Australian Government
Australian Transport Safety Bureau

The Australian

Chief Commissioner's Message

In the last issue, I introduced myself as the first Chief Commissioner of the Australian Transport Safety Bureau (ATSB). After 3 months in the role, I thought it was time to start talking about my ideas on where the ATSB is going and some of the things we will be doing to get there. This time, I'd like to talk about two things: safety education and safety recommendations.

The legislation that gave the ATSB its independence also gave us an explicit role in safety education. While we have always played our part in this area – indeed, the articles you find in this section of FSA are an example – we now need to give greater emphasis to ensuring that the safety lessons from our investigations are transferred clearly and effectively to everyone with a safety responsibility.

What this means is that, over time, you are likely to see our investigators more often after an investigation, explaining what we have found and its possible consequences for all of you who work in aviation. The style and focus of items in publications such as this may also change, depending on how you as a reader would best like to get the messages coming out of our investigation work. Feel free to use the feedback facility on our website <www.atsb.gov.au/utilities/feedback.aspx> to let us know your views.

The legislative changes also gave a new power to the ATSB: to require that any safety recommendation we make is responded to in writing within 90 days. I draw attention to this mainly to point out that our capacity to make recommendations is used comparatively rarely. Our preference is that, as we identify safety issues in the course of an investigation, we discuss them with the relevant person – a manufacturer, a maintenance organisation, an operator or CASA, for example – with the aim of agreeing safety actions to address the issue that has been discovered.

After all, we're all in the safety business and trying to find ways to make aviation safer. We in the ATSB look forward to continuing to work with you in the interest of safety.

Martin Dolan
Chief Commissioner

Aviation Research at the ATSB

The Australian Transport Safety Bureau and the former Bureau of Air Safety Investigation have produced numerous aviation research and education reports over the years. All of these publications, dating back to 1984, are now available on the ATSB website at Aviation Research Publications. Also available is a brochure that lists these reports arranged by broad topic areas – aviation safety trends, cabin safety, engineering, human factors, investigation methods, airspace, medical, operational, organisational, and passenger information.

The Aviation Occurrence Statistics report has also recently been developed. Available at <www.atsb.gov.au/publications/2009/AviationStats09.aspx>, this 68 page report now documents a wider range of statistics, including activity data (departures and hours flown) and the occurrences that have initiated ATSB investigations in the past six months. It also examines incidents, serious incidents, serious injury occurrences, fatal and total accidents, serious injuries and fatalities, and occurrence types (what happened) for each operational type. Over the next couple of editions, the ATSB will continue to develop the Aviation Occurrence Statistics publication. If you would like to suggest any improvements, please complete the Aviation Statistics Usage Survey located at the above web page.

There are a number of research projects currently underway that cover a range of topics. Some of those expected to be published over the next 12 months include:

- A review of world-wide reduced performance take-off accidents and incidents resulting from take-off data calculation or entry errors by the flight crew. This investigation will document past occurrences and analyse common factors that contribute to such accidents and incidents.
- An analysis of accidents involving amateur-built and experimental (ABE) aircraft. This report will examine the relative safety of VH-registered ABE aircraft compared with factory-built aircraft. A short survey has been recently distributed to ABE aircraft owners that were involved in an accident in the past 20 years to support this analysis.
- The perceived threats and errors in general aviation and low capacity air operations as identified by pilots and managers of flying training, aerial work and low capacity air transport.
- Statistical modelling of the human factors analysis and classification system (HFACS). Using 10 years of Australian accident data that was coded using the HFACS taxonomy, this study will identify and document the relationships between contributing factors and predictors of flight crew unsafe acts. ■

Aviation Safety Investigator

When weather and terrain collude

On 14 September 2008, a Cessna Aircraft Co. U206A aircraft, registered VH-JDQ, with a pilot and two passengers on board, was on a private flight under the visual flight rules (VFR) from Bankstown, NSW to Archerfield, Qld, with a planned stop at Scone, NSW. The aircraft was reported missing when it did not arrive at Archerfield as expected later that day.

Australian Search and Rescue was notified. The wreckage of the aircraft was located the following day on top of a 3,800 ft ridge in rugged terrain, approximately 56 km north-north-east of Scone Airport. All three occupants were fatally injured and the aircraft was destroyed.

The pilot had purchased the aircraft on the morning of the accident. The previous owner reported meeting with the pilot at Bankstown Airport for a handover of the aircraft, including the aircraft documentation. The previous owner stated that he performed a short check flight with the pilot so that the pilot could become familiar with the aircraft. He also stated that he gave the pilot detailed instructions on how to use the panel-mounted Garmin Global Positioning System (GPS) unit fitted to the aircraft.

The previous owner reported discussing the weather with the pilot, as there was a frontal system moving across NSW from the west. He reportedly advised the pilot to track along the coast to avoid any weather problems. Prior to the departure of the aircraft, the previous owner observed the pilot refuelling the aircraft and believed the pilot had completely filled the fuel tanks. He then watched the aircraft depart, which he described as being normal.

The route selected by the pilot, to track from Scone to Archerfield via Casino, meant that the aircraft would track over the Great Dividing Range for most of the flight. The topography of most of that area was rugged, with thickly forested, mountainous terrain, at elevations greater than 4,000 ft above mean sea level (AMSL). The areas available for an emergency landing were limited.

Airservices Australia confirmed that the pilot did not have a National Aeronautical Information Processing System (NAIPS) user identification to enable the pilot to access the system for flight briefing information. Before the trip to Sydney to pick up the aircraft, the pilot reportedly asked a flight instructor from the organisation where the pilot learned to fly, how he would obtain weather information. The instructor told the pilot to give him a call and he would find out the weather for him on the morning of his departure from Sydney. The instructor reported that he did not receive a phone call with a request for weather from the pilot.

The weather in the area at the time of the occurrence was not suitable for VFR flight and included low cloud, rain showers and high winds. It is likely that the pilot was attempting to remain below the cloud base to maintain visual reference with the ground. The pilot's licence allowed for day VFR flight only. The aircraft's approximate heading at the time of impact indicated that the pilot may have been attempting to return to Scone due to the adverse weather conditions.

The aircraft's wreckage trail indicated that the aircraft was travelling at approximately cruise speed and descending at a fairly low rate, if at all, when it impacted rising terrain at 3,800 AMSL. That evidence indicated that the aircraft was most likely in controlled flight at the time it impacted with trees. ■

ATSB investigation report AO-2008-063 released on 31 July 2009 is avaliable on the website.

Investigation briefs

Fuel starvation

ATSB Investigation AO-2008-048

On 17 July 2008, at approximately 0915 Eastern Standard Time, the pilot of a Piper Navajo PA-31 aircraft, registered VH-IHR, was en route from Century Mine, Qld to Mt Isa, Qld when the left engine lost power. The pilot transmitted an urgency broadcast (PAN) to air traffic control (ATC). Shortly after, the right engine lost power. The pilot then transmitted a distress signal (MAYDAY) to ATC stating his intention to carry out an off-field emergency landing. In attempting the landing the pilot was seriously injured and the aircraft seriously damaged.

When the ATSB investigated, both fuel selector handles were found set to the outboard fuel tank positions and the emergency fuel pumps were selected OFF.

The engines were inspected externally with no preimpact defects identified. The engine fuel systems were disconnected at the main fuel inlets and only a small amount of fuel was present, although the pilot had ensured the aircraft had adequate fuel for the return flight.

Examination of the wreckage clearly indicated that there was sufficient fuel on board the aircraft to complete the flight safely. Had the pilot selected the fuel selectors to the inboard tanks when the engine surged and subsequent power loss occurred, normal operation would have been restored.

Examination of the aircraft showed no evidence of pre-impact damage. This evidence indicated that the aircraft had a very high rate of descent and low forward airspeed at the time of impact. ■

Flight control system event

ATSB Investigation AO-2008-056

On 10 August 2008, an Embraer-Empresa Brasileira De Aeronautica ERJ170-100 aircraft, registered VH-ZHA, was being operated on a scheduled passenger service from Sydney NSW, to Melbourne Vic, with six crew and 54 passengers. During the approach into Melbourne, the flight crew selected the flaps to 'flaps 1'. When the selection was made, a number of caution messages, including 'Slat Fail', 'Spoiler Fault', 'Aircraft Operating Angle of Attack Limit Fail' and 'Shaker Anticipated' appeared on the engine indicating and crew alerting system screen.

The flaps were cycled up and then down again, with the caution messages reappearing. The crew advised air traffic control (ATC) that they had 'significant flight control problems' and requested that they hold at 5,000 ft to resolve the problems. ATC declared an Alert Phase and assisted the crew to position the aircraft south of Melbourne, while the crew completed the relevant checklist actions. ATC also placed the airport emergency services on local standby.

During the approach, an icing accretion warning activated, which required an additional landing speed recalculation. After landing, the pilot in command advised the aircraft operator that the flight control problems reported to ATC were in reference to the caution messages rather than actual control difficulties with the aircraft.

The aircraft operator found that the left number-3 slat actuator torque trip limiter had actuated enabling the caution messages to appear on the EICAS screen. The number-3 slat actuator was replaced. A strip and condition report did not identify any failure of the actuator and the failure was probably a result of operating in icing conditions. Because of similar occurrences, the slat actuator manufacturer initiated the redesign of the actuator to reduce torque trip limiter engagement. ■

Checklist procedures

ATSB Investigation AO-2007-036

On 11 August 2007, a Boeing Company 737-476 aircraft, registered VH-TJE, was being operated on a scheduled passenger service from Perth, WA to Sydney, NSW. The flight crew consisted of a pilot in command, who was the pilot flying, and a copilot. The aircraft departed from Perth at 0544 Western Standard Time. About 2 hours 40 minutes later, the master caution light illuminated associated with low output pressure of the aircraft's main tank fuel pumps. The main fuel tanks were low on fuel and the investigation estimated that there was about 100 kg in each of the main tanks.

The pilot in command observed that the centre tank fuel pump switches on the forward overhead panel were selected to the OFF position and he immediately selected them to the ON position. Fuel from the centre tank would normally be used before fuel from the main tanks. The centre fuel tank, located in the wing centre section, was used for carrying additional fuel on longer flights, such as from Perth to Sydney and contained about 4,700 kg of fuel when the master caution occurred. The flight continued on the flight planned route and landed at Sydney 51 minutes after the initial illumination of the master caution light.

The investigation determined that the flight crew had flown the previous two sectors on a B737 aircraft with a different fuel system and fuel control panel. The pilot in command was suffering from chronic stress and it is probable that this stress affected his ability to operate as a pilot in command without him being aware of this. In addition, some checklist procedures were not adhered to by the flight crew and it was likely that deviations from those checklist items were occurring throughout the operator's fleet of B737 aircraft.

As a result of this investigation, the operator has instigated safety action to change the Before Start and Before Taxi procedures and checklists. ■

Fuel-managment procudures

ATSB Investigation AO-2008-025

On 9 April 2008, the crew of a McDonnell Douglas Helicopter Company MD369ER helicopter registered VH-PLU, experienced a substantial loss of engine power while conducting low-level powerline stringing operations. The helicopter impacted the ground and was seriously damaged.

The two occupants were seriously injured.

At the time of the power loss, the pilot in command was operating the helicopter in a high nose-up, significant right-roll attitude at a height of about 100 ft (30 m) above ground level.

Examination and testing of the engine confirmed that, with the exception of post-impact damage to the fuel control unit, the engine was capable of operating within normal parameters.

The configuration of the fuel system was such that, when subjected to significant nose-up and right-roll helicopter attitudes, it required an increased amount of fuel to limit the possibility of exposing the fuel pick-up, and subsequently feeding air to the engine.

During the powerline stringing operation, transition from the hover to line pulling, created a worst-case scenario, resulting in the majority of the fuel being located at areas furthest from the fuel pick-up point.

The investigation determined that the pilot in command was operating the helicopter with a fuel tank quantity that did not guarantee continuous operation of the engine at the noseup and right-roll flight attitude required for powerline stringing operations.

As a result of the accident, the operator revised its fuel management procedures for powerline stringing operations. ■

Tail strike

ATSB Investigation AO-2008-074

On the night of 23 October 2008, a British Aerospace BAe 146-300 aircraft, registered VH-NJM, had a tail strike on landing at Brisbane Airport.

The aircraft and crew had commenced a freighter flight earlier that evening at Adelaide, SA and had flown via Sydney, NSW to Brisbane. It was only after landing back at Adelaide that the crew became aware of the tail strike. They were notified by the Adelaide aerodrome controller to contact the safety officer in Brisbane who advised them that an inspection of the runways at Brisbane had found several pieces of metal which were believed to have come from their aircraft.

Damage to the aircraft consisted of abrasion to the tail strike indicator through to the fuselage skin and abrasion to the fuselage skin. There was also damage to the aircraft's structural frame under the tail strike indicator. The operator had provided guidance and training for pilots in respect to tail strikes, in the initial endorsement training and in subsequent recurrent simulator training. However, that training emphasised tail strike on takeoff rather than on landing. The aircraft manufacturer had identified an increase in the number of BAe 146-300 tail strikes and has recommended a number of procedural changes for flight crew. The aircraft operator has implemented those changes and issued notices to flight crew highlighting the risks and conditions for tail strike. ■

Be sure the runway is clear

ATSB Investigation AO-2008-073

On 16 October 2008, at about 0615 Eastern Standard Time, the pilot of a Fairchild Industries SA227, registered VH-UZA, took off from runway 32 at Mackay Airport, Qld. At the same time, the flight crew of another Fairchild Industries SA227, registered VH-EEO, landed on runway 32 after an instrument flight rules (IFR) scheduled freight service from Brisbane.

The crews of both aircraft took avoiding action and VH-UZA continued on to Townsville.

At the time of the incident, the Mackay Airport was operating as uncontrolled airspace and CTAF(R) procedures applied.

The pilot of VH-UZA reported that, when the landing aircraft, which was known to be VH-EEO from earlier radio transmissions, passed the runway intersecting with runway 32, he taxied onto runway 32 and backtracked to the departure threshold.

On board and other recording media verified that the departing pilot of VH-UZA attempted to confirm the runway was clear. However, the crew of VH-EEO did not receive this communication, despite their having had radio contact earlier.

The lack of any discernible fault in either aircraft's radios suggested either an intermittent fault, which could not be replicated during the investigation or some operational factor.

There were a number of opportunities for the departing pilot to have confirmed that his aircraft radio was operating correctly, and to have verified the actual position of the backtracking aircraft. Had the departing pilot availed himself of those opportunities, he would have been afforded an increased level of assurance that the runway was clear. Confirmation that runway 32 was clear prior to commencing the departure was attempted, but not obtained, by the departing pilot. ■

REPCON briefs

Australia's voluntary confidential aviation reporting scheme

REPCON is established under the Air Navigation (Confidential Reporting) Regulations 2007 and allows any person who has an aviation safety concern to report it to the ATSB confidentially. Unless permission is provided by the person, personal information will not be disclosed. Only de-identified information will be used for safety action. To avoid doubt, the following matters are not reportable safety concerns and are not guaranteed confidentiality:

(a) matters showing a serious and imminent threat to a person's health or life;

(b) acts of unlawful interference with an aircraft;

(c) industrial relations matters;

(d) conduct that may constitute a serious crime.

Note 1: REPCON is not an alternative to complying with reporting obligations under the Transport Safety Investigation Regulations 2003 (see www.atsb.gov.au).

Note 2: Submission of a report known by the reporter to be false or misleading is an offence under section 137.1 of the *Criminal Code Act 1995*.

If you wish to obtain advice or further information, please call REPCON on 1800 020 505.

Non standard radio calls

R200900004

Report narrative:

The reporter expressed safety concerns that air transport aircraft operating outside the hours of operation of the air traffic control tower at a regional aerodrome often make non standard radio calls on the Common Traffic Advisory Frequency (CTAF), resulting in congestion and compromising safety.

REPCON comment:

REPCON supplied CASA with the de-identified report and CASA provided the following response:

There is no regulatory prohibition against 'non standard' radio calls provided the requirements of regulation 166A of the Civil Aviation Regulations 1988 are met, and as long as the use of such non-standard calls is not inconsistent with any applicable directions that may have been given under the regulations. In no case, of course, would the use of 'non standard' radio calls be permitted in such circumstances as to create an unacceptable risk to air safety.

In this instance, the reporter has not supplied any details about the nature of the 'non standard' radio calls with which he or she is concerned, or the frequency with which this is said actually to have occurred (other than to suggest that it occurs 'often'). In the event, CASA is not in a position to respond to the reporter's specific concerns.

In the interests of safety, however, CASA intends to advise air transport operators using this port of the need to ensure their crew use correct CTAF radio procedures and phraseology.

Low flying at a GAAP aerodrome

R200900013

Report narrative:

The reporter expressed safety concerns that at a GAAP aerodrome some aircraft were conducting circuit operations at low level outside tower hours and not in accordance with the published procedures. Some of these circuits were conducted in marginal weather conditions.

REPCON comment:

REPCON supplied CASA with the de-identified report and CASA provided the following response:

There is not sufficient detail to allow CASA to investigate this specific claim. However, effective from 21 July 2009, CASA has issued legal directions to pilots and Airservices Australia in relation to General Aviation Aerodrome Procedures (GAAP) used at Archerfield, Bankstown, Camden, Jandakot, Moorabbin and Parafield aerodromes. The revised procedures are, amongst other things, the result of numerous surveillance activities undertaken by CASA over the last year. The procedures are consistent with the findings of a series of reports including the recent GAAP Utility Review (Ambidji Review) and the findings and recommendations of ATSB Investigations into mid-air collisions.

The changes which came into effect on 21 July 2009 include:

- the provision (within nine months) of aerodrome Air Traffic Services daily for the hours of daylight without any reduction in the service currently provided during the hours of darkness;
- a reduction to six of the number of aeroplanes allowed in the circuit for one runway control by one air traffic controller. If two runways and two controllers are available then the total number of aeroplanes in the circuit is limited to 12. An additional departure may be permitted at the discretion of the controller after due consideration of all relevant safety factors; and
- Air Traffic Control clearance required for all aircraft entering, crossing, or taxiing along any runway.

The Director of Aviation Safety has also announced that all GAAP aerodromes will be required to move towards Class D air traffic control by 21 April 2010, better harmonising arrangements in Australia with the current International Civil Aviation Organisation airspace classification system. This will mean that GAAP aerodromes will have daylight air traffic services provided from the Tower.

CASA also recently commenced enhanced surveillance at [aerodrome name] aerodrome, and will be implementing technology to better capture the movement statistics during the periods when air traffic services from the tower are not provided (Monday - Friday).

Safety management system

R200800016

Report narrative:

The reporter expressed safety concerns that the operator, although having a Safety Management System, were only paying it 'lip service' and were developing a culture of pushing on no matter what to get to the required destination.

REPCON comment:

REPCON supplied the operator with the de-identified report and the operator provided the following comments:

> We have discussed the report within the organisation and were concerned at receiving such a letter given the lengths they as an organisation have gone to develop a safer work place.
>
> We have taken this report seriously. Based on the content of the letter and the reference to "developing a culture of pushing on no matter what" we must assume that the basis for the comment is due to weather considerations.
>
> We however are not in agreement with the content of the report and certainly not with regard to the comment pertaining to "lip Service" when referring to our Safety Management System.
>
> We further assure you that our pilots consider constantly the Safety Management System and its content.
>
> There are numerous examples of planned flights that we have both postponed and indeed cancelled due to conditions we render undesirable. We do not operate based on commercial pressures.
>
> We have developed a hierarchy of aircraft to be used in certain conditions and with regard a particular contract we perform a set of criteria by which we measure whether or not the flight should occur at all. We have elected not to fly on many occasions. These flights are simply not postponed but cancelled so we do not have the opportunity of flying them again. We get remunerated when we-fly, not when we cancel so if we were a company that considered the commercial ramifications first and practiced pushing on no matter what we would not be cancelling such flights.
>
> We welcome the opportunity to discuss this matter with our CASA delegate.
>
> We will also ensure that this REPCON is made known to all our operational staff if for no other reason than to demonstrate to them that others are watching.

REPCON supplied CASA with the de-identified report and a version of the operator's response. CASA advised that it has reviewed the REPCON report and conducted targeted operational surveillance on the operator. CASA is satisfied with the operator's response to the Report.

Operators service difficulty report system

R200900038

Report narrative:

The reporter expressed safety concerns that one of the operator's aircraft flew for approximately 6 weeks with some of the aircraft's engine mounts incorrectly installed. The mounts were reported to have been installed at another maintenance facility. The reporter also expressed concerns that a Licensed Aircraft Maintenance Engineer had submitted an internal form to report to the operator that a serious defect had been found and that it was required to be reported to CASA via the CASA Service Difficulty Report system. The reporter believes that this report was not then submitted to CASA via their Service Difficulty Report system as the operator assessed the defect as not to meet the Service Difficulty Report requirements.

REPCON comment:

REPCON supplied the operator with the de-identified report. The operator advised that they had received a similar report through their internal reporting system. In accordance with published procedures the information contained in the report was reviewed. The review determined that the nature of the occurrence was such that no Service Difficulty Report was warranted as airworthiness was not affected.

They also advised that a further evaluation has taken place as a consequence of the submitted REPCON and this evaluation confirmed the appropriateness of the original decision.

REPCON supplied CASA with the de-identified report and a version of the operator's response. CASA advised that they have reviewed the issues raised in the REPCON and liaised with the operator. CASA provided the following comments:

> The maintenance was carried out by an organisation highly experienced on this aircraft type appropriately approved to do so by CASA (and many other National Airworthiness Authorities).
>
> At a subsequent maintenance visit it was reported by the operator's engineers that the mount bolts on a couple of engines were installed with only one flat washer fitted. This in fact is not a defect as the Aircraft Maintenance Manual and the operator procedures allow for the fitment with only one flat washer. It was thought to be the 'normal' operator's practice to fit two washers. No Service Difficulty Report to CASA was required for this matter.
>
> At the same visit, it was reported that on one of the engines, 3 mount bolts had the countersunk washers fitted incorrectly, ie upside down. This was considered a maintenance error and was investigated by the maintenance organisation and the operator. The bolts were removed and examined for damage by the operator, with no significant findings or indications that would suggest any reduced tensile strength. The bolts were replaced as an extra precaution.
>
> A review was conducted by the maintenance organisation for this maintenance error and it was not conclusive as to how the error occurred. The maintenance organisation sent a reminder to all engineers about the event. The errors were reported at the time of discovery by the operator to the CASA office oversighting the operator.

REPCON reports received	
Total 2007	117
Total 2008	121
First Quarter 2009	41
Second Quarter 2009	28
July/August 2009	16
What happens to my report?	
For Your Information issued	
Total 2007	58
Total 2008	99
First Quarter 2009	42
Second Quarter 2009	20
July/August 2009	23
Alert Bulletins issued	
Total 2007	1
Total 2008	12
First Quarter 2009	0
Second Quarter 2009	0
July/August 2009	0
Who is reporting to REPCON?#	
Aircraft maintenance personnel	27%
Air Traffic controller	4%
Cabin crew	3%
Facilities maintenance personnel /ground crew	0%
Flight crew	34%
Passengers	7%
Others*	25%

\# 29 Jan 2007 to 31August 2009

* examples include residents, property owners, general public

How can I report to REPCON?

On line: ATSB website at <www.atsb.gov.au>
Telephone: 1800 020 505
by email: repcon@atsb.gov.au
by facsimile: 02 6274 6461
by mail: Freepost 600,
PO Box 600, Civic Square ACT 2608