking comment from the AFP but this has been delayed due to restructures and staffing changes within AFP. However, the AFP has informed the ATSB that they are now in a position to seek to finalize the MoU.</p> <p>State Police: The ATSB has been seeking to negotiate a MoU with the Victorian Police. Once signed it is intended to use this MoU as a template for establishing MoUs with the other State and Territory police.</p> <p>OH&S: A MoU was signed with COMCARE on 3 June 2003. COMCARE administers the occupational health and safety workers' compensation schemes established for employees of the Commonwealth and Commonwealth authorities. In addition to this MoU the ATSB has progressed the development of MoUs with State and Territory occupational health and safety authorities.</p> <p>CASA: The ATSB has been advised by CASA that the regulator is satisfied with the draft MoU and should be in a position to sign shortly.</p> <p>DFS-ADF: The ATSB has a close ongoing working relationship with DFS-ADF which operates very similarly to the ATSB with respect to no blame military investigations. A revised draft MoU with DFSADF has been provided by the ATSB and is being progressed by DFS-ADF.</p>	
CORRECTIVE ACTION ACCEPTABLE BY ICAO:	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Auditor: Henry Gourdji Date: 4 June 2004	
Team Leader: Henry Gourdji	
ACTION TAKEN BY THE ATSB:	
<p>Coroners</p> <p>A Memorandum of Understanding (MoU) was negotiated with the Australian Coroners' Society with an agreed version distributed to each of the States and Territories. A MoU with the Chief Magistrate of Tasmania, regarding coronial matters, took effect on 25 June 2004. The other State and Territory Coroners declined to sign the MoU in case the MoU was perceived to constrain their judicial independence. Recently, the Australian Capital Territory Coroner has indicated that he is looking further at the possibility of signing the MoU.</p>	

While the proposed MoU has not been signed by all the Coroners, the negotiation process with Australian Coroners' Society served the purpose of fostering a greater understanding of each other's roles and responsibilities and the manner in which the ATSB and the Coroners can ensure those roles and responsibilities are carried out.

The Safety Investigation Quality System (SIQS) manuals incorporate materials for working with Coroners. This includes ensuring ATSB needs are met with respect to toxicology and injury reports, facilitating access to evidence taken from the accident site and keeping the Coroner informed of the ATSB's investigation. Relationships have also been developed through Coronial representatives attending ATSB training courses, visiting ATSB facilities and presentations to Coroners.

Australian Federal Police and State and Territory Police

MoUs have not been signed with AFP or State and Territory Police. The development of suitable MoUs has been delayed due to some perceived legislative obstacles. Amendments to the legislation are being developed to provide the foundation for MoUs to be negotiated.

While the ATSB does not have signed MoUs with police agencies, the role of the police is described in the ATSB's SIQS manuals and in the Civil and Military Aircraft Accident Procedures for Police Officers and Emergency Services Personnel.

OH&S

A MoU was signed with COMCARE on 3 June 2003 but is due to be renewed.

Airservices Australia

A revised MoU was signed with Airservices Australia on 9 August 2007.

CASA

A MoU was signed with CASA on 20 December 2004 but is due to be renewed. CASA is currently preparing an amended draft.

DFS-ADF (now DDAAFS)

A new MoU has not been signed with the Directorate Defence Aviation and Air Force Safety (DDAAFS). DDAAFS have been working towards making their legislation more compatible with the ATSB's legislation to assist cooperation. Further discussions have been scheduled to further the development of a MoU in this context.

Inspector of Transport Security

Since the audit Australia has established the office of the Inspector of Transport Security which was created to investigate security incidents in accordance with the principles analogous to those in Annex 13. The ATSB provided significant input into the development of the legislation. The legislation provides the framework for the ATSB and the Inspector cooperating where there are parallel investigations.

STATUS: Partially completed – progressing

APPENDIX 3-1

**FINDINGS AND RECOMMENDATIONS RELATED TO
TECHNICAL PERSONNEL AND TRAINING**

Auditee: ATSB	Finding and Recommendation Number:
Audit period: 31 May to 4 June 2004	CE-4/01
Document reference: - TSI Regulations, paragraph 5.1(b); - ICAO Doc 9734, paragraph 3.4 and 3.6	Audit protocol reference: ORG 2.221, 2.224
Type of finding: <input checked="" type="checkbox"/> Non-compliance with Chicago Convention or State Regulations <input checked="" type="checkbox"/> Non-adherence to guidance material	
FINDING: The ATSB training policy requires all personnel who join the ATSB after 1 January 2000 to complete the Transport Safety Investigation (TSI) Diploma Course. Investigators who have taken or are currently taking this course have developed structured training files in accordance to a training programme. However, not all investigators have undergone the TSI Diploma Course that would provide them with a recognition of prior learning. As a result, some investigators are not part of a formal diploma programme and have not documented all the types of training and briefings provided.	
RECOMMENDATION: The ATSB should develop a formal training policy and programme for all its investigators to ensure that all training provided including formal briefings are documented. Training and briefings that should be documented include, but are not limited to, the following: <ol style="list-style-type: none"> 1. OH & S and blood borne pathogens briefing; 2. Critical incident stress briefing; 3. Media awareness training; and 4. Training and a briefing in order to exercise the powers delegated under Division 2 or 3 of Part 5 of the TSI Act 2003. 	
CORRECTIVE ACTION PROPOSED BY THE ATSB: While all investigators have undertaken training and briefings in the four areas listed, the ATSB agrees that documentation for those who have not or are not undertaking the Diploma could be improved. The ATSB has created and advertised a specialist Executive Level 2 position to develop and coordinate an integrated training and development program for all bureau staff, with particular emphasis on the specialist training and developmental needs of transport safety investigators. This position will manage the Diploma of Transport Safety Investigation program, including content and course structure, and the design, facilitation and documentation of specialist training programs such as OH&S briefings, media and legal awareness training. The position is expected to be filled by the end of September 2004. The ATSB has also been working with the Department to improve induction and broader competency based training for investigators and other ATSB officers and new arrangements began in August 2004.	
CORRECTIVE ACTION ACCEPTABLE BY ICAO: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Auditor: Henry Gourджи Date: 4 June 2004	
Team Leader: Henry Gourджи	

ACTION TAKEN BY THE ATSB:

In November 2004 the ATSB recruited a specialist Executive Level 2 Training and Development Manager. The primary duty of this appointment was to ensure that all Bureau vocational education training and professional development regimes satisfy the Australian Quality Framework Standards of registration. In meeting these obligations the ATSB's performance as a Registered Training Organisation has been systematically assessed against prescribed quality indicators and conditions of registration. The ATSB has recently had its scope of registration extended to 15 August 2012.

In terms of the ICAO 2004 audit findings, the following actions are confirmed:

- All aviation safety investigators are required to complete the Diploma of Transport Safety Investigation (as stipulated within the set work level standards and bureau policy);
- Formalised completion pathways have been established including recognised prior learning arrangements (articulated through the customised induction guides and TSI Diploma supplement);
- All core and advanced/professional development training courses is captured through yearly training programs/calendars;
- All administrative processes are fully embedded (including a strict file management structure, extant database, statement of attainments etc); and
- Continuous improvement strategies have been established.

Overall the ATSB's learning and development strategies/framework in support of aviation safety investigators has matured to the extent where external industry groups (eg, Cranfield University, CASA, Qantas and ISASI) now look to the ATSB to provide 'best practice'.

STATUS: Completed

APPENDIX 4-1

**FINDINGS AND RECOMMENDATIONS RELATED TO
TECHNICAL GUIDANCE, TOOLS AND THE PROVISION OF SAFETY CRITICAL
INFORMATION**

Auditee: ATSB	Finding and Recommendation Number:
Audit period: 31 May to 4 June 2004	CE-5/01
Document reference: ICAO Doc 9756, Part I, paragraph 2.5	Audit protocol reference: AIG 6.263
Type of finding: <input checked="" type="checkbox"/> Non-adherence to guidance material	
FINDING:	
<p>Aircraft accident investigators are provided with the equipment necessary to carry out investigations, including the equipment required by the <i>Occupational Health and Safety Act 1991</i>. However, the review of some of the equipment to be used by investigators revealed the following: 1) The batteries of personal protection equipment were sampled; one was recorded as last charged 4 January 2004; 2) A satellite telephone required to be charged monthly was recorded as last charged 20 March 2004; and 3) A control log for signing out equipment such as GPS, satellite telephones and digital cameras was not kept up to date. As a result, some of this equipment was no longer in storage and records were not complete or available to determine their status.</p>	
RECOMMENDATION:	
<p>The ATSB should develop a system to ensure that the equipment to be used by investigators is properly maintained and stored and appropriate records are kept of their serviceability.</p>	
CORRECTIVE ACTION PROPOSED BY THE ATSB:	
<p>The ATSB agrees that the written equipment records were not as good as they could have been following the retirement of the previously responsible officer a few months prior to the audit. The ATSB has revised the Accident and Serious Incident Investigation Manual to include a procedure for equipment control including access, return and maintenance. The ATSB has also established an equipment register which lists all available investigation equipment, location, applicable standards, serviceability requirements and a control log of use and maintenance. The ATSB has created and advertised an APS6 Technical Support position to provide technical and information technology support to investigations. This position will oversight the register and will maintain the serviceability of investigation equipment. The position is expected to be filled by the end of September 2004.</p>	
CORRECTIVE ACTION ACCEPTABLE BY ICAO:	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Auditor: Henry Gourджи	
Date: 4 June 2004	
Team Leader: Henry Gourджи	
ACTION TAKEN BY THE ATSB:	
<p>The ATSB established an equipment register in August 2004 which lists all available investigation equipment, location, applicable standards, serviceability requirements and a control log of use and maintenance. At the same time, the ATSB also revised the Accident and Serious Incident Investigation Manual to include a procedure for equipment control including access, return and maintenance. The Safety Investigation Quality System (SIQS) has since replaced these manuals and the equipment control procedures have been incorporated into the SIQS. Further, updates to the procedures were made after a review was undertaken in December 2007.</p> <p>The duties of the APS6 Technical Support Officer position have been absorbed into a new APS 5 position. The decision to take make this administrative change was made following the departure of the APS 6 officer in January 2007. A review of the duties showed they were suitable for an APS 5 position. An APS 4 officer who is familiar with the duties is currently acting in the APS 5 position and being provided with an allowance for the additional responsibilities.</p>	
STATUS: Completed	

APPENDIX 4-2

FINDINGS AND RECOMMENDATIONS RELATED TO TECHNICAL GUIDANCE, TOOLS AND THE PROVISION OF SAFETY CRITICAL INFORMATION

Auditee: ATSB	Finding and Recommendation Number:
Audit period: 31 May to 4 June 2004	CE-5/02
Document reference: ICAO Doc 9756, Part I, Chapter 3	Audit protocol reference: AIG 6.024
Type of finding: <input checked="" type="checkbox"/> Non-adherence to guidance material	
FINDING: The ATSB has developed a new policy and procedures manual entitled <i>Safety Investigation Policy and Procedures Manual</i> . This manual provides comprehensive instructions and guidance to the ATSB staff on how to complete the investigation tasks in accordance with the TSI Act and the TSI Regulations. However, the <i>Safety Investigation Policy and Procedures Manual</i> is still in draft form. The draft has been made available to all ATSB personnel in electronic format (in the Canberra office as well as in the two regional offices) but is not released as an approved and controlled document.	
RECOMMENDATION: The ATSB should release the manual as an approved document and ensure that subsequent amendments are controlled through an amendment control log. Furthermore, the manual with the correct revision should be available to the investigators of the ATSB located in Canberra and the regional offices.	
CORRECTIVE ACTION PROPOSED BY THE ATSB: The ATSB Safety Investigation Policy and Procedures Manual and all associated manuals have been reformatted, and amendment control and approval status procedures established, consistent with quality assurance principles. Only those staff members specifically authorized to amend the manuals are provided write-access to the Master Manuals' folder. The information relating to the document control system for the Manuals is included in the Policy and Procedures Manual.	
CORRECTIVE ACTION ACCEPTABLE BY ICAO: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Auditor: Nicolas Rallo	Date: 4 June 2004
Team Leader: Henry Gourdjji	

ACTION TAKEN BY THE ATSB:

The ATSB Safety Investigation Policy and Procedures Manual (Policy and Procedures Manual) and all associated manuals were reformatted in July/August 2004, and amendment control and approval status procedures established, consistent with quality assurance principles.

The ATSB Safety Investigation Quality System (SIQS) has now replaced the 2004-approved Policy and Procedures Manual. The SIQS represents one part of the ATSB's electronic Safety Investigation Information Management System (SIIMS).

All relevant information from the Policy and Procedures Manual was incorporated in a structured suite of manuals within the SIQS utilising quality principles. In addition, a range of new material was included to provide additional guidance to investigators and to achieve consistency in the conduct and rigour of investigations.

The SIQS provides:

1. Single-point access to the documentation via Microsoft SharePoint;
2. All modes of investigation with comprehensive guidance within the one document suite;
3. Tighter control over content management and version control using an electronic document change control protocols and a range of features that assist to communicate changes;
4. Improved presentation and useability utilising information mapping principles and the ability to electronically link to related documents and references including to relevant ICAO standards and guidance material; and
5. Clear separation between investigation policy and procedures and guidance material.

The last of the remaining manuals was developed and uploaded to the SIQS in May 2007.

In addition to the ad-hoc requirement to amend the manuals using the change control protocols when changes are deemed necessary or desirable, the manuals are reviewed annually to ensure they correctly reflect current investigation policy and practice.

The SIQS is located at <http://atsb/quality/default.aspx> and is accessible from the modal 'Home' pages of SIIMS.

STATUS: Completed

APPENDIX 4-3

**FINDINGS AND RECOMMENDATIONS RELATED TO
TECHNICAL GUIDANCE, TOOLS AND THE PROVISION OF SAFETY CRITICAL
INFORMATION**

Auditee: ATSB	Finding and Recommendation Number:
Audit period: 31 May to 4 June 2004	CE-5/03
Document reference: - Annex 13, paragraph 5.1 and 5.1.1; - ICAO Doc 9756, Part I, paragraph 3.1	Audit protocol reference: AIG-6.312
Type of finding: <input checked="" type="checkbox"/> Non-conformance with Annex Standard <input checked="" type="checkbox"/> Non-adherence to Annex Recommended Practices <input checked="" type="checkbox"/> Non-adherence to guidance material	
FINDING: The ATSB's policy is to place the primary focus on fare-paying passengers and to investigate all fatal accidents (unless they involve sport aviation). However, accidents that are considered to have little potential benefit for prevention may not be investigated in detail. In such cases, the ATSB would not necessarily attend the scene, conduct an in-depth investigation or produce an extensive report.	
RECOMMENDATION: The ATSB should investigate all accidents as defined by Annex 13. The depth of such investigations should be at least to a level where it is evident that no further enhancement of aviation safety can be achieved.	
CORRECTIVE ACTION PROPOSED BY THE ATSB: This recommendation is related to the earlier recommendation at Appendix 2-2 and the ATSB response at 2-2 is also relevant. The ICAO audit recommendation that all accidents should be investigated at least to a level where it is evident that no further enhancement of aviation safety can be achieved has significant budgetary implications that are outside of the control of the ATSB. While many accidents are essentially repetitive and involve little new safety learning and diminishing returns in their investigation, it is rarely possible to be so absolute as to assess that no further enhancement of aviation safety can be achieved by further investigation. The ATSB will, before the end of August 2004, advise the Deputy Prime Minister and Minister for Transport and Regional Services, the Departmental Secretary and the Department of Finance and Administration of the audit recommendation and its budgetary implications.	
CORRECTIVE ACTION ACCEPTABLE BY ICAO: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Auditor: Caj Frostell, Nicolas Rallo Date: 4 June 2004	
Team Leader: Henry Gourджи	
ACTION TAKEN BY THE ATSB: The ATSB formally briefed the Deputy Prime Minister and Minister for Transport and Regional Services on the final ICAO Audit and its recommendations by Minute dated 22 October 2004. This Minute was also the formal mechanism for briefing the Department of Transport and Regional Services (DOTARS) Secretary and Deputy Secretaries. The ATSB briefed the Department of Finance and Administration (DOFA) at Division Head level on the ICAO Audit with a focus on recommendations CE-3/02 and CE-5/03 on 23 November 2004 via the Department of Transport and Regional Services's Chief Financial Officer. On 21 December 2004 the Department of Finance and Administration responded that any additional funding was a matter in the first instance for the Minister's consideration against other priorities in his portfolio. DOFA stated also that only proposals with specific authority from the Cabinet or the Prime Minister were eligible for budget consideration. In 2007-08 the ATSB was funded to undertake approximately 80 new aviation safety investigations of which about 30 are of the more comprehensive variety. Choice of the 80 from approximately 8000 accidents and incidents reported was based on published selection criteria. In addition, for the financial years 2007-08 to 2009-10 the ATSB was provided with additional budget funding to assist Indonesia with its transport safety	

improvement program.

STATUS: Completed (monitoring)

APPENDIX 4-4

FINDINGS AND RECOMMENDATIONS RELATED TO TECHNICAL GUIDANCE, TOOLS AND THE PROVISION OF SAFETY CRITICAL INFORMATION

Auditee: ATSB	Finding and Recommendation Number:
Audit period: 31 May to 4 June 2004	CE-5/04
Document reference: Annex 13, paragraph 5.9	Audit protocol reference: AIG 6.381
Type of finding: <input checked="" type="checkbox"/> Non-conformance with Annex Standard	
FINDING:	
<p>The ATSB investigators obtain autopsy reports but the autopsies are not performed in the presence of an aviation pathologist/physician or an ATSB accident investigator. As a result, it is possible that detailed evidence, such as direction of fractures and exact size and location of lacerations is not available in all circumstances to determine situations such as who was at the flight controls and injury direction and sequence.</p>	
RECOMMENDATION:	
<p>The ATSB should retain the services of an aviation pathologist/physician to attend autopsies performed on the fatally injured victims of aircraft accidents.</p>	
CORRECTIVE ACTION PROPOSED BY THE ATSB:	
<p>The ATSB in consultation with the Department's Legal Group is finalising contractual arrangements to establish a panel of medical specialists to provide advice and services to the bureau during investigations, including attendance at autopsies, interpreting the results of examinations and providing advice on medical, toxicology, accident survivability and aviation physiology aspects. The panel is expected to comprise four or five medical specialists and to be in place by the end of September 2004. The panel arrangements will be reviewed every two years.</p>	
CORRECTIVE ACTION ACCEPTABLE BY ICAO:	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Auditor: Caj Frostell, Nicolas Rallo	
Date: 4 June 2004	
Team Leader: Henry Gourdji	
ACTION TAKEN BY THE ATSB:	
<p>The contractual arrangements to establish a panel of medical specialists to provide advice and services to the ATSB during investigations was delayed due to changes to the Commonwealth Procurement Guidelines in January 2005, resulting in revised procurement processes and documentation. The establishment of a panel of medical specialists was also impacted by the proposed amendments of the <i>Transport Safety Investigation Act 2003</i> to include provisions with respect to medical examinations. The ATSB's response to Recommendation CE-5/05 notes that the new amendments require the approval of the new Government and, if approved, will need to be passed by the Australian Parliament and assented to by the Governor-General.</p> <p>The ATSB has draft criteria, written for the establishment of a panel of medical practitioners. The criteria will be revised in accordance with the development of the legislative amendments. In the meantime, the ATSB continues to use several specialist Medical Practitioners whose CVs are available. Further, as per the response to CE-3/03 the ATSB has sought to establish good relationships with Coroners. This includes liaising closely with Coroners to ensure any specific factors of importance are examined and to obtain autopsy and pathology testing.</p>	
STATUS: Progressing	

APPENDIX 4-5

**FINDINGS AND RECOMMENDATIONS RELATED TO
TECHNICAL GUIDANCE, TOOLS AND THE PROVISION OF SAFETY CRITICAL
INFORMATION**

Auditee: ATSB	Finding and Recommendation Number:
Audit period: 31 May to 4 June 2004	CE-5/05
Document reference: - Annex 13, paragraph 5.9.1; - ICAO Doc 8984	Audit protocol reference: AIG 6.384
Type of finding: <input checked="" type="checkbox"/> Non-adherence to Annex Recommended Practices <input checked="" type="checkbox"/> Non-adherence to guidance material	
FINDING: Medical examination and toxicological testing of surviving flight crew and other involved aviation personnel following an accident (Annex 13, paragraph 5.9.1) cannot be performed since the Australian legislation does not allow it. In view of the ATSB Research Reports published in March 2004 entitled “Cannabis and its Effects on Pilot Performance and Flight Safety: A Review” and “Alcohol and Human Performance from an Aviation Perspective: A Review”, toxicological testing of surviving flight crew and other involved personnel would appear to be essential. The research reports concluded that cannabis and alcohol use by pilots is a significant potential hazard to flight safety.	
RECOMMENDATION: The Australian legislation should be revised to allow medical examination and toxicological testing, when required, of surviving flight crew and other involved aviation personnel.	
CORRECTIVE ACTION PROPOSED BY THE ATSB: The ATSB has included in its Business Plan for 2004-05 a review of the <i>Transport Safety Investigation Act 2003</i> (TSI Act) and <i>Transport Safety Investigation Regulations 2003</i> . As part of this review the ATSB will be seeking to put forward amendments to the TSI Act that will allow for a medical specialist under contract to the ATSB to carry out these functions. However, any decisions on possible legislative amendments are the prerogative of the Australian Government and will need to be agreed by the Australian Parliament.	
CORRECTIVE ACTION ACCEPTABLE BY ICAO: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Auditor: Caj Frostell, Nicolas Rallo Date: 4 June 2004	
Team Leader: Henry Gourdji	
ACTION TAKEN BY THE ATSB: Under the former Government the ATSB developed draft amendments to the <i>Transport Safety Investigation Act 2003</i> (TSI Act) to insert medical examination provisions but these amendments were delayed due to higher legislative priorities. Continuing the progress of the amendments to the TSI Act, to insert medical examination provisions, will be a decision for the new Government. Policy approval is being sought. If approved, the amendments will need to be passed by the Australian Parliament and assented to by the Governor-General.	
STATUS: Progressing	

APPENDIX 5-1

FINDINGS AND RECOMMENDATIONS RELATED TO RESOLUTION OF SAFETY CONCERNS

Auditee: ATSB Audit period: 31 May to 4 June 2004	Finding and Recommendation Number: CE-8/01
Document reference: - Annex 13, paragraph 7.1, 7.5, 7.7, and 8.5; - ICAO Doc 9156	Audit protocol reference: AIG-6.624, 6.545, 6.557, 6.563
Type of finding: <input checked="" type="checkbox"/> Non-conformance with Annex Standard <input checked="" type="checkbox"/> Non-adherence to guidance material	
FINDING: The ATSB has been reporting accidents and investigated incidents to the ICAO ADREP data system (Preliminary Reports and Data Reports), however, they are incomplete partly due to the differences in the taxonomy format.	
RECOMMENDATION: Since the ATSB is in the process of acquiring a new accident and incident data reporting system, it is recommended that this new database system be ADREP-ECCAIRS compatible. It is also recommended that further discussions take place between the ATSB database system personnel and the ICAO ADREP system administrator in order to facilitate the reporting to the ADREP using the ATSB existing system before the new ATSB system becomes operational.	
CORRECTIVE ACTION PROPOSED BY THE ATSB: There was some confusion prior to the audit between the ATSB and the ICAO secretariat which meant that the ATSB was not aware of the ADREP reporting problems. The ATSB is currently investigating the feasibility of incorporating an ECCAIRS compatible ADREP into the new accident/incident database. However, a determination is still several months away. As a result of the audit, the ATSB has obtained a copy of the latest ADREP (Form D) and is seeking to create a template that will capture the necessary data applicable. The ATSB is committed to fully meet the ICAO obligation in both the short and longer terms.	
CORRECTIVE ACTION ACCEPTABLE BY ICAO: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Auditor: Caj Frostell Date: 4 June 2004	
Team Leader: Henry Gourджи	
ACTION TAKEN BY THE ATSB: The use of ECCAIRS was considered as an option for the occurrence database module of the ATSB's newly developed Safety Investigation Information Management System. Given that most of the aviation data collected by the ATSB is high-volume, low-detail data, the complexity of the ECCAIRS taxonomy was not considered appropriate. A bespoke taxonomy for safety events and safety factors was developed by the ATSB which better suits its needs, particularly for the purposes of safety research and for the application of its investigation safety analysis methodology. However, a mapping exercise was carried out to ensure that there was comparability between the ATSB and ECCAIRS taxonomies. For the purposes of notification, preliminary and final ADREP data reports, the ATSB continues to provide this information in the ECCAIRS format, including the use of the ECCAIRS taxonomies.	
STATUS: Completed	

APPENDIX 5-2

FINDINGS AND RECOMMENDATIONS RELATED TO
RESOLUTION OF SAFETY CONCERNS

Auditee: ATSB	Finding and Recommendation Number:
Audit period: 31 May to 4 June 2004	CE-8/02
Document reference: Annex 13, paragraph 8.2	Audit protocol reference: AIG 6.618
Type of finding: <input checked="" type="checkbox"/> Non-adherence to Annex Recommended Practices	
FINDING:	
<p>Between 1998 and February 2004, the ATSB managed a voluntary incident reporting system named Confidential Aviation Incident Reporting (CAIR). A new voluntary non-punitive incident reporting scheme, entitled Aviation Self-Reporting Scheme (ASRS), was due to replace the CAIR after 20 February 2004. However, at the time of the audit, this voluntary reporting system was not operational but awaiting some further legislative measures, in particular with respect to the protection of individuals from administrative action.</p>	
RECOMMENDATION:	
<p>The ATSB should reintroduce a voluntary non-punitive incident reporting system.</p>	
CORRECTIVE ACTION PROPOSED BY THE ATSB:	
<p>On 21 February 2004 the <i>Civil Aviation Amendment Act 2003</i> in conjunction with the <i>Civil Aviation Safety Regulations 1998</i> established a new Government initiative of an Aviation Self Reporting Scheme (ASRS) which allows civil aviation authorization holders to claim protection from administrative action once every 5 years for some breaches of the Civil Aviation Regulations by reporting the contravention to the ATSB. The ASRS has been operational since 21 February.</p> <p>Since its introduction in 1988, the CAIR scheme had moved away from its original concept of voluntary self-reporting of incidents to reporting of third party issues, and the lack of legislative protection for CAIR had become an increasing issue. At the time of the ASRS initiative, the inclusion of CAIR elements under the ASRS legislation was sought by the ATSB but the legislative timetable did not allow for this. In addition to the lack of legislative protection for CAIR, ATSB budgetary pressures led to CAIR being discontinued when the ASRS was introduced.</p> <p>With an additional A\$2 million in annual aviation investigation funding, the ATSB's budgetary position has now improved and in-principle Ministerial approval was obtained to amend the ASRS legislation to include CAIR-type voluntary non-punitive confidential reporting of safety issues in the aviation industry. The ATSB has included the required legislative amendments in its Business Plan for 2004-05 and the legislation has been given category B status for the Spring sittings of the Federal Parliament.</p>	
CORRECTIVE ACTION ACCEPTABLE BY ICAO:	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Auditor: Caj Frostell	
Date: 4 June 2004	
Team Leader: Henry Gourdji	
ACTION TAKEN BY THE ATSB:	
<p>The ATSB commenced operating a new aviation confidential reporting scheme on 29 January 2007. The new scheme is known as REPCON and has been established under the <i>Air Navigation (Confidential Reporting) Regulations 2006</i>. The Regulations were the product of intensive consultation and negotiation with the industry and they had broad approval when the scheme commenced operation.</p> <p>Between 29 January and 31 October 2007 the ATSB received 99 REPCON reports. The number of reports indicates a good response to the implementation of the scheme by the Australian aviation industry. Australia's mandatory reporting system requires reports of incidents as well as accidents and serious incidents. Australia, would therefore not expect the number of voluntary reports to be as high as in some other countries.</p>	

The ATSB plans to further promote REPCON in 2008 and publish information from de-identified reports in the Civil Aviation Safety Authority's *Flight Safety Australia Magazine*.

STATUS: Completed

Attachment A

TERMS OF REFERENCE

IT IS AGREED AS FOLLOWS:

1. The Safety Oversight Audit Section (SOA) of the International Civil Aviation Organization (ICAO) will conduct a specific audit of the Australian Transport Safety Bureau (ATSB) from 31 May to 5 June 2004
2. The Australian Transport Safety Board (ATSB) agrees to submit a completed State Aviation Activity Questionnaire. In addition, ATSB agrees to complete the relevant Compliance Checklist, which contains information on the implementation of the specific provisions of Annex 13, and agrees to submit to ICAO the list of documents identified in Attachment B and forward it to ICAO at least thirty days prior to the commencement of the audit.
3. The ICAO audit team will be comprised of safety oversight auditors experienced in auditing and accident investigation and prevention. The composition of the team has been identified in the attached letter.
4. Without prejudice to other privileges and immunities applicable to ICAO as a Specialized Agency of the United Nations, and its personnel, all members of the ICAO audit team shall be immune from legal process in respect of words spoken or written and all acts performed by them in their official capacity.
5. ATSB agrees to facilitate the audit by making appropriate staff from its safety investigation bureau, available for interview by the ICAO audit team. ATSB will be required to take the necessary measures to facilitate the work of the ICAO audit team, including, local transportation, interviews, paperwork, etc. ATSB will also assist the ICAO team with accommodation arrangements and meet the cost of transportation, within Australia, when visits to various locations of the State are required outside the main administrative office.
6. ATSB agrees to further facilitate the audit by designating an appropriate person to act as a coordinator for the audit prior to the commencement of the audit. This person will serve as facilitator and primary point of contact for the audit.
7. The safety oversight audit team will review ATSB compliance with the Standards and Recommended Practices (SARPs) set out in Annex 13 and other relevant procedures, and adherence to guidance material and relevant safety-related practices in general use in the aviation industry, as referred to in such material. The ICAO audit team will also review whether ATSB has the organizational structure with the legal status necessary to carry out its obligations.
8. The ICAO audit team will review the State's regulatory provisions, examine records and documentation and conduct interviews, in order to make its findings and recommendations, on the basis of safety oversight audit general requirements, as follows:
 - a) consideration of existing national legislation enabling Australia to enforce the provisions of the *Convention on International Civil Aviation*;
 - b) consideration of existing national regulations enabling Australia to carry out detailed safety regulation in support of the *Convention on International Civil Aviation* and Annex 13,

associated procedures, guidance material and relevant safety-related practices in general use in the aviation industry as referred to in such material;

- c) a system in place, in particular with respect to:
 - 1) appropriately qualified accident and incident investigators supportedx by an appropriate organizational and managerial structure;
 - 2) detailed records of training programmes and actual training given to professional staff in the areas of audit;
 - 3) policy on the safety regulation of accident and incident investigation and prevention;
 - 4) availability of appropriate reference material, including ICAO documentation;
 - 5) evidence of overall system safety awareness and of a mechanism for accident and incident prevention.
 - 6) iInvestigation Methodology and practice (including the time taken to conduct and report on investigations);
 - 7) appropriateness of existing ATSB facilities (to include hangar, workshops and flight data/cockpit voice recorder section if applicable).
 - d) implementation of ICAO SARPs, procedures, as well as adherence to guidance material and relevant safety-related practices in general use in the aviation industry as referred to in such material, related to accident and incident prevention and investigation, in particular with respect to the requirements of an adequate organization, method of control and supervision of accident investigations and training programmes consistent with the nature and extent of the operations specified.
9. ATSB agrees to further facilitate the audit process by:
- a) making all relevant documents, files and information available to the ICAO audit team;
 - b) providing access to facilities and other areas where the audit is expected to be conducted;
 - c) providing access to selected personnel involved in the management or provision of accident and incident investigations;
 - d) providing working space with adequate privacy for the audit team;
 - e) providing access to a printer, photocopier, scanner and facsimile machine, if available; and
 - f) providing access to electronic communication media such as the internet and e-mail, in so far as applicable.
10. Upon completion of the on-site audit, the ICAO audit team will provide a detailed debriefing on the audit results to government officials as well as senior management and other higher officials, as applicable, of the ATSB. The briefing shall include an explanation of subsequent activities in the audit process.

11. ICAO undertakes to make available to the ATSB a confidential audit interim report within forty-five days after the last day of the audit. The confidential audit interim report will contain:
 - a) findings of the audit team that should be considered by the ATSB;
 - b) recommendations of ICAO for the resolution of the findings, if any, that should be considered by the State;
 - c) lack of implementation or non-compliance, if any, with ICAO SARPs and related procedures; and
 - d) non-adherence to guidance material and relevant safety-related practices in general use in the aviation industry, as referred to in such material.
12. Within thirty days after the submission of comments by the ATSB on the confidential audit interim report, a confidential audit final report will be completed by ICAO and sent to ATSB.
13. Notwithstanding the right of the ATSB to appeal the audit findings and the audit process, any difference or dispute concerning the interpretation or the application of this *Terms of Reference* will be resolved by negotiation between the parties concerned.

**For the Australian Transport
Safety Bureau**

Kym Bills
Executive Director
Australian Transport Safety
Bureau

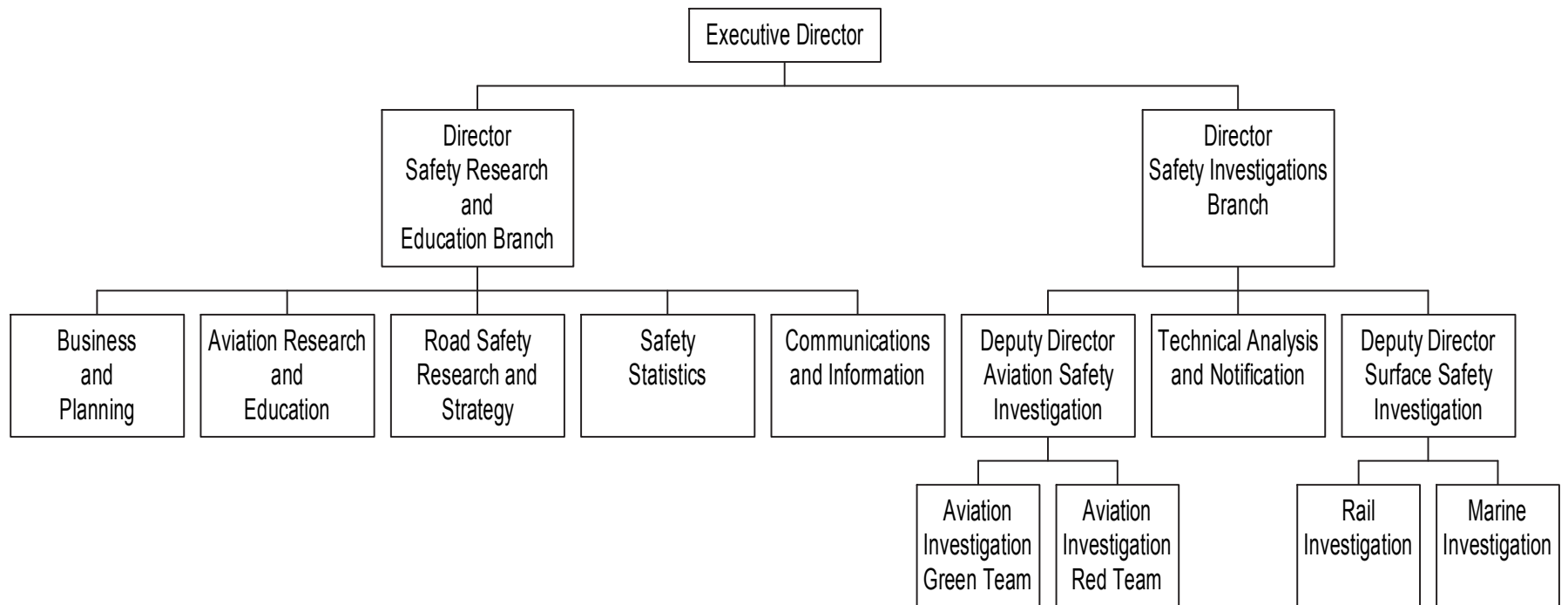
Date

**For the International Civil
Aviation Organization**

Haile Belai
Chief, Safety Oversight Audit
Section

Date

**ATTACHMENT B
AUSTRALIAN TRANSPORT SAFETY BUREAU
ORGANIZATIONAL CHART**



* Please note that this organisational chart was correct at the time of the Audit. A current Organizational Chart can be found at Attachment C of this report.

**ATTACHMENT C
AUSTRALIAN TRANSPORT SAFETY BUREAU
ORGANIZATIONAL CHART
AS AT SEPTEMBER 2006**

