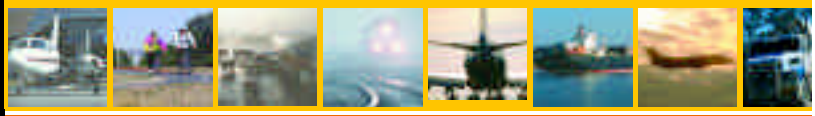
Australian Government

Australian Transport Safety Bureau

The Australian Air Sa



The ATSB makes a significant contribution to the safety of the Australian aviation industry and travelling public through investigation, analysis and open reporting of civil aviation accidents, incidents and safety deficiencies.

It performs air safety functions in accordance with the provisions of Annex 13 to the Convention on International Civil Aviation (Chicago Convention 1944) as incorporated in the *Transport Safety Investigation Act 2003*. The Act contains the ATSB's authority to investigate air safety occurrences and safety deficiencies.

Investigations commenced on or before 30 June 2003, are conducted in accordance with Part 2A of the *Air Navigation Act 1920*.

Investigations commenced on or after 1 July 2003, are conducted in accordance with the Transport Safety Investigation Act 2003 (TSI Act).

The ATSB is an operationally independent bureau within the Federal Department of Transport and Regional Services. ATSB investigations are independent of bodies, including regulators that may need to be investigated in determining causal factors leading to an accident or incident. ATSB is a multi-modal bureau with safety responsibilities in road, rail and sea transport in addition to aviation.

The Australian Air Safety Investigator is a regular four-page feature in *Flight Safety Australia* produced with editorial indepen-dence by the ATSB. It aims to keep the industry informed of the latest findings and issues in air safety from the bureau's perspective.

Australian Transport Safety Bureau
PO Box 967,
Civic Square ACT 2608

Telephone: 1800 621 372
Email: atsbsupp@atsb.gov.au
Website: www.atsb.gov.au

A Confidential Aviation Incident Reporting (CAIR) form can be obtained from the ATSB website or by telephoning 1800 020 505.

ATSB Wins International Award

THE Australian Transport Safety Bureau (ATSB) has received international recognition for outstanding work in its *Investigation into Ansett Australia maintenance safety deficiencies and the control of continuing airworthiness of Class A aircraft* report.

Early in November 2003 in Washington, the prestigious Flight Safety Foundation 2003 Cecil A Brownlow Publication Award went to the ATSB for "extraordinary efforts in identifying, investigating and reporting on a systemic problem affecting aviation safety worldwide".

The ATSB's report, released in November 2002, highlighted that a robust system for regular inspection and maintenance of Boeing 767 aircraft was essential to assure continuing airworthiness.

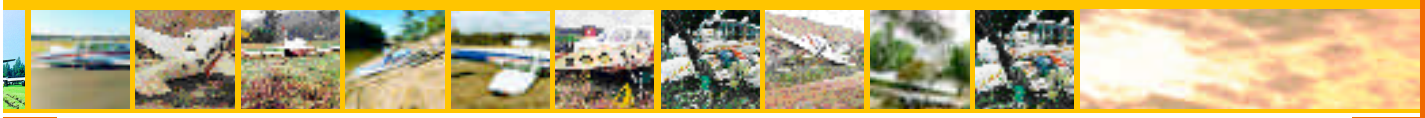
Mr Kym Bills, ATSB Executive Director, accepted the award at the joint meeting of Flight Safety Foundation, the International Federation of Airworthiness and the International Air Transport Association in Washington.

"The ATSB is thrilled to have its work recognised by the Flight Safety Foundation. The Award highlights the critical contribution the ATSB makes to aviation safety – not only in Australia but internationally," Mr Bills said.

The Flight Safety Foundation's (FSF) annual International Safety Awards Program recognises individual and group achieve-ments in aviation safety, as well as acts of heroism by civil aircraft crew members or ground personnel.

The *Cecil A Brownlow Publication Award* recognises publications,articles, electronic media or individuals with demonstrated excellence and commitment in their coverage of aviation safety topics. Submissions are judged on the quality of writing and research, the presentation and, importantly, the contribution to safety awareness.

The *Investigation into Ansett Australia maintenance safety deficiencies and the control of continuing airworthiness of Class A aircraft* report can be found at: www.atsb.gov.au/aviation/sdi/ansett_classa/index.cfm



Aviation Safety Research Grants Programme 2004

Invitation for applications for aviation safety research grants programme 2004

Programme No. B203/0152

The Australian Transport Safety Bureau invites applications from suitably qualified individuals and organisations to undertake research into aviation safety in Australia.

Interested parties are invited to obtain details of the grants programme from the Bureau.

It would be an advantage for applicants to have a high level of experience in an area related to aviation safety, research, aircraft operations, human factors or the aviation industry.

The contact for technical aspects of this tender is Mike Jamieson, telephone (02) 62747462.

Applications for grants, together with research proposals, may be lodged by email at aviation.research@dotars.gov.au or sent to Aviation Safety Research Grants Programme, PO Box 967, Civic Square, ACT, 2608.

The above application period closes at 2.00pm (ESuT) on 29 January 2004.

A copy of the application form and information package may be obtained by emailing the above address or by visiting our website at www.atsb.gov.au/aviation/research/grants.cfm

What is the Australian Transport Safety Bureau?

The Australian Transport Safety Bureau (ATSB) is an operationally independent multi-modal body that investigates, analyses and reports on transport safety. The ATSB is not part of the Civil Aviation Safety Authority (CASA). The ATSB is Australia's prime agency for the independent investigation of civil aviation accidents, incidents and safety deficiences. To report an Aviation, Marine or Rail accident telephone ATSB (toll-free, 24 hours): **1800 011 034.**

Safety briefs

Failure of outer wheel bearing

Occurrence 200204836

While on approach to land at Perth, the crew of the Boeing 727 notified air traffic control (ATC) that they required runway 21 instead of 24. This was in consideration of the wet runway conditions and as a possible precaution should they experience antiskid problems. They also advised ATC to expect a normal approach.

After parking the aircraft, the crew reported the loss of the inner left main wheel and requested RFFS to attend while the aircraft was secured. An inspection of the Perth runway did not find any debris.

A search conducted at Melbourne airport, the point of departure, resulted in the recovery of debris from runway 34. The wheel had impacted the perimeter fence past the overrun area of runway 34 and was recovered from that position.

Investigation revealed corrosion and rolling contact fatigue spalling of the bearings that probably resulted in failure of the bearing and the loss of the wheel from the aircraft.

The operator has amended maintenance procedures for re-inspection intervals of wheel bearings after long term storage. ■

Aircraft incorrectly loaded

Occurrence 200300685

The HS-748 aircraft was engaged in a night freight operation and was under charter to a freight carrier. The aircraft had been loaded with four LD type containers and an amount of freight. During the post loading walk-around, the first officer had difficulty in removing the tailstand from the aircraft. The first officer asked the loading staff if the aircraft was loaded in accordance with the load sheet. The loading staff indicated that the aircraft had been loaded according to the sheet. The first officer consulted the pilot in command and ascertained that the loaded centre-of-gravity of the aircraft was towards the middle of the allowable centre-of-gravity envelope. The crew then removed the tailstand and completed the before start checks and started the engines in preparation for taxi.

Shortly after the engines had been started, the loading staff approached the aircraft and signalled to the pilot in command that they wished to talk to him. The pilot in command shut down one engine and dispatched the first officer to speak with the loading staff. After speaking with the loading staff, the first officer signalled to the pilot in command to shut down the other engine.

Subsequent enquiries by the loading staff had revealed that an incorrect container had been loaded on board the aircraft. These enquiries revealed that the aircraft had been loaded with an empty LD container in the forward position. The correct LD container weight was expected to be 1120 kg. The aircraft had been loaded incorrectly.

The freight carrier instituted an internal investigation that revealed a number of factors contributing to the incorrect loading. These factors included an absence of loading documentation for both the loading supervisor and the pallet loader operator. ■

Uncommanded in-flight engine shutdown

Occurrence 200204444

The crew of the Boeing 717-200 aircraft reported that during the climb from Launceston airport, while passing 7,000 ft above sea level, the right engine sustained an uncommanded in-flight shutdown. A R ENG RPM LO alert was observed followed by a RH SYS FAIL advisory. The crew reported that they did not see any caution advisories prior to the shutdown. The ENGINE FAIL/SHUTDOWN checklist was actioned and the crew completed a

single engine landing. Following the event, the operator's maintenance personnel interrogated the multi-function control display unit and carried out a right engine electronic engine controller fault review check. Several fault codes were noted in the on board computer memory which related to electronic faults listed for a FADEC SYSTEM FAULT [full-authority digital engine control] and EEC BOX FAULT [electronic engine controller]. After conferring with the engine manufacturer, the EEC and the fuel-metering unit (FMU) were removed for further testing. After replacement of those units, normal engine performance returned. ■

Collision with ground during spraying

Occurrence 200300909

The Cessna 188 was being used to spread insecticide over a cotton crop. Soon after takeoff, and as the pilot was setting the aircraft up to conduct the initial spray run, the aircraft descended from a steep turn, into the crop and impacted heavily. Although the aircraft was substantially damaged, the pilot was not hurt. The weather conditions were CAVOK (cloud ceiling, visibility and general weather were suitable for visual flight) with a variable wind of about 3 to 5 kts. The temperature was reported as being about 26 degrees C.

The pilot gained an agricultural rating 8 months prior to the accident and had accumulated about 36 hours agricultural flying experience before the accident. She had about 15 hours experience on the aircraft type and was operating under the supervision of an experienced agricultural pilot.

The pilot reported the following information:

The aircraft had been loaded to within 0.6 kg of the maximum takeoff weight.

Following the takeoff, the aircraft 'felt heavy' but was climbing adequately.

During a steep turn towards the direction of the initial spray run, the aircraft began descending towards the ground. The wings were levelled and full power applied but the engine did not appear to deliver full power. Further turns were made to avoid wires and trees and then as the aircraft continued descending the wings were rolled level before the aircraft hit the ground.

A subsequent engineering inspection by the operator revealed that one of the magnetos had no defects, but the other magneto had badly worn or burnt breaker points. No other defects were found during the engineering inspection. The operator's engineering assessment determined that it was unlikely that the faulty magneto would have affected the ability of the engine to deliver full power.

The investigation could not determine why the aircraft failed to remain airborne, although the steep turn at high weight may have been a factor in the accident.

The ATSB did not conduct an on-site investigation. ■

Ground resonance event

Occurrence 200200651

The AS350B2 Squirrel helicopter was being operated on a private flight with the pilot and two passengers on board. The pilot reported that shortly after lifting the helicopter into an approximately 1.2 metre hover, he noted that the main rotor system had a pronounced vertical, once per revolution, vibration. The pilot then elected to terminate the hover and land the helicopter. He further reported that when the skid landing gear touched the ground, the helicopter began to oscillate violently. The pilot then activated the emergency fuel cut-off. Subsequently, the engine and main rotor revolutions per minute (RPM) began decreasing. The pilot and passengers reported that the oscillations of the helicopter became more violent and pronounced as the main rotor RPM decreased. Once the main rotor ceased rotation, the occupants exited the helicopter. One passenger received minor injuries.

The helicopter sustained substantial damage to the main rotor assembly, the right landing gear skid, the forward cargo mirror mount bracket, the left and right structure keel beams, and the right rear passenger seat support. The principle damage to the main rotor assembly consisted of the fracture and separation of the yellow and blue starflex rotor arm outboard segments.

An examination of the helicopter's main rotor head and blades did not reveal any anomalies,other than the separated starflex rotor arm outboard segments, that could have resulted in the vertical vibration reported by the pilot. A witness near the helicopter during its hover flight did not report any foreign objects or birds in the area of the main rotor disc during the flight.

The damage to the main rotor starflex rotor assembly was consistent with the damage documented in a technical report compiled by the Australian Defence Science and Technology Organisation relating to a previous military AS350 helicopter occurrence. That report indicated that the starflex rotor arms failed due to severe upward bending due to excessive loading. That investigation determined that the circumstances of the accident were consistent with a ground resonance event. ■

Unexpected weather conditions

Occurrence 200201556

The Boeing 747 aircraft was operating a scheduled passenger flight from Melbourne to Perth with an estimated time of arrival (ETA) at Perth of 0945 WST. The flight crew had been provided with a valid aerodrome forecast (TAF) for Perth, which indicated that the visibility and cloud base would be above the alternate criteria throughout the period of the forecast. As there were no operational requirements, the aircraft departed Melbourne without alternate or holding fuel being carried for Perth.

Three minutes after the aircraft's departure from Melbourne, an amended TAF for Perth was issued with fog being forecast until 0800. After that time, conditions at Perth were forecast to improve above the alternate criteria. Subsequent Perth trend type forecasts (TTF) issued from 0603 until 0759 also indicated an improvement above the alternate criteria after 0800.

Soon after the aircraft passed the flight plan point of safe diversion (PSD),a Perth TTF was issued that indicated the meteorological conditions would be below the alternate criteria until 15 minutes after the ETA of the aircraft at Perth. At 0845, a message from the operator about the 0825 TTF was provided to the crew by air traffic services. As the aircraft had flown past the PSD and fuel was not carried to divert to an alternate airport, the crew decided to continue the flight to Perth. The aircraft made an uneventful landing at 0938.

The Bureau of Meteorology (BoM) aviation forecasters assessed the formation of fog in the expected weather conditions as being unlikely. However, reduced visibility and low cloud were observed until 0930 due to a mixture of advection fog and frontal fog that was difficult to forecast.

BoM advised that a fog forecasting team was formed in March 2002 to review of the fog forecasting process at Perth. The team developed and implemented a systematic structured approach in May 2002. The approach takes into account synoptic pattern matching, statistical data, model input and the impact of the Perth topography on fog formation. ■